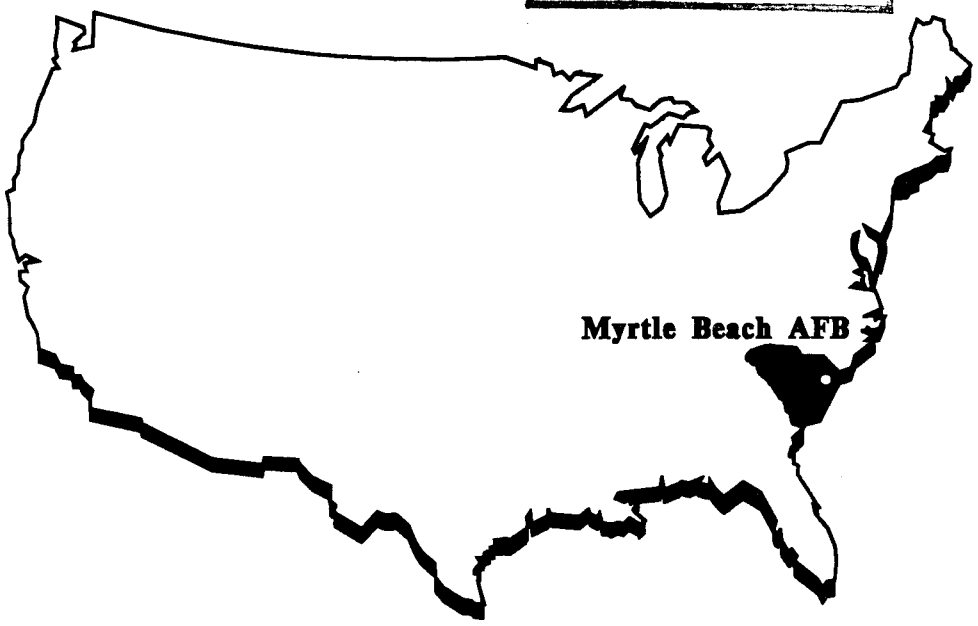
FINAL
ENVIRONMENTAL IMPACT STATEMENT
FEBRUARY 1993

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DISPOSAL AND REUSE OF MYRTLE BEACH AIR FORCE BASE SOUTH CAROLINA

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Pursuant to the Defense Base Closure and Realignment Act of 1990, Myrtle Beach AFB closed in March 1993. This EIS was prepared in accordance with the National Environmental Policy Act to analyze the potential environmental consequences of the disposal of the base. Although disposal will create few direct impacts, reuse by others will create indirect impacts. The EIS analyzes the effects a range of reasonable foreseeable alternative reuses may have on the local community; including land use and aesthetics, transportation, utilities, hazardous materials/wastes, geology and soils, water resources, air quality, noise, biological resources, and cultural resources.

Preservation covenants within the disposal document could eliminate or reduce any negative environmental effects to a non-adverse level. Because the Air Force is disposing of the property, some of the mitigation measures are beyond Air Force control. Remediation of Installation Restoration Program sites will continue to be the responsibility of the Air Force.

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COVER SHEET

FINAL ENVIRONMENTAL IMPACT STATEMENT
DISPOSAL AND REUSE OF MYRTLE BEACH AIR FORCE BASE, SOUTH CAROLINA

a. Lead Agency: U.S. Air Force

b. Cooperating Agency: Federal Aviation Administration

c. Proposed Action: Disposal and Reuse of Myrtle Beach Air Force Base (AFB), Horry County, South Carolina

d. Inquiries on this document should be directed to: Lt. Col. Gary Baumgartel, Chief of Environmental Planning Division, AFCEE/ESE, 8106 Chennault Road, Brooks Air Force Base, Texas, 78235-5318, (210) 536-3869.

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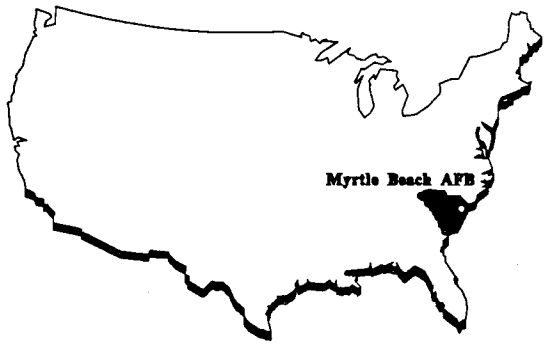
f. Abstract: Pursuant to the Defense Base Closure and Realignment Act of 1990 (Public Law 101-510, Title XXIX), Myrtle Beach AFB will close in March 1993. This Environmental Impact Statement (EIS) has been prepared in accordance with the National Environmental Policy Act to analyze the potential environmental consequences of the disposal of the base. Although disposal will have few, if any, direct effects, future use by others will create indirect effects. This document, therefore, includes analyses of the potential environmental impacts that a range of reasonably foreseeable alternative reuses may have on the local community, including land use and aesthetics, transportation, utilities, hazardous materials/wastes, geology and soils, water resources, air quality, noise, biological resources, and cultural resources.

Potential environmental impacts of disposal and reasonably foreseeable reuses are: increased traffic, utilities demand, hazardous waste generation, noise levels, and emissions of air pollutants over closure baseline conditions. Redevelopment could result in zoning and land use conflicts, and could require rezoning of property. Soil erosion could occur, and would require preventive measures. Construction for redevelopment could impact wetlands. If avoidance of impacts is not possible, mitigation in the form of replacement, restoration, or enhancement is possible. Historical and archaeological resources could be disturbed by conveyance of the property to a non-federal entity as well as by ground disturbance. Preservation covenants within disposal documents could eliminate or reduce these effects to a non-adverse level. Because the Air Force is disposing of the property, some of the mitigation measures are beyond the control of the Air Force. Remediation of Installation Restoration Program sites is and will continue to be the responsibility of the Air Force.

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SUMMARY

SUMMARY

PURPOSE AND NEED

Myrtle Beach Air Force Base (AFB), South Carolina, was one of the bases recommended by the 1991 Defense Base Closure and Realignment Commission for closure. The Commission's recommendations were accepted by the President and submitted to Congress on July 12, 1991. As Congress did not disapprove the recommendations in the time given under the Defense Base Closure and Realignment Act (DBCRA) of 1990 (Public Law 101-510, Title XXIX), the recommendations have become law. Myrtle Beach AFB is scheduled to be closed in March 1993.

The Air Force is required to comply with the National Environmental Policy Act (NEPA) in the implementation of the base disposal and reuse. The Air Force must now make a series of interrelated decisions concerning the disposition of base property. This environmental impact statement (EIS) has been prepared to provide information on the potential impacts resulting from disposal and proposed reuse of the base property. The Federal Aviation Administration (FAA) is a cooperating agency in the preparation of the EIS. The FAA will make decisions of its own based on this EIS and will assist the Air Force in making related decisions concerning Myrtle Beach AFB property. Several alternative reuse concepts are studied to identify the range of potential direct and indirect environmental consequences of disposal and reuse.

After completion and consideration of this EIS, the Air Force will prepare decision documents stating what property is excess and surplus, and the terms and conditions under which the dispositions will be made. These disposal decisions may affect the environment by influencing the nature of the future use of the property.

ALTERNATIVES INCLUDING THE PROPOSED ACTION

The land to be disposed of by the Air Force comprises approximately 3,744 acres, including the airfield, aviation support, industrial, commercial, educational, medical, residential, and public facilities and recreation areas, as well as vacant land throughout the base. The Myrtle Beach Jetport, a civil aviation facility, also is located on the base and uses the airfield.

For the purpose of evaluating potential environmental impacts resulting from the incident reuse of this land, the Air Force has based its Proposed Action on the community's reuse plan.

The Myrtle Beach AFB Redevelopment Task Force proposal was developed in response to the forecast need for expanded aviation operations and the desire to increase tourism. Aviation-related uses include expansion of the current commercial aviation operation, and the eventual construction of a second runway for general and corporate aviation use. The second runway is anticipated to become operational after the year 2010. Aviation-related industrial development is anticipated near the airfield, resulting from stimuli provided by expanded airport operations and accessibility to corporate aircraft.

Existing industry near the base would expand to use base property, and a research and development center is proposed. A destination resort would occupy approximately 800 acres and would include a theme park, convention center, hotel, commercial enterprise, and recreational facilities. An educational complex would incorporate two- and four-year undergraduate curricula, research and public service programs, graduate programs, and a "magnet" high school for gifted and talented students. Residential and additional recreation facilities also would be part of the reuse.

The following reasonable alternatives, in addition to the above Proposed Action, are being considered in this EIS.

The Expanded Airfield/Resort-Recreation Alternative includes expanded jetport operations with a destination resort. Commercial aviation operations at the jetport would expand, and a second runway for general aviation and corporate aviation operations is proposed to be added late in the 20-year timeframe. Existing industrial land uses would expand, and new aviation-related industry would occur in support of jetport operations. Additional uses would include a golf course, air museum, medical and recreational facilities, and affordable housing with possible provision for homeless housing.

The Expanded Airfield/Resort-Commercial-Industrial Alternative is predicated upon a combination of industrial and commercial land uses in support of expanded aviation opportunities along with a destination resort, as described for the Expanded Airfield/Resort-Recreation Alternative. Increased aviation activity would stimulate aviation-related industrial development near the airfield. Existing industry is anticipated to expand, and a research and development center is envisioned. Additional commercial development in support of new industry and the resort is anticipated. Reuse of existing medical facilities, the golf course, and the campground is proposed, along with development of an air museum, and affordable housing with possible provision for homeless housing.

The Existing Airfield/Mixed Use Alternative differs from the previous alternatives in that expansion of the jetport is limited to the runway. Proposed land uses incorporate a broad mix of activities including residential, educational, commercial, industrial, and public facilities and recreation. A low- to medium-security correctional facility is proposed that would incorporate a law enforcement training center. Other anticipated development would include a veterans' cemetery, the existing golf course, an air museum, a campground, and a PGA golf complex. An option to this alternative would place a second, restricted-use runway 700 feet west of the existing runway. The second runway would handle only general aviation operations.

The No-Action Alternative would leave the base in caretaker status under federal control, with continued operation of the Myrtle Beach Jetport.

Other land use concepts have been identified for discrete facilities or areas of the base. These include proposals that typically involve only a portion of the property available for disposal and, therefore, could be implemented in conjunction with one another or with the Proposed Action or any of the alternatives under consideration.

SCOPE OF STUDY

The Notice of Intent to prepare an EIS for the disposal and reuse of Myrtle Beach AFB was published in the *Federal Register* on October 9, 1991. Issues related to the disposal and reuse of Myrtle Beach AFB were identified during an ensuing scoping period. A public scoping meeting was held on November 14, 1991 in the Myrtle Beach High School auditorium, Myrtle Beach, South Carolina. The comments and concerns expressed at this meeting and in written correspondence received by the Air Force, as well as information from other sources, were used to determine the scope and direction of studies and analyses required to accomplish this EIS.

This EIS discusses the potential environmental impacts associated with the Proposed Action and reasonable alternatives. In order to establish the context in which these environmental impacts may occur, potential changes in population and employment, land use and aesthetics, transportation, and community and public utility services are discussed as reuse-related influencing factors. Issues related to current and future management of hazardous materials and wastes also are discussed. Potential impacts to the physical and natural environment are evaluated for soils and geology, water resources, air quality, noise, biological resources, and cultural resources. These impacts may occur as a direct result of disposal and reuse actions or an indirect result of changes to the local communities.

The baseline against which the Proposed Action and alternatives are analyzed consists of the conditions projected at base closure in 1993. Although the baseline assumes a closed base with continuing presence of the jetport, a reference to preclosure conditions is provided in several sections (e.g., air quality and noise) to allow a comparative analysis over time. This will assist the Air Force decision maker and other agencies that may be making decisions relating to disposal and reuse of Myrtle Beach AFB in understanding potential long-term trends in comparison to historic conditions when the installation was active.

Although the socioeconomic impacts that affect the biophysical environment are examined in the EIS, the Air Force also is preparing a separate Socioeconomic Impact Analysis Study on the economic impacts expected in the region as a result of the closure, disposal, and reuse of Myrtle Beach AFB. That document, although not required by NEPA, will assist the local community in planning for the transition of the base from military to civilian use.

SUMMARY OF ENVIRONMENTAL IMPACTS

This EIS considers environmental impacts of the Air Force's disposal of the installation and portrays a variety of potential land uses to cover reasonable future uses of the property and facilities by others. Several alternative scenarios, including the community's proposed plan, were used to group reasonable land uses and to examine the environmental effects of likely reuses of Myrtle Beach AFB.

Environmental impacts of the Proposed Action and reasonable alternatives are described briefly below. Influencing factors are projections of the reuse activities that would likely influence the biophysical environment, including

ground disturbance, socioeconomic factors, and infrastructure demands. Reuse-related influencing factors are summarized in Table S-1. Impacts of the Proposed Action and alternatives over the 20-year study period are summarized in Table S-2.

Mitigations and Pollution Prevention. Options of mitigating potential environmental impacts that might result from the Air Force disposing of property or from the implementation of the Proposed Action or alternatives by property recipients are presented and discussed. Since most potential environmental impacts would result directly from reuse by others, the Air Force would not typically be responsible for implementing such mitigations. Full responsibility of these suggested mitigations, therefore, would be borne primarily by future property recipients or local governmental agencies. Mitigation suggestions, where appropriate, are listed in terms of their potential effectiveness if implemented for affected resource areas and are summarized along with the environmental impacts of the Proposed Action and alternatives in Table S-2.

Likewise, pollution prevention would be directly related to reuse of the property, not disposal, and would be the responsibility of future owners, recipients, or local governmental agencies.

Table S-1. Summary of Reuse-Related Influencing Factors

Factor	Proposed Action (Expanded Airfield Resort-Education)			Expanded Airfield/Resort-Recreation			Expanded Airfield/Resort-Commercial-Industrial			Existing Airfield/Mixed Use			No-Action Alternative*		
	1998	2003	2013	1998	2003	2013	1998	2003	2013	1998	2003	2013	1998	2003	2013
Ground Disturbance (acres by phase)	1,450	0	509	1,216	0	498	1,393	0	602	1,443	0	0 (13)**	0	0	0
Aircraft Operations (annual)	99,940	119,380	150,950	99,860	119,440	151,010	97,790	117,020	147,970	98,230	117,260	126,500 (148,300)**	25,110	31,640	33,580
Direct Employment	3,791	6,612	9,643	3,951	5,686	8,281	4,842	7,641	10,159	3,048	6,090	9,889	375	460	530
Secondary Employment	2,430	4,238	6,181	2,533	3,645	5,308	3,104	4,898	6,512	1,954	3,904	6,339	240	295	340
Construction-Related Employment	2,981	1,084	1,030	3,033	901	1,194	3,099	1,276	1,201	904	298	277	37	45	52
Resident Population Increase	6,107	7,973	11,257	6,316	6,840	9,872	7,334	9,223	11,932	3,954	6,894	11,041	79	153	213
Peak Visitor Population Increase	19,755	26,207	29,118	19,755	26,207	29,118	18,155	24,607	27,518	1,851	1,925	2,001	0	0	0
Traffic (average daily trips)	67,000	99,000	116,000	67,000	92,000	100,000	77,000	106,000	114,000	38,000	61,000	83,000 (83,000)**	6,000	8,000	10,000
Increase in Water Demand (MGD)	2.0	2.7	3.4	2.0	2.5	3.2	2.1	2.8	3.5	0.8	1.4	2.2	0.05	0.06	0.06
Increase in Wastewater Production (MGD)	1.7	2.3	2.9	1.7	2.1	2.7	1.8	2.4	2.9	0.7	1.2	1.9	0.04	0.05	0.05
Increase in Solid Waste (tons/day)	21.8	28.5	40.2	22.5	24.4	35.2	26.2	32.9	42.6	14.1	24.6	39.4	0.59	0.73	0.84
Increase in Electricity Demand (MWH/day)	128.9	168.2	237.5	133.3	144.3	208.3	154.7	194.6	251.8	83.4	145.5	233.0	3.51	4.30	4.96
Increase in Natural Gas Demand (therms/day)	7,000	8,100	12,800	7,200	7,800	11,200	8,300	10,500	13,600	4,500	7,900	12,600	200	230	270

*The No-Action Alternative summarizes influencing factors relative to the closure baseline conditions.
**Projected for Existing Airfield/Mixed Use Alternative, Restricted Second Runway Option. Projections for other factors remain the same as the alternative without the option.
MGD: Million gallons/day; MWH: Megawatt hours.

Table S-2. Summary of Environmental Impacts and Mitigation from the Proposed Action and Reuse Alternatives
Page 1 of 7

Resource Category	Proposed Action (Expanded Airfield/Resort-Education)	Expanded Airfield/ Resort - Recreation	Expanded Airfield/Resort Commercial - Industrial	Existing Airfield/ Mixed Use	No-Action Alternative (Existing Airfield/Caretaker)
LOCAL COMMUNITY					
■ Land Use and Aesthetics	IMPACTS: Expansion of airfield to include construction of second runway. New transportation corridors through base. Change in general appearance of the base. Potential impacts could result in 4 existing land use, 8 zoning, 4 general plan, and 2 aesthetic conflicts. MITIGATION: Reuse Proponent/Agencies: The above conflicts could be mitigated through design standards and site plan review.	Same as Proposed Action Potential impacts could result in 4 existing land use, 8 zoning, 4 general plan, and 2 aesthetic conflicts. Reuse Proponent/Agencies: The above conflicts could be mitigated through design standards and site plan review.	Same as Proposed Action Potential impacts could result in 4 existing land use, 8 zoning, 4 general plan, and 2 aesthetic conflicts. Reuse Proponent/Agencies: The above conflicts could be mitigated through design standards and site plan review.	Retention of existing airfield. New transportation corridors through base. Change in general appearance of the base. Potential impacts could result in 4 existing land use, 7 zoning, and 5 general plan conflicts. Reuse Proponent/Agencies: The above conflicts could be mitigated through design standards and site plan review.	Retention of existing airfield, aviation support, and public jetport. The remainder is under caretaker status. No change in general appearance of the base. Potential impacts could result in 2 existing land use, 7 zoning, and 1 general plan conflicts. Reuse Proponent/Agencies: The above conflicts could be mitigated through design standards and site plan review.
■ Transportation	IMPACTS: Access to land uses provided by two new on-site roadways. 116,000 daily vehicle trips generated. No airspace issues. MITIGATION: Reuse Proponent/Agencies: Extensive transit improvements could mitigate some U.S. 17 Business improvements. Transit reduces development input to 107,000 daily vehicle trips. Overall traffic volumes require U.S. 17 Business, U.S. 17 Bypass, and U.S. 501 to be modified with extensive capacity improvements.	Access to land uses provided by two new on-site roadways. 100,000 daily vehicle trips generated. No airspace issues. Reuse Proponent/Agencies: Extensive transit improvements could mitigate some U.S. 17 Business improvements. Transit reduces development input to 92,000 daily vehicle trips. Overall traffic volumes require U.S. 17 Business, U.S. 17 Bypass, and U.S. 501 to be modified with extensive capacity improvements.	Access to land use provided by two new on-site roadways. 114,000 daily vehicle trips generated. No airspace issues. Reuse Proponent/Agencies: Extensive transit improvements could mitigate some U.S. 17 Business improvements. Transit reduces development input to 105,000 daily vehicle trips. Overall traffic volumes require U.S. 17 Business, U.S. 17 Bypass, and U.S. 501 to be modified with extensive capacity improvements.	Access to land uses provided by two new on-site roadways. 83,000 daily vehicle trips generated. No airspace issues. Reuse Proponent/Agencies: Extensive transit improvements could mitigate some U.S. 17 Business improvements. Transit reduces development input to 76,000 daily vehicle trips. Overall traffic volumes require U.S. 17 Business, U.S. 17 Bypass, and U.S. 501 to be modified with extensive capacity improvements.	No added roadways required. 10,000 daily vehicle trips generated. No airspace issues. Reuse Proponent/Agencies: Extensive transit improvements could mitigate some U.S. 17 Business improvements. Transit reduces development input to 89,000 daily vehicle trips. Overall traffic volumes require U.S. 17 Business and U.S. 501 to be modified with extensive capacity improvements.

Table S-2. Summary of Environmental Impacts and Mitigation from the Proposed Action and Reuse Alternatives
Page 2 of 7

Resource Category	Proposed Action (Expanded Airfield/Resort-Education)	Expanded Airfield/ Resort - Recreation	Expanded Airfield/Resort Commercial - Industrial	Existing Airfield/ Mixed Use	No-Action Alternative (Existing Airfield/Caretaker)
■ Utilities					
Water	3.4 MGD, 6.6% increase in ROI.	3.2 MGD, 6.2% increase in ROI.	3.6 MGD, 6.7% increase in ROI.	2.2 MGD, 4.2% increase in ROI.	Minimal demand. No impact on local suppliers.
Wastewater	2.9 MGD, 6.6% increase in ROI.	2.7 MGD, 6.1% increase in ROI.	2.9 MGD, 6.6% increase in ROI.	1.9 MGD, 4.3% increase in ROI.	Minimal demand. No impact on local suppliers.
Solid Waste	40.2 tons/day, 4.0% increase in ROI.	36.2 tons/day, 3.6% increase in ROI.	42.6 tons/day, 4.3% increase in ROI.	39.4 tons/day, 3.9% increase in ROI.	Minimal demand. No impact on local suppliers.
Electricity	237.6 MWH/day, 3.9% increase in ROI.	208.3 MWH/day, 3.6% increase in ROI.	251.8 MWH/day, 4.2% increase in ROI.	233.0 MWH/day, 3.9% increase in ROI.	Minimal demand. No impact on local suppliers.
Natural Gas	12,800 therms/day, 3.9% increase in ROI.	11,200 therms/day, 3.4% increase in ROI.	13,600 therms/day, 4.2% increase in ROI.	12,600 therms/day, 3.9% increase in ROI.	Minimal demand. No impact on local suppliers.
	MITIGATION: Reuse Proponent/Agencies: Measures may be required for wastewater treatment. Required actions dependent on type and quantity of discharge per land use activity. Specific mitigation requirements stated by GSWSA in advance of receipt of discharge permit.	Reuse Proponent/Agencies: Measures may be required for wastewater treatment. Required actions dependent on type and quantity of discharge per land use activity. Specific mitigation requirements stated by GSWSA in advance of receipt of discharge permit.	Reuse Proponent/Agencies: Measures may be required for wastewater treatment. Required actions dependent on type and quantity of discharge per land use activity. Specific mitigation requirements stated by GSWSA in advance of receipt of discharge permit.	Reuse Proponent/Agencies: Measures may be required for wastewater treatment. Required actions dependent on type and quantity of discharge per land use activity. Specific mitigation requirements stated by GSWSA in advance of receipt of discharge permit.	No mitigation required.
HAZARDOUS MATERIALS AND HAZARDOUS WASTE MANAGEMENT					
■ Hazardous Materials Mgt.	IMPACTS: Increase in types and quantities of materials. Need for emergency response capability.	Increase in types and quantities of materials. Need for emergency response capability.	Increase in types and quantities of materials. Need for emergency response capability.	Increase in types and quantities of materials. Need for emergency response capability.	Small quantities of materials used by OL for maintenance functions.
	MITIGATION: Reuse Proponent/Agencies: Conform to environmental standards.	Reuse Proponent/Agencies: Conform to environmental standards.	Reuse Proponent/Agencies: Conform to environmental standards.	Reuse Proponent/Agencies: Conform to environmental standards.	Air Force: Conform to environmental standards.
■ Hazardous Waste Mgt.	IMPACTS: Moderate increase in types and quantities of wastes.	Moderate increase in types and quantities of wastes.	Moderate increase in types and quantities of wastes.	Moderate increase in types and quantities of wastes.	Minimal quantities of waste generated as a result of maintenance activities.
	MITIGATION: Reuse Proponent/Agencies: Employ waste minimization practices.	Reuse Proponent/Agencies: Employ waste minimization practices.	Reuse Proponent/Agencies: Employ waste minimization practices.	Reuse Proponent/Agencies: Employ waste minimization practices.	Air Force: Employ waste minimization practices.

Table S-2. Summary of Environmental Impacts and Mitigation from the Proposed Action and Reuse Alternatives
Page 3 of 7

Resource Category	Proposed Action (Expanded Airfield/Resort-Education)	Expanded Airfield/ Resort - Recreation	Expanded Airfield/Resort Commercial - Industrial	Existing Airfield/ Mixed Use	No-Action Alternative (Existing Airfield/Caretaker)
■ Installation Restoration Program	IMPACTS: Remediation of certain areas may delay the conveyance of some parcels and limit land uses with overlying areas. MITIGATION: Air Force: Address and properly close out. Reuse Proponent/Agencies: Follow recommended land use restrictions.	Remediation of certain areas may delay the conveyance of some parcels and limit land uses with overlying areas. Air Force: Address and properly close out. Reuse Proponent/Agencies: Follow recommended land use restrictions.	Remediation of certain areas may delay the conveyance of some parcels and limit land use with overlying areas. Air Force: Address and properly close out. Reuse Proponent/Agencies: Follow recommended land use restrictions.	Remediation of certain areas may delay the conveyance of some parcels and limit land uses with overlying areas. Air Force: Address and properly close out. Reuse Proponent/Agencies: Follow recommended land use restrictions.	No impacts. No mitigation required.
■ Storage Tanks	IMPACTS: All USTs not meeting standards to be removed. Tanks in compliance maintained in caretaker status or conveyed. MITIGATION: Air Force: Close unused tanks in conformance with appropriate federal, state, and local regulations. Reuse Proponent/Agencies: Acceptable leak detection methods, spill and overfill protection, cathodic protection, secondary containment for the tank systems including the piping, and liability insurance.	All USTs not meeting standards to be removed. Tanks in compliance maintained in caretaker status or conveyed. Air Force: Close unused tanks in conformance with appropriate federal, state, and local regulations. Reuse Proponent/Agencies: Acceptable leak detection methods, spill and overfill protection, cathodic protection, secondary containment for the tank systems including the piping, and liability insurance.	All USTs not meeting standards to be removed. Tanks in compliance maintained in caretaker status or conveyed. Air Force: Close unused tanks in conformance with appropriate federal, state, and local regulations. Reuse Proponent/Agencies: Acceptable leak detection methods, spill and overfill protection, cathodic protection, secondary containment for the tank systems including the piping, and liability insurance.	All USTs not meeting standards to be removed. Tanks in compliance maintained in caretaker status or conveyed. Air Force: Close unused tanks in conformance with appropriate federal, state, and local regulations. Reuse Proponent/Agencies: Acceptable leak detection methods, spill and overfill protection, cathodic protection, secondary containment for the tank systems including the piping, and liability insurance.	All USTs not meeting standards to be removed. Tanks in compliance maintained in caretaker status. Air Force: Close unused tanks in conformance with appropriate federal, state, and local regulations. Acceptable leak detection methods, spill and overfill protection, cathodic protection, secondary containment for the tank systems including the piping, and liability insurance.

Table S-2. Summary of Environmental Impacts and Mitigation from the Proposed Action and Reuse Alternatives
Page 4 of 7

Resource Category	Proposed Action (Expanded Airfield/Resort-Education)	Expanded Airfield/ Resort - Recreation	Expanded Airfield/Resort Commercial - Industrial	Existing Airfield/ Mixed Use	No-Action Alternative (Existing Airfield/Caretaker)
■ Asbestos	IMPACTS: Friable asbestos removed or encapsulated; continued management of non-friable asbestos in place. Buildings containing asbestos can be divided into two categories: those to be demolished, and those to be managed. Demolished: 25 Managed: 36 MITIGATION: Reuse Proponent/Agencies: Compliance with National Emissions Standards for Hazardous Air Pollutants (NESHAP) would mitigate impacts and preclude asbestos hazards.	Friable asbestos removed or encapsulated; continued management of non-friable asbestos in place. Buildings containing asbestos can be divided into two categories: those to be demolished, and those to be managed. Demolished: 25 Managed: 36 Reuse Proponent/Agencies: Compliance with National Emissions Standards for Hazardous Air Pollutants (NESHAP) would mitigate impacts and preclude asbestos hazards.	Friable asbestos removed or encapsulated; continued management of non-friable asbestos in place. Buildings containing asbestos can be divided into two categories: those to be demolished, and those to be managed. Demolished: 26 Managed: 35 Reuse Proponent/Agencies: Compliance with National Emissions Standards for Hazardous Air Pollutants (NESHAP) would mitigate impacts and preclude asbestos hazards.	Friable asbestos removed or encapsulated; continued management of non-friable asbestos in place. Buildings containing asbestos can be divided into two categories: those to be demolished, and those to be managed. Demolished: 3 Managed: 50 Reuse Proponent/Agencies: Compliance with National Emissions Standards for Hazardous Air Pollutants (NESHAP) would mitigate impacts and preclude asbestos hazards.	Continued management of asbestos in place. Buildings containing asbestos can be divided into two categories: those to be demolished, and those to be managed. Demolished: 0 Managed: 61 Air Force: Compliance with National Emissions Standards for Hazardous Air Pollutants (NESHAP) would mitigate impacts and preclude asbestos hazards.
■ Pesticides	IMPACTS: Intensive landscape management, increased usage. MITIGATION: Reuse Proponent/Agencies: Conform to environmental standards.	Intensive landscape management, increased usage. Reuse Proponent/Agencies: Conform to environmental standards.	Intensive landscape management, increased usage. Reuse Proponent/Agencies: Conform to environmental standards.	Intensive landscape management, increased usage. Reuse Proponent/Agencies: Conform to environmental standards.	Minimal maintenance level usage. Air Force: Conform to environmental standards.
■ Polychlorinated Biphenyls (PCBs)	IMPACTS: No Air Force owned PCB or PCB-contaminated equipment exists on base.	No Air Force owned PCB or PCB-contaminated equipment exists on base.	No Air Force owned PCB or PCB-contaminated equipment exists on base.	No Air Force owned PCB or PCB-contaminated equipment exists on base.	No Air Force owned PCB or PCB-contaminated equipment exists on base.
■ Radon	IMPACTS: Below level of concern, no impact.	Below level of concern, no impact.	Below level of concern, no impact.	Below level of concern, no impact.	Below level of concern, no impact.
■ Medical/Biohazardous Waste	IMPACTS: None generated, no impact. MITIGATION: No mitigation required	New provisions for waste handling required (existing incinerator not reusable). Reuse Proponent/Agencies: Conform to environmental standards.	New provisions for waste handling required (existing incinerator not reusable). Reuse Proponent/Agencies: Conform to environmental standards.	None generated, no impact. No mitigation required	None generated, no impact. No mitigation required.

Table S-2. Summary of Environmental Impacts and Mitigation from the Proposed Action and Reuse Alternatives
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Resource Category	Proposed Action (Expanded Airfield/Resort-Education)	Expanded Airfield/ Resort - Recreation	Expanded Airfield/Resort Commercial - Industrial	Existing Airfield/ Mixed Use	No-Action Alternative (Existing Airfield/Caretaker)
NATURAL ENVIRONMENT					
■ Soils and Geology	IMPACTS: Increase in erosion potential and alteration of natural surface and soil conditions. (1,959 acres of soil disturbed.)	Increase in erosion potential and alteration of natural surface and soil conditions. (1,713 acres of soils disturbed.)	Increase in erosion potential and alteration of natural surface and soil conditions. (1,995 acres of soil disturbed.)	Increase in erosion potential and alteration of natural surface and soil conditions. (1,443 acres of soil disturbed; 1,456 acres with Restricted Second Runway Option).	No impacts.
	MITIGATION: Reuse Proponent/Agencies: Mitigate through use of proper construction mitigation techniques such as protective cover and diversion dikes.	Reuse Proponent/Agencies: Mitigate through use of proper construction mitigation techniques such as protective cover and diversion dikes.	Reuse Proponent/Agencies: Mitigate through use of proper construction mitigation techniques such as protective cover and diversion dikes.	Reuse Proponent/Agencies: Mitigate through use of proper construction mitigation techniques such as protective cover and diversion dikes.	No mitigation required
■ Water Resources Groundwater	IMPACTS: 153% net increase to existing groundwater overdraft of (non-potable use only).	142% net increase to existing groundwater overdraft of (non-potable use only).	122% net increase to existing groundwater overdraft of (non-potable use only).	171% net increase to existing groundwater overdraft of (non-potable use only).	No impacts.
	MITIGATION: Reuse Proponent/Agencies: Mitigate through use of proper construction mitigation techniques such as protective cover and diversion dikes.	Reuse Proponent/Agencies: Mitigate through use of proper construction mitigation techniques such as protective cover and diversion dikes.	Reuse Proponent/Agencies: Mitigate through use of proper construction mitigation techniques such as protective cover and diversion dikes.	Reuse Proponent/Agencies: Mitigate through use of proper construction mitigation techniques such as protective cover and diversion dikes.	No mitigation required.
Surface Water	IMPACTS: Total annual runoff increase of 30%. Surface water annual pollutant load increase of 72%.	Total annual runoff increase of 20%. Surface water annual pollutant load increase of 23%.	Total annual runoff increase of 5% percent. Surface water annual pollutant load increase of 33%.	Total annual runoff increase of 60%. surface water annual pollutant load increase of 91%.	No variations in total runoff. Reductions of 90 percent in surface water pollutant load.
	MITIGATION: Mitigation cannot be specified at this time. It should be consistent with local, state, and federal regulations. Potable water supply is adequate for foreseeable demand.	Mitigation cannot be specified at this time. It should be consistent with local, state, and federal regulations. Potable water supply is adequate for foreseeable demand.	Mitigation cannot be specified at this time. It should be consistent with local, state, and federal regulations. Potable water supply is adequate for foreseeable demand.	Mitigation cannot be specified at this time. It should be consistent with local, state, and federal regulations. Potable water supply is adequate for foreseeable demand.	No mitigation required.

Table S-2. Summary of Environmental Impacts and Mitigation from the Proposed Action and Reuse Alternatives
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Resource Category	Proposed Action (Expanded Airfield/Resort-Education)	Expanded Airfield/ Resort - Recreation	Expanded Airfield/Resort Commercial - Industrial	Existing Airfield/ Mixed Use	No-Action Alternative (Existing Airfield/Caretaker)
■ Air Quality	IMPACTS: Increase in air pollution emissions. No interference with maintaining attainment status of federal and state ambient air quality standards. MITIGATION: Reuse Proponent/Agencies: Possible mitigation of fugitive dust emissions from construction activities. Mitigate through watering, clear areas on a selective basis, treat disturbed areas as soon as possible, reduce vehicle traffic and speed.	Same as Proposed Action. Reuse Proponent/Agencies: Possible mitigation of fugitive dust emissions from construction activities. Mitigate through watering, clear areas on a selective basis, treat disturbed areas as soon as possible, reduce vehicle traffic and speed.	Same as Proposed Action. Reuse Proponent/Agencies: Possible mitigation of fugitive dust emissions from construction activities. Mitigate through watering, clear areas on a selective basis, treat disturbed areas as soon as possible, reduce vehicle traffic and speed.	Same as Proposed Action. Reuse Proponent/Agencies: Possible mitigation of fugitive dust emissions from construction activities. Mitigate through watering, clear areas on a selective basis, treat disturbed areas as soon as possible, reduce vehicle traffic and speed.	Decrease in air pollution emissions. No mitigation required.
■ Noise	IMPACTS: No residential areas would be exposed to DNL of 65 dBA or higher from aircraft noise. During 1998, parts of the Springmaid Beach resort areas would be within the DNL of 65 dBA. After year 2000 when Stage 2 aircraft are replaced by Stage 3 aircraft, this resort would not be impacted. During 2013 the area within DNL of 65 dBA would be 618 acres, which is 3,882 acres less than preclosure conditions. During 2013, there would be approximately 146 residential structures and 4 churches within DNL of 65 dBA generated by vehicular traffic.	Same as Proposed Action, but during 2013 the area within DNL of 65 dBA would be 512 acres, which is 3,888 acres less than preclosure conditions.	Same as Proposed Action, but during 2013 the area within DNL of 65 dBA would be 499 acres, which is 3,901 acres less than preclosure conditions.	Same as Proposed Action, but during 2013 the area within DNL of 65 dBA would be 442 acres, which is 3,958 acres less than preclosure conditions. For the Restricted Second Runway Option, it would be 506 acres, which is 3,894 acres less than preclosure.	No residential area would be exposed to DNL of 65 dBA or higher from aircraft noise. During 1998, parts of the Springmaid Beach resort trailer park would be within the DNL of 65 dBA. After year 2000 when Stage 2 aircraft are replaced by Stage 3 aircraft, this resort would not be impacted. During 2013 the area within DNL of 65 dBA would be 243 acres, which is 4,157 acres less than preclosure conditions. Approximately 146 residential structures and 4 churches would be within DNL of 65 dBA generated by vehicular traffic.

Table S-2. Summary of Environmental Impacts and Mitigation from the Proposed Action and Reuse Alternatives

Resource Category	Proposed Action (Expanded Airfield/Resort-Education)	Expanded Airfield/ Resort - Recreation	Expanded Airfield/Resort Commercial - Industrial	Existing Airfield/ Mixed Use	No-Action Alternative (Existing Airfield/Caretaker)
■ Biological Resources	IMPACTS: Potential loss or alteration of approximately 1,298 acres of native, commercial forest lands, including approximately 167 acres of forested wetlands. Loss of associated wildlife habitat for native species. MITIGATION: Reuse Proponent/Agencies: Mitigation of wildlife habitat and wetland acreage lost or disturbed is determined through coordination and permitting actions with affected agencies.	Same as Proposed Action Reuse Proponent/Agencies: Mitigation of wildlife habitat and wetland acreage lost or disturbed is determined through coordination and permitting actions with affected agencies.	Same as Proposed Action Reuse Proponent/Agencies: Mitigation of wildlife habitat and wetland acreage lost or disturbed is determined through coordination and permitting actions with affected agencies.	Same as Proposed Action Reuse Proponent/Agencies: Mitigation of wildlife habitat and wetland acreage lost or disturbed is determined through coordination and permitting actions with affected agencies.	No impact. No mitigation required.
■ Cultural Resources	IMPACTS: Potential impact to 12 historic properties on base due to loss of federal protection. Potential ground disturbance could adversely affect 2 archaeological sites. MITIGATION: Reuse Proponent/Agencies: Conduct mitigation in accordance with preservation covenants. Other Mitigation Measures: Reduce impacts to no adverse effect through MOA terms to be signed with SHPO and Advisory Council.	Potential impact to 12 historic properties on base due to loss of federal protection. Potential ground disturbance could adversely affect 2 archaeological sites. Reuse Proponent/Agencies: Conduct mitigation in accordance with preservation covenants. Other Mitigation Measures: Reduce impacts to no adverse effect through MOA terms to be signed with SHPO and Advisory Council.	Potential impact to 12 historic properties on base due to loss of federal protection. Potential ground disturbance could adversely affect 2 archaeological sites. Reuse Proponent/Agencies: Conduct mitigation in accordance with preservation covenants. Other Mitigation Measures: Reduce impacts to no adverse effect through MOA terms to be signed with SHPO and Advisory Council.	Potential impact to 12 historic properties on base due to loss of federal protection. Potential ground disturbance could adversely affect 2 archaeological sites. Reuse Proponent/Agencies: Conduct mitigation in accordance with preservation covenants. Other Mitigation Measures: Reduce impacts to no adverse effect through MOA terms to be signed with SHPO and Advisory Council.	Federal protection remains. No mitigation required.

Local Community. Redevelopment of base property under the Proposed Action would result in an increase in employment and population in the region of influence (ROI) of Horry and Georgetown Counties. Approximately 9,643 reuse-related direct jobs are projected by the year 2013, with an additional 6,181 secondary jobs. Total ROI employment would reach approximately 121,422 by 2013. Population in the ROI, as a result of the Proposed Action, would increase by approximately 11,257 by 2013, resulting in a total ROI population of 296,757. This last figure reflects both the impacts of the Proposed Action and non-project-related population increases.

Land use on the base would change from the current pattern by increasing development to the northwest, west, and southwest of the main base area. The area to the northwest would be developed for recreation use. The area to the west would be developed for industrial uses and also includes a second runway. The area to the southwest would be developed for commercial, residential, and educational uses.

The Proposed Action incorporates plans to provide two major thoroughfares through the base connecting U.S. 17 Business and U.S. 17 Bypass. The levels of service for surrounding roads would decrease under the Proposed Action, and traffic congestion would be expected, requiring roadway improvements or use of mass transit. While airspace usage and aviation operations would be different after implementation of the Proposed Action, there would not be adverse impacts.

Utility consumption in the ROI associated with the Proposed Action would represent an approximately four to seven percent increase in the total demand based on existing capacity and past consumption levels. There would be minimal impacts to the local suppliers.

Hazardous Materials and Hazardous Waste Management. The types of hazardous materials and wastes used and generated under the Proposed Action are expected to be similar to those present during preclosure use. However, the quantities of hazardous materials used and hazardous waste generated are expected to be greater than the closure baseline. The responsibility for managing hazardous materials and wastes would shift from a single user to multiple, independent users. This may degrade the capability of responding to hazardous materials and hazardous waste spills. Pesticide usage would increase over closure as a result of the increase in land use that involves extensive landscaping. It is assumed that adequate management procedures would be imposed, as required by applicable laws and regulations, to ensure proper use and handling of these materials.

Reuse activities are not expected to affect the remediation of Installation Restoration Program (IRP) sites, which is proceeding according to Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) requirements. Based on the results of IRP investigations, the Air Force may, where appropriate, place limits on land reuse through deed restrictions on conveyances and use restrictions on leases. Air Force policy in most cases requires removal of existing underground storage tanks (USTs) not in compliance with current regulations. All polychlorinated biphenyl (PCB) and

PCB-contaminated equipment under Air Force control has been removed from the base. Demolition or renovation of structures with asbestos-containing materials may occur with reuse development and would be the responsibility of the new owners and would be conducted in compliance with all applicable federal, state, and local regulations.

Consideration was given to the potential for radon hazards. A survey conducted on base revealed radon levels below the U.S. Environmental Protection Agency (USEPA) recommended mitigation level.

Natural Environment. The Proposed Action would include the use of sand and gravel resources for construction, which are available in the local area. Reduced availability of these materials from local suppliers is not expected. The local soils have low suitability for site development due to extreme wetness. This limiting factor is difficult to reduce by conventional means of draining and/or filling. During construction activities, the potential for soil erosion by wind and water increases, and preventative measures would be necessary to minimize erosion.

Potable water consumption on the base is expected to be supplied from surface water sources, instead of the groundwater sources used prior to closure. Nonpotable water is anticipated to be supplied from groundwater sources. Nonpotable water production from groundwater for irrigation and recreation uses is expected to increase to 1.55 MGD, which is a 97.7 percent increase over preclosure base groundwater use. The projected groundwater use for the Proposed Action is expected to increase overdraft conditions in the Black Creek aquifer.

Air pollutant emissions associated with the Proposed Action would increase when compared with the closure baseline. However, there would be no interference with maintaining attainment status of federal and state ambient air quality standards.

Aircraft noise would be less under the Proposed Action than prior to base closure. Civil aircraft operations at the Myrtle Beach Jetport would be the primary sources of noise in the vicinity of the jetport. Approximately 518 acres would be exposed to day-night noise levels (DNL) of 65 decibels (dBA) or greater by the year 2013. This compares to a preclosure level of 4,400 acres with DNL of 65 dBA or greater. No residential areas would be exposed to DNL of 65 dBA or higher due to aircraft noise; however, portions of the Springmaid Beach resort would be exposed to DNL of 65 dBA or higher. At preclosure, approximately 195 acres of off-base residential areas were exposed to aircraft DNL of 65 dBA or greater. Surface traffic noise would increase over certain roads.

The Proposed Action has the potential for adversely affecting biological and cultural resources on base. Potential impacts to biological resources could include the loss or alteration of up to 1,027 acres of upland vegetation, 1,296 acres of wildlife habitat, and 167 acres of wetlands. Mitigation of these impacts by site developers is possible. There is the potential for possible adverse effects to archeological sites, and one potentially historic structure may be impacted. Mitigation could be achieved through preservation or a data recovery program.

EXPANDED AIRFIELD/RESORT-RECREATION ALTERNATIVE

The impacts of this alternative would be similar to those of the Proposed Action. These impacts are summarized in the following paragraphs. Influencing factors and environmental impacts/mitigations are presented in comparative form in Tables S-1 and S-2, respectively.

Local Community. Redevelopment of base property under the Expanded Airfield/Resort-Recreation Alternative would result in an increase in employment and population in the ROI. Approximately 8,281 reuse-related direct jobs are projected by the year 2013, with an additional 5,308 secondary jobs. Total ROI employment would reach approximately 119,187 by 2013. Population in the ROI, as a result of the alternative, would increase by approximately 9,872 by 2013, resulting in a total ROI population of 295,372.

Land use on the base would change from the current pattern by increasing development to the northwest, west, and southwest of the main base area. The area to the northwest would be developed for recreation use. The area to the west would be used for a second runway. The area to the southwest would be developed primarily for commercial use. Transportation and utility impacts would be similar to the Proposed Action.

Hazardous Materials and Hazardous Waste Management. The quantities of hazardous materials used and hazardous waste generated are expected to be greater than the closure baseline. Pesticide usage would increase over closure as a result of the increase in land use that involves extensive landscaping. Provisions for handling medical/biohazardous waste would be required.

Reuse activities are not expected to affect the remediation of IRP sites. Concerns regarding USTs and asbestos are similar to the Proposed Action.

Natural Environment. Sand and gravel resources for construction are available in adequate supply in the local area. The local soils inhibit site development due to extreme wetness. Preventative measures to reduce soil erosion would be necessary during construction activities.

Potable water consumption on the base is expected to be supplied from surface water sources, instead of the groundwater sources used prior to closure. Nonpotable water is anticipated to be supplied from groundwater sources. Potable water is expected to be supplied from surface water sources. Nonpotable water production for irrigation and recreation uses is expected to increase to 1.48 MGD, which is a 80.3 percent increase over preclosure base groundwater use. Groundwater use for this alternative is expected to increase overdraft conditions in the Black Creek aquifer.

Air pollutant emissions associated with this alternative would increase when compared with the closure baseline, but would not cause exceedance of emissions standards.

Aircraft noise would be similar to the Proposed Action. No residential areas would be exposed to DNL of 65 dBA or higher due to aircraft noise. Surface traffic noise would increase over certain roads. Potential adverse effects to biological and cultural resources are similar to the Proposed Action.

EXPANDED AIRFIELD/RESORT-COMMERCIAL-INDUSTRIAL ALTERNATIVE

The impacts of this alternative would be similar to those of the Proposed Action. These impacts are summarized in the following paragraphs. Influencing factors and environmental impacts/mitigation are presented in comparative form in Tables S-1 and S-2, respectively.

Local Community. Redevelopment of base property under the Expanded Airfield/Resort-Commercial-Industrial Alternative would result in an increase in employment and population in ROI. Approximately 10,159 reuse-related direct jobs are projected by the year 2013, with an additional 6,512 secondary jobs. Total ROI employment would reach approximately 122,269 by 2013. Population in the ROI, as a result of the alternative, would increase by approximately 11,932 by 2013, resulting in a total ROI population of 297,432.

Land use on the base would change from the preclosure pattern by increasing development to the northwest, west, and southwest of the main base area. The area to the northwest and southwest would be developed for commercial and public facilities and recreation use. The area to the west would be used for a second runway. Effects on transportation and utility issues would be similar to the Proposed Action.

Hazardous Materials and Hazardous Waste Management. The quantities of hazardous materials used and hazardous waste generated are expected to be greater than the closure baseline. Pesticide usage would increase over closure as a result of the increase in land uses that involve extensive landscaping. Provisions for handling medical/biohazardous waste would be required.

Reuse activities are not expected to affect the remediation of IRP sites. Concerns regarding USTs and asbestos are similar to the Proposed Action.

Natural Environment. Reduced availability of sand and gravel resources for construction from local suppliers is not expected. The local soils inhibit site development due to extreme wetness. Preventative measures to reduce soil erosion would be necessary during construction activities.

Potable water consumption on the base is expected to be supplied from surface water sources, instead of the groundwater sources used prior to closure. Nonpotable water is anticipated to be supplied from groundwater sources. Potable water is expected to be supplied from surface water sources. Nonpotable water production for irrigation and public/recreation uses is expected to increase to 1.35 MGD, which is a 49.2 percent increase over preclosure base groundwater use. Groundwater use for this alternative is expected to increase overdraft conditions in the Black Creek aquifer.

Air pollutant emissions associated with the this alternative would increase when compared with the closure baseline, but would not cause exceedance of emissions standards.

Aircraft noise would be similar to the Proposed Action. No residential areas would be exposed to DNL of 65 dBA or higher due to aircraft noise. Surface traffic noise would increase over certain roads. Potential adverse effects to biological and cultural resources are similar to the Proposed Action.

EXISTING AIRFIELD/MIXED USE ALTERNATIVE

The impacts of this alternative, and the Restricted Second Runway Option, would be similar to those of the Proposed Action. These impacts are summarized in the following paragraphs. Influencing factors and environmental impacts/mitigation are presented in comparative form in Tables S-1 and S-2.

Local Community. Redevelopment of base property under the Existing Airfield/Mixed Use Alternative would result in an increase in employment and population in the ROI. Approximately 9,889 reuse-related direct jobs are projected by the year 2013, with an additional 6,339 secondary jobs. Total ROI employment would reach approximately 121,826 by 2013. Population in the ROI, as a result of the alternative, would increase by approximately 11,041 by 2013, resulting in a total ROI population of 296,541.

Land use on the base would change from the preclosure pattern by increasing development to the northwest, west, and southeast of the main base area. The area to the northwest would be developed for industrial use. The area to the west would be developed for public facilities and recreation and educational use, and the area to the southeast would be developed for commercial and public facilities and recreation use. Transportation and utility impacts would be similar to the Proposed Action.

Hazardous Materials and Hazardous Waste Management. The quantities of hazardous materials used and hazardous waste generated are expected to be greater than the closure baseline. Management provisions would be similar to those described for the Proposed Action with the exception of a slight decrease due to limited airfield expansion. Pesticide usage would increase as a result of an increase in land use that involves extensive landscaping.

Reuse activities are not expected to affect the remediation of IRP sites. Concerns regarding USTs and asbestos are similar to the Proposed Action.

Natural Environment. Reduced availability of sand and gravel resources for construction from local suppliers is not expected. The local soils inhibit site development due to extreme wetness. Preventative measures to reduce soil erosion would be necessary during construction activities.

Potable water consumption on the base is expected to be supplied from surface water sources, instead of the groundwater sources used prior to closure. Nonpotable water is anticipated to be supplied from groundwater sources. Potable water is expected to be supplied from surface water sources. Nonpotable water production for irrigation and public/recreation uses is expected to increase to 1.77 MGD, which is a 124 percent increase over preclosure base groundwater use. Groundwater use for this alternative is expected to increase overdraft conditions in the Black Creek aquifer.

Air pollutant emissions associated with the this alternative would increase when compared with the closure baseline, but would not cause exceedance of emissions standards.

Aircraft noise would be similar to the Proposed Action. No residential areas would be exposed to DNL of 65 dBA or higher due to aircraft noise. Surface traffic noise would increase over certain roads. Potential adverse effects to biological and cultural resources are similar to the Proposed Action.

NO-ACTION ALTERNATIVE

Local Community. The only Air Force activities associated with the No-Action Alternative would be caretaker maintenance of the base. This would generate approximately 60 direct and 37 secondary jobs. In addition, existing jobs, plus forecast additional jobs, at the Myrtle Beach Jetport would continue. Minimal effects on utilities or on road, air, or railroad transportation are expected.

Hazardous Materials and Hazardous Waste Management. Small quantities of various types of hazardous materials and pesticides would be used for this alternative. All materials and waste would be managed and controlled by the Air Force's Base Disposal Agency operating location (OL) in accordance with applicable regulations. Storage tanks would be removed or maintained in place in accordance with applicable regulations. There would be no impact to the IRP sites.

Natural Environment. The No-Action Alternative would not impact geological resources, soils, water resources, or cultural resources. Adequate caretaker maintenance would preclude deterioration of any important historic properties. Biological resources may be enhanced under this alternative. There would be a decrease in air pollution emissions over preclosure conditions. Approximately 243 acres would be exposed to DNL of 65 dBA or greater under this alternative (compared to the preclosure level of 4,400 acres with DNL of 65 dBA or greater).

OTHER LAND USE CONCEPTS

A number of proposals have been received for reuse of Myrtle Beach AFB. These have been integrated into the Proposed Action and/or alternatives or could be initiated on an individual basis. Therefore, impacts to the environment and local community are as previously described for the Proposed Action and alternatives.

SUMMARY OF CHANGES FROM THE DEIS TO THE FEIS

Based on more recent studies or comments from the public, the following sections of the EIS have been updated or revised.

- An optional second runway is described and analyzed for the Existing Airfield/Mixed Use Alternative.
- The estimated concentrations and loads of pollutants have been calculated by basin as well as for the entire base in the surface water quality sections of Chapter 4 (4.2.2).
- Chapter 9, Public Comments and Responses, has been added.

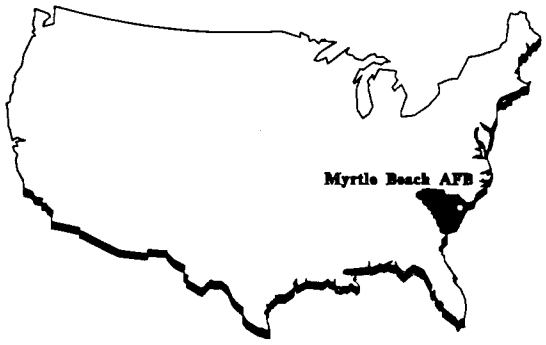


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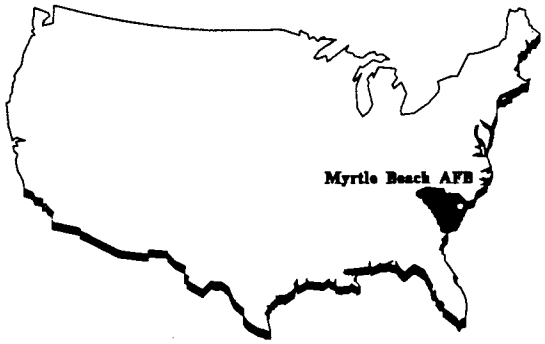
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CHAPTER 1
PURPOSE OF AND NEED FOR ACTION

1.0 PURPOSE OF AND NEED FOR ACTION

This environmental impact statement (EIS) examines the potential for impacts to the environment as a result of the disposal and reuse of Myrtle Beach Air Force Base (AFB), South Carolina This document has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 and the Council on Environmental Quality (CEQ) regulations implementing NEPA. Appendix A presents a glossary of terms, acronyms, and abbreviations used in this document.

1.1 PURPOSE AND NEED

Due to the changing international political scene and the resultant shift toward a reduction in defense spending, the Department of Defense (DOD) must realign and reduce its military forces pursuant to the Defense Base Closure and Realignment Act (DBCRA) of 1990 (Public Law [P.L.] 101-510, Title XXIX). DBCRA established new procedures for closing or realigning military installations in the United States.

DBCRA established an independent Defense Base Closure and Realignment Commission (hereafter "Commission") to review the Secretary of Defense's base closure and realignment recommendations. After reviewing these recommendations, the 1991 Commission forwarded its recommended list of base closures and realignments to the President, who accepted the recommendations and submitted them to Congress on July 12, 1991. Since Congress did not disapprove the recommendations within the time period provided under DBCRA, the recommendations have become law.

Because Myrtle Beach AFB was on the Commission's list, the decision to close the base is final. Myrtle Beach AFB will close in March 1993.

To fulfill the requirement of reducing defense expenditures, the Air Force plans to dispose of excess and surplus real property and facilities at Myrtle Beach AFB. DBCRA requirements relating to disposal of excess and surplus property include:

- Environmental restoration of the property as soon as possible with funds made available for such restoration
- Consideration of the local community's reuse plan prior to Air Force disposal of the property
- Compliance with specific federal property disposal laws and regulations.

The Air Force action, therefore, is to dispose of Myrtle Beach AFB property and facilities. Usually, this action is taken by the Administrator of General Services. However, DBCRA required the Administrator to delegate to the Secretary of Defense the authorities to utilize excess property, dispose of surplus property, convey airport and airport-related property, and determine the availability of excess or surplus real property for wildlife conservation purposes. The Secretary of Defense has since redelegated these authorities to the respective Service Secretaries.

1.2 DECISIONS TO BE MADE

The purpose of this EIS is to provide information for interrelated decisions concerning the disposition of Myrtle Beach AFB. The EIS is to provide the decision maker and the public the information required to understand the future environmental consequences of disposal as a result of reuse options at Myrtle Beach AFB.

After completion of this EIS, the Air Force will issue a Record of Decision (ROD) on the Disposal of Myrtle Beach AFB. The ROD will determine the following:

- What property is excess to the needs of the Department of Defense and what property is surplus to the needs of the United States of America
- The methods of disposal to be followed by the Air Force
- The terms and conditions of disposal.

The methods of disposal granted by the Federal Property and Administrative Services Act of 1949 and the Surplus Property Act of 1944 and implemented in the Federal Property Management Regulations (FPMR) are:

- Transfer to another Federal Agency
- Public benefit conveyance to an eligible entity
- Negotiated sale to a public body for a public purpose
- Competitive sale by sealed bid or auction.

The EIS considers environmental impacts of the Air Force's disposal of the installation using one or all of the above-mentioned procedures by portraying a variety of potential land uses to cover reasonably foreseeable future uses of the property and facilities by others. Several alternative scenarios were used to group reasonably foreseeable land uses and to examine the environmental effects of redevelopment of Myrtle Beach AFB. This methodology was employed because, although the disposal will have few, if any, direct effects, future use and control of use by others will create indirect effects. This EIS, therefore, seeks to analyze reasonable redevelopment scenarios to determine the potential indirect environmental effects of Air Force decisions.

1.3 DISPOSAL PROCESS AND REUSE PLANNING

DBCRA requires compliance with NEPA (with some exceptions) in the implementation of the base closures and realignments. Among the issues that were excluded from NEPA compliance are:

- The selection of installations for closure or realignment
- Analysis of closure impacts.

The Air Force goal is to dispose of Myrtle Beach AFB property through transfer and/or conveyance to other government agencies, state or local government bodies, or private parties. The Proposed Action in the EIS reflects the community's goal for base reuse, which is to expand the commercial airport and develop opportunities for tourism and other mixed use activities.

The Air Force has based its Proposed Action on plans developed by the Myrtle Beach AFB Redevelopment Task Force for the purpose of conducting the environmental analysis. The Air Force also considered additional reasonable alternatives in order to provide the decision-maker with multiple options regarding ultimate property disposition. The EIS becomes the basis for a broad environmental analysis, thus ensuring that reasonably foreseeable impacts resulting from potential reuse have been identified. Subject to the terms of transfer or conveyance, the recipients of the property and planning and zoning agencies and elected officials will ultimately determine the reuse of the property. Four reuse options have been identified, all of which include aviation reuse proposals, and a No-Action Alternative that would continue use of the existing commercial airport and put the remainder of the base into caretaker status.

The Secretary of the Air Force has discretion in determining how the Air Force will dispose of the property. Nevertheless, the Air Force must adhere to applicable laws, including the General Services Administration (GSA) regulations in accordance with DBCRA. The services may issue additional regulations, if required, to implement their delegated authorities. Another provision of the act requires the services to consult with the state Governor, heads of local governments, or equivalent political organizations for the purpose of considering any plan for the use of such property by the local community concerned. Accordingly, the Air Force is working with state authorities and the Myrtle Beach AFB Redevelopment Task Force to meet this requirement.

In some cases, compliance with environmental laws may delay the Air Force's final disposal of some parts of the base. Until property can be transferred by deed, the Air Force may execute interim or long-term leases to allow reuse to begin as quickly as possible. The Air Force would structure the leases to provide the lessees with maximum control over the property, consistent with the terms of the final disposal. Restrictions may be necessary to ensure protection of human health and to allow implementation of required remedial actions. In these cases, it is the Air Force's intent to dispose of leased property by converting leases to deeds at the earliest possible date.

Certain activities inherent in the development or expansion of an airport constitute federal actions that fall under the statutory and regulatory authority of the Federal Aviation Administration (FAA). The FAA generally reviews these activities through the processing and approval of an Airport Layout Plan (ALP). Goals of the ALP review system are to: (1) determine its effectiveness in achieving safe and efficient utilization of airspace, (2) assess factors affecting the movement of air traffic, and (3) establish conformance with FAA design criteria. The FAA approval action also may include other specific elements such as preparation of the Airport Certification Manual (Part 139); the Airport Security Plan (Part 107); the location, construction, or modification of an air traffic control (ATC) tower, terminal radar approach control (TRACON) facility,

other navigational and visual aids, and facilities; and establishment of instrument approach procedures.

In view of its possible direct involvement with the disposal of Myrtle Beach AFB, the FAA is serving as a cooperating agency in the preparation of the EIS. If surplus property is conveyed to a local agency for airport purposes, the FAA will be the federal agency that would enforce deed covenants requiring the property to be used for airport purposes. Additionally, the FAA may later provide airport improvement program grants to the airport sponsor (local agency taking title). The FAA also has special expertise and the legal responsibility to make recommendations to the Air Force for the disposal of surplus property for airport purposes. The Surplus Property Act of 1944 (50 U.S.C. Appendix 1622(g)) authorized disposal of surplus real and related personal property for airport purposes and requires that the FAA certify that the property is necessary, suitable, and desirable for an airport.

The potential environmental impacts of airport development must be assessed prior to commitment of federal funding, in accordance with NEPA and FAA Order 1050.1D, Policies and Procedures for Considering Environmental Impacts. Environmental impacts must be assessed prior to authorization of plans of local agencies for the development of the entire area in which the airport is located. Under FAA policy, transportation projects that substantially impair significant public parks, recreation areas, wildlife refuges, or any significant historic property will not be implemented unless no prudent or feasible alternative exists and until all measures to mitigate adverse effects have been addressed.

Compliance with FAA regulations requires the preparation of a proposed airport development plan. This EIS presents the assessment of potential environmental impacts of available plans. This EIS also provides environmental assessment information to aid FAA decisions on funding requests for airport development projects. The new owners would be required to prepare a final ALP and submit it to the FAA, as appropriate, for approval.

1.4 ENVIRONMENTAL IMPACT ANALYSIS PROCESS

NEPA established a national policy to protect the environment and ensure that federal agencies consider the environmental effects of actions in their decision-making. NEPA also established the CEQ to oversee and recommend national policies to improve the quality of the environment. Subsequently, CEQ published regulations that described how NEPA should be implemented. The CEQ regulations encourage federal agencies to develop and implement procedures that address the NEPA process in order to avoid or minimize adverse effects on the environment. Air Force Regulation (AFR) 19-2, Environmental Impact Analysis Process (EIAP), addresses implementation of NEPA as part of the Air Force planning and decision-making process.

NEPA and AFR 19-2 provide guidance on the types of actions for which an EIS must be prepared. Once it has been determined that an EIS must be prepared, the proponent must publish a Notice of Intent (NOI) to prepare an EIS. This formal announcement signifies the beginning of the scoping period, during which the major environmental issues to be addressed in the EIS are identified. A Draft EIS (DEIS) is prepared, which includes the following:

- A statement of the purpose of and need for the action
- A description of the Proposed Action and Alternatives, including the No-Action Alternative
- A description of the environment that would be affected by the action and alternatives
- A description of the potential environmental consequences of the action and alternatives.

These items also satisfy the requirements of the FAA (5050.4A) for environmental impact documentation.

The DEIS is filed with the U.S. Environmental Protection Agency (USEPA), and is circulated to the interested public and government agencies for a period of at least 45 days for review and comments. During this period, a public hearing is held so that the proponent can summarize the findings of the analysis and receive input from the affected public. At the end of the review period, all substantive comments received must be addressed. A Final EIS (FEIS) is produced that contains responses to comments as well as changes to the document, if necessary.

The FEIS is then filed with USEPA and distributed in the same manner as the DEIS. Once the FEIS has been available for at least 30 days the Air Force may publish its ROD for the action.

The following subsections describe how the Air Force has complied with NEPA requirements for public involvement in the decision process.

1.4.1 SCOPING PROCESS

The scoping process identifies the significant environmental issues relevant to disposal and reuse and provides an opportunity for public involvement in the development of the EIS. The NOI (Appendix B) to prepare an EIS for disposal and reuse of Myrtle Beach AFB was published in the *Federal Register* on October 9, 1991. Notification of public scoping was also made through local media as well as through letters to federal, state, and local agencies and officials and interested groups and individuals.

The scoping period for the disposal and reuse of Myrtle Beach AFB began on October 9, 1991. A public meeting was held on November 14, 1991 at the Myrtle Beach High School Auditorium, Myrtle Beach, South Carolina to solicit comments and concerns from the general public on the disposal and reuse of Myrtle Beach AFB. Approximately 185 people attended the meeting. Representatives of the Air Force presented an overview of the meeting's objectives, agenda, and procedures, and described the process and purpose for the development of a disposal and reuse EIS. In addition to verbal comments, written comments were received during the scoping process. These comments, as well as information from interviews with agencies, organizations, and people in the community, experience with similar programs, and NEPA requirements, were used to determine the scope and direction of studies/analysis to accomplish this EIS.

1.4.2 PUBLIC COMMENT PROCESS

The DEIS was made available for public review and comment in October, 1992. Copies of the DEIS were made available for review in local libraries and provided to those requesting copies. At a public hearing held on November 12, 1992, the Air Force presented the findings of the DEIS and invited public comments. All comments were reviewed and addressed, when applicable, and have been included in their entirety in this document. Responses to comments offering new or changes to data and questions about the presentation of data are also included. Chapter 9, Public Comments and Responses, more thoroughly describes the comment and response process.

1.5 CHANGES FROM THE DEIS TO THE FEIS

The text of this EIS has been revised, when appropriate, to reflect concerns expressed in public comments. These changes range from typographical corrections to amendments of reuse plans. The responses to the comments indicate the relevant sections of the EIS that have been revised. The major comments received on the DEIS were:

- Several comments requested that an alternate location for a second runway, in close proximity to the existing runway, be examined.
- Two commentors requested consideration of impacts to surface water quality west of the existing runway, as this basin drains into the Intracoastal Waterway, which provides the city's drinking water supply.

Based on these comments from the public, the following sections of the EIS have been updated or revised.

- An optional second runway for the Existing Airfield/Mixed Use Alternative is described in Chapter 2. This runway would be 700 feet west of the existing runway and within the area previously proposed for airfield land use in the Existing Airfield/Mixed Use Alternative. The impacts of the runway on transportation and airspace, ground disturbance, air quality, and noise are presented in Chapter 4.
- The estimated concentrations and loads of pollutants have been calculated by basin as well as for the entire base in the surface water quality sections of Chapter 4.

1.6 ORGANIZATION OF THIS EIS

This EIS is organized into a number of chapters and appendices. Chapter 2 provides a description of the Proposed Action, alternatives to the Proposed Action, and other land use concepts that have been identified for reuse of Myrtle Beach AFB property. Chapter 2 also briefly reviews alternatives eliminated from further consideration and identifies other, unrelated actions anticipated to occur in the region during the same time frame as the reuse activities to be considered in the analysis of cumulative impacts. Finally,

Chapter 2 compares the Proposed Action and alternatives with respect to effects on the local community and the natural environment. Chapter 3 presents the affected environment under the baseline conditions of base closure, providing a basis for analyzing the impacts of the Proposed Action and alternatives. When needed for analytical comparisons, a preclosure reference is provided for certain resource areas. It describes a point in time at or near the closure announcement, and depicts an active base condition. The results of the environmental analysis are presented in Chapter 4. Chapter 5 lists individuals and organizations consulted during the preparation of the EIS; Chapter 6 provides a list of the document's preparers; Chapter 7 contains references; and Chapter 8 contains an index. Chapter 9, Public Comments and Responses, more thoroughly describes the comment and response process.

In addition to the main text, the following appendices are included in this document:

- Appendix A - a glossary of terms, acronyms, and abbreviations used in this document
- Appendix B - the NOI to prepare this disposal/reuse EIS
- Appendix C - a list of individuals and organizations who were sent a copy of the DEIS
- Appendix D - an Installation Restoration Program bibliography
- Appendix E - a description of the methods used to evaluate the impacts of base reuse on resources of the local community and the environment
- Appendix F - transportation data
- Appendix G - Air Force policy regarding management of asbestos at bases that are closing
- Appendix H - Form AD-1006, Farmland Conversion Impact Rating
- Appendix I - the SCS rainfall-runoff relation
- Appendix J - a wind rose and an air emissions inventory for Myrtle Beach AFB
- Appendix K - a detailed description of issues and assumptions related to noise effects
- Appendix L - Section 7 Consultation, Threatened and Endangered Species
- Appendix M - Section 106 Consultation, Cultural Resources
- Appendix N - Permits held by Myrtle Beach AFB

- Appendix O - Summary of influencing factors and environmental impacts by land use category.

1.7 RELATED ENVIRONMENTAL DOCUMENTS

The environmental documents listed below have been or are being prepared separately and address environmental issues at Myrtle Beach AFB. These documents provided supporting information for the environmental analysis.

- Final Environmental Impact Statement for the Proposed Closure of Myrtle Beach AFB, South Carolina (U.S. Air Force, 1990d)
- IRP documents, as listed in Appendix D of this EIS
- Fish and Wildlife Management Plan for Myrtle Beach AFB (U.S. Air Force, 1987)
- Outdoor Recreation Plan for Myrtle Beach AFB (U.S. Air Force, 1990h)
- Land Management Plan for Myrtle Beach AFB (U.S. Air Force, 1990g)
- Forest Management Plan for Myrtle Beach AFB (U.S. Air Force, 1991t)
- Environmental Baseline Survey Report, Myrtle Beach AFB (U.S. Air Force, 1993)
- Cultural Resources Inventory of Myrtle Beach AFB (Drucker and Anthony, 1980).

1.8 FEDERAL PERMITS, LICENSES, AND ENTITLEMENTS

Federal permits, licenses, and entitlements that may be required of recipients of Myrtle Beach AFB for purposes of redevelopment are presented in Table 1.8-1.

Table 1.8-1. Federal Permits, Licenses, and Entitlements Potentially Required for Reusers or Developers of Disposed Base Property

Federal Permit, License, or Entitlement	Typical Activity, Facility, or Category of Persons Required to Obtain the Federal Permit, License, or Entitlement	Authority	Regulatory Agency
The Clean Air Act (CAA) as amended by the 1990 Clean Air Act Amendments, Title V	A major source, defined as follows: (1) a source subject to the nonattainment provisions of Title I (Nonattainment) part D with the potential to emit the following with respect to the nonattainment classification: Pollutant/Classification — Emission Rate (tons/yr) Carbon monoxide Serious — 50 Ozone (VOCs and NO_x) Serious — 50 Transport region (not severe or extreme) — 50 Severe — 25 Extreme — 10 Particulate matter (PM-10) Serious — 70 A source that emits or has the potential to emit 10 tons per year or more of any one of the hazardous air pollutants (air toxics) under Section 112 of the CAA or 25 tons per year of more of any combination of air toxics; a source that emits or has the potential to emit 100 tons per year of any air pollutant as defined in Section 302 of the CAA.	Title V of CAA as amended by the 1990 CAA Amendments	U.S. Environmental Protection Agency (USEPA); South Carolina Department of Health and Environmental Control (SCDHEC)

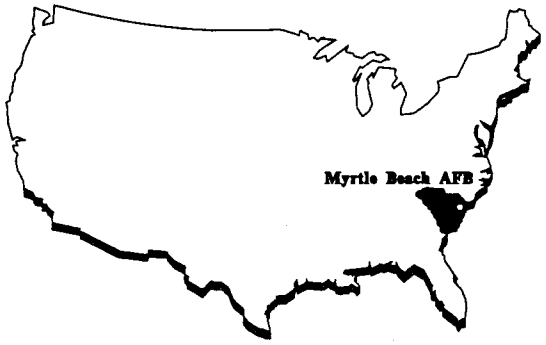
Table 1.8-1. Federal Permits, Licenses, and Entitlements Potentially Required for Reusers or Developers of Disposed Base Property
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Federal Permit, License, or Entitlement	Typical Activity, Facility, or Category of Persons Required to Obtain the Federal Permit, License, or Entitlement	Authority	Regulatory Agency
	(2)Non-major sources subject to national emissions standards for hazardous air pollutants (NESHAP) under Section 112 of the CAA. (3)Non-major sources subject to new source performance standards (NSPS) under Section III of the CAA. (4)Affected sources subject to the acid rain provisions of Title IV (Acid Rain) of the CAA amendments. Sources include certain targeted electric utility plants and boilers that serve generators larger than 25 megawatts and sell more than one-third of their potential electrical output capacity to those utilities covered under Title IV. (5)Sources in other USEPA designated categories.		
South Carolina Department of Health and Environmental Control (SCDHEC) construction permit	The owner or operator of any proposed new or modified source prior to construction, alteration, or addition to a source of air contaminants, including installation of any device for the control of air contaminant discharge.	SCDHEC Regulation No. 62.1, Section II	SCDHEC
SCDHEC operating permit	The owner or operator of any source of air contaminants no later than fifteen (15) days prior to placing any new, increased, or altered source into operation.	SCDHEC Regulation No. 62.1, Section II	SCDHEC
National Pollutant Discharge Elimination System (NPDES) permit	Discharge of pollutant from any point source into waters of the United States.	Section 402 of Federal Water Pollution Act, 33 U.S.C. § 1342	USEPA; SCDHEC
Section 404 (Dredge and Fill) Permit; Section 401 Water Quality Certification	Any project activities resulting in the discharge of dredged or fill material into bodies of water, including wetlands, within the United States.	Section 404 of Federal Water Pollution Act, 33 U.S.C. § 1344 South Carolina Coastal Tideland Wetlands Act	U.S. Army Corps of Engineers, in consultation with USEPA; South Carolina Coastal Council

Table 1.8-1. Federal Permits, Licenses, and Entitlements Potentially Required for Reusers or Developers of Disposed Base Property
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Federal Permit, License, or Entitlement	Typical Activity, Facility, or Category of Persons Required to Obtain the Federal Permit, License, or Entitlement	Authority	Regulatory Agency
Hazardous waste treatment, storage, or disposal (TSD) facility permit	Owners or operators of a new or existing hazardous waste TSD facility	Resource Conservation and Recovery Act (RCRA) as amended, 42 U.S.C. § 3005; 40 CFR Part 270	USEPA; SCDHEC
USEPA manifest identification number	Generators or transporters (off-site transport) of hazardous waste.	40 CFR § 262.10 (generators); 40 CFR Part 263, Subpart B (transporters)	USEPA
Antiquities permit	Excavation and/or removal of archaeological resources from public lands or Indian lands and carrying out activities associated with such excavation and/or removal.	Archaeological Resource Protection Act of 1979, 16 U.S.C. § 470cc	U.S. Department of the Interior, National Park Service
Endangered Species Act § 10 permit	Taking endangered or threatened wildlife species; engaging in certain commercial trade of endangered or threatened plants or removing such plants on property subject to Federal jurisdiction.	Section 10 of Endangered Species Act, 16 U.S.C. § 1539; 50 CFR Part 17 Subparts C,D,F, and G.	U.S. Department of the Interior, Fish and Wildlife Service
Airport Operating Certificate	Operating a land airport serving any scheduled or unscheduled passenger operation of air carrier aircraft designed for more than 30 passenger seats.	Federal Aviation Act of 1958, 49 U.S.C. App. § 1432.	U.S. Department of Transportation, Federal Aviation Administration

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CHAPTER 2
ALTERNATIVES INCLUDING THE PROPOSED ACTION

2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

2.1 INTRODUCTION

This section describes the Proposed Action, reasonable alternatives to the Proposed Action, and the No-Action Alternative. In addition, independent reuse options that are not part of a complete plan are described and environmentally analyzed. Other alternatives that were identified but eliminated from further consideration are briefly described. The potential environmental impacts of the Proposed Action and alternatives are summarized in tabular form at the end of this chapter.

Generally, the Administrator of the General Services Administration has authority to dispose of excess and surplus real and personal property belonging to the federal government. With regard to closure bases, however, the Defense Base Closure and Realignment Act (DBCRA) delegates the disposal authority of the Administrator of General Services to the Secretary of Defense. Federal Property Management Regulations (FPMR), which govern property disposal methods associated with base closure, allow the Secretary of Defense to dispose of closure property by transfer to another federal agency, by public benefit conveyance, by negotiated sale to state or local governments, and by public sale at auction or sealed bid. These methods, or a combination of them, could be used to dispose of property at Myrtle Beach AFB.

Provisions of DBCRA and FPMR require that the Air Force first notify other Department of Defense (DOD) departments that Myrtle Beach AFB is scheduled for disposal. Any proposals from these departments for the transfer of Myrtle Beach AFB are given priority consideration.

Analysis of the Proposed Action and reasonable alternatives also may address the use of facilities by homeless assistance providers. Under those provisions of FPMR that implement the Stewart B. McKinney Homeless Assistance Act (Public Law 100-77), the Air Force must report to the Department of Housing and Urban Development (HUD) all underutilized, unutilized, and/or excess buildings and land.

Myrtle Beach, located on South Carolina's Grand Strand, has tourism as its main industry. Community leaders want tourism to increase in the future. As a result, several of the land use alternatives contain uses that are related to tourism. Also, the Myrtle Beach Jetport, currently located on the base, is included in each of the alternatives.

Reuse plans were provided to the Air Force by the community for the disposal and reuse of Myrtle Beach AFB. Each of these plans consisted of a drawing of land uses proposed for the base property and each addressed redevelopment focussed on the existing civilian jetport. One alternative was selected by the Myrtle Beach AFB Redevelopment Task Force as its proposed reuse plan. This has been incorporated by the Air Force as the Proposed Action. The Air Force used these plans and other proposals, along with a land use and market analysis of the base property, to identify three reasonable reuse alternatives:

- Expanded Airfield/Resort-Recreation
- Expanded Airfield/Resort-Commercial-Industrial
- Existing Airfield/Mixed Use.

In addition, a No-Action Alternative, consisting of caretaker status for the base with continued operation of the civilian jetport, was considered.

Although each of the plans offered different levels of detail, all were conceptual in nature. In order to accomplish impact analysis, a set of general assumptions was made. These assumptions include:

- Phasing of the various elements of each reuse plan, as measured at the closure baseline, and at 5, 10, and 20 years after closure
- Probable allowable densities and intensities for development at buildout
- Persons per housing unit and average unit valuation
- Population and employment changes over the 20-year forecast period
- Potential for reuse of selected base buildings
- Construction and demolition activities associated with reuse
- Transportation and utility effects of each reuse alternative as a function of increased population growth due to redevelopment
- Acreage tabulations for proposed land uses
- Construction and operation timing for the civilian jetport expansion.

Details regarding the generation of these assumptions are found in Appendix E, Methods, and in the *Socioeconomic Impact Analysis Study for Myrtle Beach AFB*. Specific assumptions for each reuse alternative are identified in the discussions in Sections 2.2 and 2.3.

Data used in these analyses were provided by the Air Force, state and local governments, utilities, private sector organizations, and consultants actively involved in projects directly related to base reuse activities. The data included:

- Base comprehensive plans and facility inventories
- Forecast civilian aviation operations and passenger demand
- Population and socioeconomic planning data
- Comprehensive planning studies prepared for the city of Myrtle Beach and Horry County

- Transportation planning studies
- Studies and data prepared in support of a proposed destination resort
- An industrial expansion plan prepared by an existing company located near the base
- Plans submitted by a local education consortium for an education facility.

Land use plans acknowledge existing Installation Restoration Program (IRP) status. Plans have considered the effect of pending IRP remedial action decisions on the viability of reuse. IRP remediation at Myrtle Beach AFB may result in the identification of possible lease/deed restrictions, limiting reuse options or timing of development to some degree (i.e., temporary lease to allow access to specific sites such as monitoring wells while the remainder of the site is developed for reuse). Development of alternatives has considered compatible land uses for the parcels in question.

2.2 DESCRIPTION OF PROPOSED ACTION (Expanded Airfield/Resort-Education)

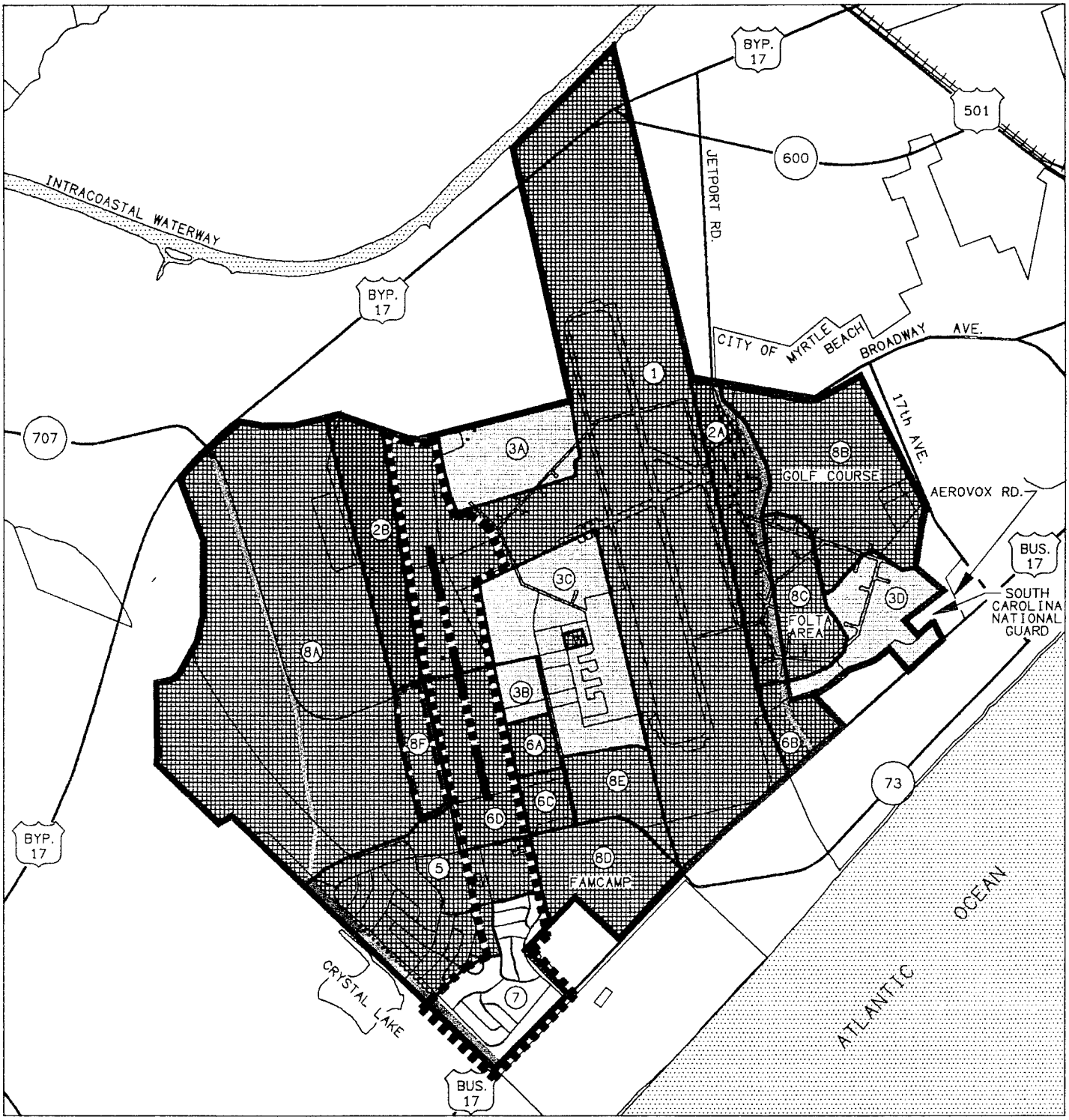
Pursuant to Section 2905 (b)(2)(E) of DBCRA, the Air Force consulted with the Governor of South Carolina and with elected and appointed officials representing the city of Myrtle Beach and Horry County. The purpose of the consultations was to solicit comments on environmental concerns and to elicit preparation of local reuse plans for Myrtle Beach AFB. Air Force policy is to consider timely reuse planning by using the community reuse plan for base land and facilities as the Proposed Action in the EIS.

In October 1991 the Myrtle Beach AFB Redevelopment Task Force was formed to prepare the community reuse plan. Ten subcommittees were established to address substantive issues arising out of the disposal and reuse process. The committees include economic development, health and welfare, airport, human resources, base planning, transportation, education and training, retirees special tasking, and special projects. Subcommittee membership includes 51 local business and community leaders. In early 1992, a coordinator was hired by the Redevelopment Task Force to oversee the reuse planning process.

The Redevelopment Task Force contracted with a consultant to work with local agencies to prepare the community reuse plan. The community reuse plan addressed the following:

- Reuses proposed by federal, state, and local organizations
- Adaptive reuse of base facilities
- New development of base land
- Environmental constraints
- Traffic and transportation considerations
- Market feasibility.

The product of this effort is the community reuse plan, which is the Proposed Action for the purpose of analyzing potential environmental impacts. Features of the Proposed Action are shown in Figure 2.2-1.



EXPLANATION

- (1) AIRFIELD
- (2) AVIATION SUPPORT
- (3) INDUSTRIAL
- (4) INSTITUTIONAL (MEDICAL)*
- (5) INSTITUTIONAL (EDUCATIONAL)
- (6) COMMERCIAL
- (7) RESIDENTIAL
- (8) PUBLIC FACILITIES & RECREATION
- (9) AGRICULTURE*
- (10) VACANT LAND*

* NOT APPLICABLE

- ROAD REALIGNMENT
- AIRFIELD EXPANSION
- AVIATION SUPPORT EXPANSION
- PROPOSED RUNWAY

SOURCE: MYRTLE BEACH AFB REDEVELOPMENT TASK FORCE

0 1000 3000 feet

N W E S

PROPOSED ACTION

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 2.2-1

The Proposed Action was developed in response to the forecast need for expanded aviation operation, a proposed destination resort, and a concept advanced by a consortium of educational institutions to develop an educational campus as part of the reuse plans.

Aviation uses include expansion of the existing commercial aviation operation, and the eventual construction of a second runway for general and corporate aviation use. The second runway is anticipated to become operational late in the 20-year period covered by this EIS.

Aviation-related industrial development is anticipated near the airfield, resulting from stimuli provided by expanded airport operations and accessibility to corporate aircraft. Existing industry near the base would expand to use base property, and a research and development (R&D) center is proposed.

A destination resort would occupy approximately 800 acres and would include a theme park, convention center, hotel, commercial enterprise, and recreational facilities.

The educational complex would incorporate two- and four-year undergraduate curricula, research and public service programs, and graduate programs. In addition, a "magnet" high school for talented and gifted students would be part of the complex.

Other proposed uses include an air museum, golf course, commercial land uses, and housing.

The total acreage to be occupied by individual land uses is shown on Table 2.2-1. No off-base property is necessary for implementation of this alternative.

The amount of development, including existing facility demolition and retention and new facility construction, for each land use under the Proposed Action is provided in Table 2.2-2.

The acreages within each land use assumed to be disturbed by construction of facilities, infrastructure improvements, or other operational activities under the Proposed Action are provided in Table 2.2-3 for three phases of development.

2.2.1 AIRFIELD

The airfield land use category after 2010 includes 1,445 acres on base. It encompasses the following proposed reuse options depicted in the Myrtle Beach Jetport Master Plan and Base Re-Utilization Study (LPA Group, Inc., 1992): runways, taxiways, runway protection zones, control tower, fire station, and navigation aids. The airfield would be used primarily by passenger aircraft (air carrier and commuter) and general aviation aircraft. Additional activities requiring airfield support include the transport of air cargo, and flights associated with the maintenance of all types of aircraft.

Table 2.2-1. Land Use Acreage - Proposed Action

Land Use	Area Before 2010 (acres)		Percent	Area After 2010* (acres)		Percent
1 Airfield	1,159		31	1,445		39
2 Aviation Support	231		6	279		7
A East		121			121	
B West		110			158	
3 Industrial	446		12	446		12
A Aviation-related industry (north)		103			103	
B Aviation-related industry (south)		26			26	
C Research & Development		217			217	
D Industry (manufacturing)		100			100	
5 Institutional (Educational)	234		6	185		5
6 Commercial	214		6	91		2
A North		25			25	
B East		41			41	
C South		25			25	
D West		123			0	
7 Residential	117		3	0		0
8 Public Facilities & Recreation	1,343		36	1,298		35
A Destination resort		800			800	
B Existing golf course		235			235	
C Air museum		82			82	
D Campground		111			111	
E Recreation area north of campground		70			70	
F Sports area		45			0	
TOTAL	3,744		100	3,744		100

*Construction of the airfield expansion is assumed to begin after the year 2010.

Table 2.2-2. Facility Development - Proposed Action

Land Use	Existing Facility Demolition		Existing Facility Retention[1]		New Facility Construction
	Prior to Airfield Expansion	After Airfield Expansion	Prior to Airfield Expansion	After Airfield Expansion	
Airfield	0	515[2]	49	466[3]	0
Aviation Support	0	0	58	58	44
Industrial	14	0	780	780	1,390
Institutional (Educational)	0	0	579	477[4]	0
Commercial	80	0	517	89[4]	1,046
Residential	0	0	402	0[4]	0
Public Facilities & Recreation	41	0	33	33	N/A

Note: Units are in thousands of square feet (SF) of floor space. Buildings less than 3,000 SF are not reported, unless otherwise warranted.
Facility = Building
[1] Square feet indicates space available, not space utilization.
[2] Source: LPA Group, Inc., 1992.
[3] Includes interim use facilities designated under other land use categories prior to airfield expansion.
[4] The difference in facility retention prior to and after airfield expansion is incorporated in the airfield land use.

Table 2.2-3. Acres Disturbed by the Proposed Action

Land Use	1993-1998	1998-2003	2003-2013	Total
Airfield	0	0	461	461
Aviation Support	169	0	48	217
Industrial	390	0	0	390
Institutional (Educational)	0	0	0	0
Commercial	91	0	0	91
Residential	0	0	0	0
Public Facilities & Recreation	800	0	0	800
Total	1,450	0	509	1,959

The Myrtle Beach Jetport Master Plan and Base Re-Utilization Study indicated that growth in general aviation activities would justify adding an additional runway at the jetport after the year 2002. General aviation operations would be the predominant aviation activity at the jetport, followed by air passenger flights, pilot training operations, aircraft maintenance generated operations, and air cargo flights. General aviation activities consist of private or pleasure flying as well as corporate flying. The jetport also is expected to be used as an auxiliary airport for pilot training operations, conducted by a flying school headquartered at the nearby Conway/Horry County Airport. Basing for these training aircraft is projected to remain at the Conway/Horry County Airport.

Table 2.2-4 reflects the projected flight operations assumed for the Proposed Action for the baseline year following closure (1993), and for the periods 5, 10, and 20 years beyond baseline (1998, 2003, and 2013, respectively). Forecasts of flight operations have been based on assumptions presented in the Myrtle Beach Jetport Master Plan and Base Re-Utilization Study. Adjustments have been made using these forecasts to reflect the potential changes in flight operations relative to the extent of conceptual land use designations likely to influence the amount of flight operations. These uses include aviation-related industry and general aviation for recreation. It is assumed increases in passenger boardings would be accommodated by changes in aircraft size and capacity.

The majority of the operations at the jetport are expected to be visual flight rule (VFR) general aviation, which tends to be heavily daytime-oriented flying. Therefore, the number of operations between 10 P.M. and 7 A.M. can be expected to be minimal. By 1998, approximately 36 percent of the aircraft operations should be accomplished using Stage 3 aircraft. To meet Federal Aviation Regulation (FAR) noise requirements, all air carriers should be converted to Stage 3 aircraft by the year 2000. A Stage 3 aircraft in compliance with FAR requirements produces a maximum effective perceived noise level of 89 to 106 decibels, depending on the aircraft weight and number of engines. Existing aircraft flight tracks could accommodate future aviation activity. The criteria presently used for determination of flight tracks are similar to future requirements: aircraft safety and performance balanced with noise and avoidance of built-up areas.

Table 2.2-4. Projected Flight Operations - Proposed Action

Year	Operations	Function	%	Fleet Mix	Annual Operations[1]
1993	Air Passenger	Air Carrier (subtotal)			6,890
			26	B727-200	
			17	B737-200	
			1	B737-300	
			1	B737-400[2]	
			5	B757-200[2]	
			11	F-100	
			39	DC-9	
		Commuter (subtotal)			8,410
			29	SAAB 340	
			60	EMB 120	
			11	DHC-8	
	Air Cargo (subtotal)				2,550
			23	C-208	
			62	C-402	
			15	PA-34	
				Total	17,850
1998	Air Passenger	Air Carrier (subtotal)			13,120
			20	B727-200	
			1	B737-200	
			34	B737-300	
			32	B737-400[2]	
			4	B757-200[2]	
			9	F-100	
		Commuter (subtotal)			9,120
			88	SAAB 340	
			12	DHC-8	
	Air Cargo		100	C-402	2,870
	General Aviation		64	Single Engine Piston	41,490
			4	Multi-Engine Piston	2,590
			23	Multi-Engine Turboprop	14,910
			9	Turbojet	5,830
	Pilot Training		100	C-150/172, Apache, etc.	6,290
	Aircraft Maintenance		100	Various Types	3,720
				Total	99,940
2003	Air Passenger	Air Carrier (subtotal)			15,530
			40	B757-200[2]	
			56	B737-400[2]	
			4	B747-400[2]	
		Commuter (subtotal)			13,230
			57	SAAB 340	
			43	DHC-8	
	Air Cargo		100	C-402	3,020
	General Aviation		64	Single Engine Piston	48,140
			4	Multi-Engine	3,010
			23	Multi-Engine Turboprop	17,300
			9	Turbojet	6,770
	Pilot Training		100	C-150/172, Apache, etc.	8,030
	Aircraft Maintenance		100	Various Types	4,350
				Total	119,380

Table 2.2-4. Projected Flight Operations - Proposed Action

Year	Operations	Function	%	Fleet Mix	Annual Operations[1]
2013	Air Passenger	Air Carrier (subtotal)			18,580
			40	B757-200[2]	
			56	B737-400[2]	
			4	B747-400[2]	
		Commuter (subtotal)			15,830
			57	SAAB 340	
			43	DHC-8	
	Air Cargo		100	C-402	3,070
	General Aviation		64	Single Engine Piston	60,720
			4	Multi-Engine Piston	3,800
			23	Multi-Engine Turboprop	21,820
			9	Turbojet	8,540
	Pilot Training		100	C-150/172, Apache, etc.	12,950
	Aircraft Maintenance		100	Various Types	5,640
				Total	150,950

[1] An operation is defined as a take-off or a landing.
[2] Stage 3 aircraft.
Note: Projections rounded to the nearest 10.
Source: LPA Group, Inc., 1992.

A conceptual plan for the civilian use of the aviation facilities at Myrtle Beach AFB was developed and provided in the Jetport Master Plan and Base Re-Utilization Study. The conceptual plan used the Federal Aviation Administration (FAA) Advisory Circular 150/5300-13 in developing the layout of the characteristics (e.g., dimensions, separations, and clearances) of airfield elements to allow current operation of all commercial aircraft. The airfield as designed (including the soon-to-begin taxiway improvements on the jetport side of the runway) is capable of handling widebody aircraft, such as the Boeing 747, DC-10, and L-1011. The following important features of the airfield plan are cited in the Jetport Master Plan and Base Re-Utilization Study:

- The existing runway is retained at its current length and width and is repaired, as required.
- A new parallel runway west of the existing runway should be added around the year 2010 to accommodate general aviation aircraft.
- Some unused pavements will be abandoned or removed, as required.
- New taxiways should be constructed, as required, to connect the added general aviation terminal, hangars, and aprons. When the additional runway is added, new taxiways will be necessary to connect the runway with the existing airfield complex.
- Runway protection zones located at either end of the existing and planned runways will be kept free of structural development, except for required navigational aids. Additionally, to ensure the FAA-desired separation between aircraft and buildings, structures within the areas under the

approach surfaces associated with the runway should not protrude above the bottom plane of these surfaces.

2.2.2 AVIATION SUPPORT

Aviation support uses would include the existing jetport terminal, which is presently undergoing expansion and upgrading, other existing facilities, and new facilities supporting the proposed airfield expansion. Related maintenance facilities at the jetport would be used. These potential uses could include a fixed-base operator. The land designated for aviation support would increase from 122 acres to 231 acres prior to 2010, and 279 acres after 2010, reflecting the expansion of the aviation support activities.

2.2.3 INDUSTRIAL

Proposed industrial uses include an industrial manufacturing area, two aviation-related industry areas, and an R&D center. The proposed industrial manufacturing area would cover about 100 acres on the eastern portion of the base. Land for aviation-related industry is proposed for a 103-acre parcel located between the existing and proposed runways along the north base boundary and a 26-acre parcel located on the west-central portion of the base west of the existing flightline. An R&D center would be located on 217 acres also on the central portion of the base adjacent to the aviation-related industrial parcel. The industrial uses would include adaptive reuse of several existing buildings, including hangars, warehouses, maintenance facilities, shops, and administrative structures. New building construction for R&D uses would occur on vacant land south of the existing flightline and in the north parcel of the land proposed for aviation-related industrial.

A preliminary phasing plan has been developed for the industrial uses based on assumptions of employment and floor area ratio by use. The possible industrial manufacturing area could consist of approximately 600,000 square feet of space. An additional 500,000 square feet of aviation-related industrial building construction could be available by the year 1998 and another 600,000 square feet is projected to be obtainable by 2003. At buildout, 1.9 million square feet could be accommodated for aviation-related industry. A projected 70,000 square feet of R&D space could be available by the year 1998, and another 100,000 square feet is projected to be available by 2003. At buildout, approximately 270,000 square feet could be accommodated for R&D activities.

2.2.4 INSTITUTIONAL (MEDICAL)

No medical facilities are proposed in this reuse alternative.

2.2.5 INSTITUTIONAL (EDUCATIONAL)

The development of a higher education center would occur on 234 acres of land located between the southern and western corners of the base. The center would include two-year and four-year curricula, research and public service programs, graduate programs, and a "magnet" high school.

A portion of the educational complex would use existing buildings on an interim basis prior to development of the second runway. Existing facilities proposed

to be adapted for educational use include barracks, recreational buildings, the Base Exchange, and several administrative offices. Once development of the second runway is initiated, the campus would vacate 49 of its 234 acres and could relocate to property adjacent to the western base boundary. This concept is similar to that of "incubator" space for industrial and R&D businesses that start in space immediately available, become established, and accumulate capital for expansion or relocation when warranted. The remaining 185 acres would remain in use by the campus.

2.2.6 COMMERCIAL

Four commercial areas would be located on the base in this alternative. Three of the areas are clustered together adjacent to the destination resort, educational facility, and R&D park. A 123-acre parcel would be available on an interim basis because of the expanded airfield. The other two parcels, each 25 acres, would remain with various levels of commercial activities associated with each. The fourth location for commercial use fronts U.S. 17 Business adjacent to Ocean Woods Memorial Park Cemetery and the existing airfield.

2.2.7 RESIDENTIAL

Housing is proposed to occupy a 117-acre portion of the existing base housing area. The housing in this area would be available on a temporary basis until the second runway is developed. At this time, all the dwellings would be removed for a runway protection zone. Commercial lodging units also are proposed for the destination resort parcel, including rental villas and two hotels totaling 2,200 visitor rooms.

2.2.8 PUBLIC FACILITIES AND RECREATION

Six areas of the base have been proposed in this alternative for public facilities and recreation land uses.

- An 800-acre destination resort is proposed for the northwest portion of the base. This resort would incorporate natural features of the landscape in developing a theme park to capitalize on tourism in the Grand Strand region. The resort would include a theme park attraction, convention center, hotel, shopping areas, and a golf resort community including residential villas.

- The existing base golf course, clubhouse, and driving range would continue to be used as such on 235 acres.

- At the eastern portion of the base, the existing Forward Operating Location Training Area (FOLTA) would be converted to a 82-acre air museum for public display of historic aircraft and military aviation exhibits.

- The family campground and adjacent vacant land totalling 111 acres are also proposed for recreational use.

- A recreation area of 70 acres is proposed north of the campground area. This area could include baseball diamonds, football/soccer fields, and other sports activities.

- Forty-five acres of existing recreation facilities west of Fourth Street would continue to be used as such on an interim basis.

2.2.9 AGRICULTURE

No agricultural use is proposed in this alternative.

2.2.10 VACANT LAND

All base property would be utilized in this alternative.

2.2.11 EMPLOYMENT AND POPULATION

Table 2.2-5 shows projected employment and population growth over the 20-year period.

Table 2.2-5. Reuse-Related Permanent Employment and Population Effects - Proposed Action

	Closure (1993)	1998	2003	2013
Direct Employment	285[1]	3,791	6,612	9,643
Resident Population Increase	37	6,107	7,973	11,257

[1] Includes 60 employees on base and 225 existing jetport employees.

2.2.12 TRANSPORTATION

Based on land use and employment projections, average daily vehicular traffic to and from base property would be approximately 67,482 vehicle trips per day in 1998, 99,376 trips per day in 2003, and 116,349 trips per day in 2013. A major traffic generator in this alternative is the destination resort, which contains a theme park and several large hotels. Most vehicular traffic would occur during daylight hours.

2.2.13 UTILITIES

Based on population and employment projections, the Proposed Action would generate a demand for 3.4 million gallons per day (MGD) of potable water by 2013. Wastewater generated is estimated to be 2.9 MGD by 2013. Solid waste would likely be 40.2 tons per day by 2013. Electricity demand is expected to be 237.5 megawatt hours (MWH) per day by 2013. The demand for natural gas is estimated to be 12,830 therms per day by 2013.

2.3 DESCRIPTION OF ALTERNATIVES

Three alternatives to the Proposed Action were identified by the Air Force, each incorporating aviation use. The intent of each of these alternatives is to provide a viable mix of land uses that represent activities offered by the Redevelopment Task Force and other local proponents. In addition to the three alternatives that propose reuse of the base, the Air Force is considering in this

EIS a No-Action Alternative, which includes continued operation of the jetport with caretaker status for the remainder of the base.

All alternatives assumed the continued operation of the Myrtle Beach Jetport. With the exception of the No-Action Alternative, the reuse alternatives were developed with the intent to identify future uses that would occupy large tracts of land as opposed to numerous smaller activities; use existing buildings and base facilities to the extent feasible; and establish access between future on-base activities and north-south thoroughfares, providing a logical connection between U.S. 17 Bypass and U.S. 17 Business.

2.3.1 EXPANDED AIRFIELD/RESORT-RECREATION ALTERNATIVE

The land use concept (Figure 2.3-1) adhered to in preparing this alternative was to integrate expanded air transportation and logical support uses with a local proposal for a destination resort development.

Commercial aviation operations can expand due to cessation of military flight operations. An increase in general aviation activity may strain the capacities of local airfields and facilities. Within the 20-year timeframe covered in this EIS, a second runway for use by general and corporate aviation operations is proposed.

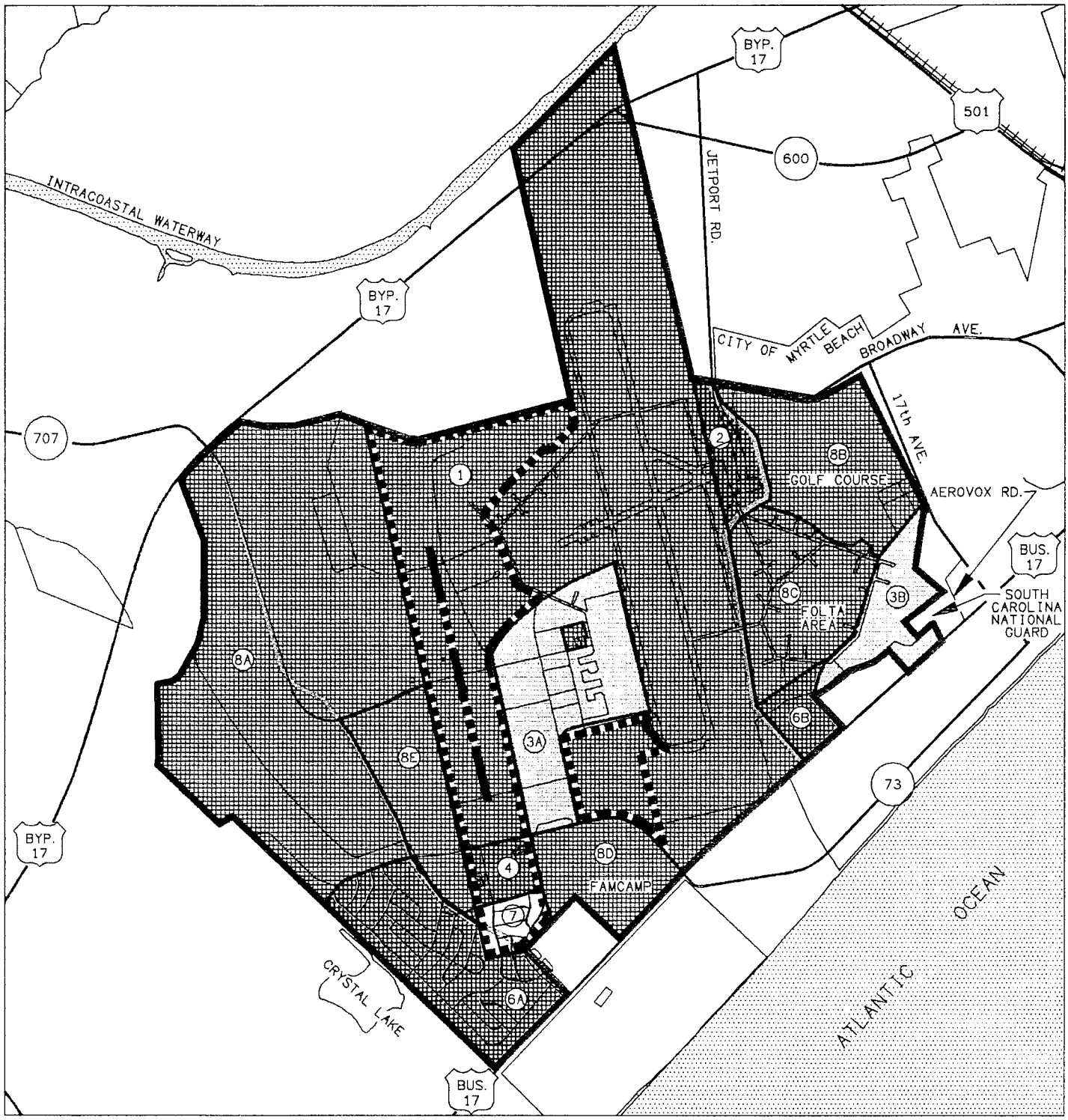
Existing industrial land uses would expand, and new aviation-related industry would occur in support of airport operations.

A destination resort would occupy approximately 870 acres and would include a theme park, convention center, hotel, commercial enterprise, and recreational facilities.

The total acreage proposed to be occupied by each land use is depicted in Table 2.3-1. No off-base property acquisition is anticipated.

The amount of development, including existing facility demolition and retention and new facility construction, for each land use under the Expanded Airfield/Resort-Recreation Alternative is provided in Table 2.3-2.

The acreage within each land use assumed to be disturbed by construction of facilities, infrastructure improvements, or other operational activities under the Expanded Airfield/Resort-Recreation Alternative is provided in Table 2.3-3 for three phases of development.



EXPLANATION

- (1) AIRFIELD
- (2) AVIATION SUPPORT
- (3) INDUSTRIAL
- (4) INSTITUTIONAL (MEDICAL)
- (5) INSTITUTIONAL* (EDUCATIONAL)
- (6) COMMERCIAL
- (7) RESIDENTIAL
- (8) PUBLIC FACILITIES & RECREATION
- (9) AGRICULTURE*
- (10) VACANT LAND*
- ROAD REALIGNMENT
- AIRFIELD EXPANSION
- PROPOSED RUNWAY

* NOT APPLICABLE

0 1000 3000 feet

EXPANDED AIRFIELD/ RESORT-RECREATION ALTERNATIVE

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 2.3-1

Table 2.3-1. Land Use Acreage - Expanded Airfield/Resort-Recreation Alternative

Land Use	Area Before 2010 (acres)		Percent	Area After 2010* (acres)		Percent
1 Airfield	1,540		41	1,614		43
2 Aviation Support	62		2	62		2
3 Industrial	305		8	305		8
A Aviation-related industry (west)		220			220	
B Industrial expansion		85			85	
4 Institutional (Medical)	41		1	0		0
6 Commercial	260		7	260		7
A Southwest		215			215	
B South of FOLTA		45			45	
7 Residential	33		1	0		0
8 Public Facilities & Recreation	1,503		40	1,503		40
A Destination resort		870			870	
B Existing golf course		201			201	
C Air museum		190			190	
D Campground		111			111	
E Sports area		131			131	
TOTAL	3,744		100	3,744		100

* Construction of the airfield expansion is assumed to begin after the year 2010.

Table 2.3-2. Facility Development - Expanded Airfield/Resort-Recreation Alternative

Land Use	Existing Facility Demolition		Existing Facility Retention[1]		New Facility Construction
	Prior to Airfield Expansion	After Airfield Expansion	Prior to Airfield Expansion	After Airfield Expansion	
Airfield	0	751	546	77	0
Aviation Support	0	0	80	80	22
Industrial	13	0	752	752	1,418
Institutional (Medical)	0	0	68	0[2]	0
Commercial	736	0	0	0	842
Residential	0	0	151	0[2]	0
Public Facilities & Recreation	61	0	92	92	N/A

Note: Units are in thousands of square feet (SF) of floor space. Buildings less than 3,000 SF are not reported, unless otherwise warranted.

[1] Square feet indicates space available, not space utilization.

[2] The difference in facility retention prior to and after expansion is incorporated in the airfield land use.

Table 2.3-3. Acres Disturbed by the Expanded Airfield/Resort-Recreation Alternative

Land Use	1993-1998	1998-2003	2003-2013	Total
Airfield	0	0	498	498
Aviation Support	0	0	0	0
Industrial	85	0	0	85
Institutional (Medical)	0	0	0	0
Commercial	260	0	0	260
Residential	0	0	0	0
Public Facilities & Recreation	870	0	0	870
Total	1,215	0	498	1,713

2.3.1.1 Airfield

The airfield land use category after 2010 includes 1,614 acres on base and includes the existing and planned runways, taxiways, control tower, fire station, navigation aids, and runway protection zones as described for the Proposed Action. Other specific features of the airfield are similar to those of the Proposed Action. The projected flight operations for this alternative are depicted in Table 2.3-4. Aviation activities, aircraft flight tracks, and safety zones for this alternative would be the same as for the Proposed Action.

Table 2.3-4. Projected Flight Operations - Expanded Airfield/Resort-Recreation Alternative

Page 1 of 2

Year	Operations	Function	%	Fleet Mix	Annual Operations[1]
1993	Air Passenger	Air Carrier (subtotal)			6,890
			26	B727-200	
			17	B737-200	
			1	B737-300	
			1	B737-400[2]	
			5	B757-200[2]	
			11	F-100	
			39	DC-9	
		Commuter (subtotal)			8,410
			29	SAAB 340	
			60	EMB 120	
			11	DHC-8	
	Air Cargo (subtotal)				2,550
			23	C-208	
			62	C-402	
			15	PA-34	
				Total	17,850

Table 2.3-4. Projected Flight Operations - Expanded Airfield/Resort-Recreation Alternative

Year	Operations	Function	%	Fleet Mix	Annual Operations[1]
1998	Air Passenger	Air Carrier (subtotal)			13,120
			20	B727-200	
			1	B737-200	
			34	B737-300	
			32	B737-400[2]	
			4	B757-200[2]	
			9	F-100	
		Commuter (subtotal)			9,120
			88	SAAB 340	
			12	DHC-8	
	Air Cargo		100	C-402	2,870
	General Aviation		64	Single Engine Piston	41,490
			4	Multi-Engine Piston	2,590
			23	Multi-Engine Turboprop	14,910
			9	Turbojet	5,830
	Pilot Training		100	C-150/172, Apache, etc.	6,290
	Aircraft Maintenance		100	Various Types	3,640
				Total	99,860
2003	Air Passenger	Air Carrier (subtotal)			15,610
			40	B757-2002	
			56	B737-400[2]	
			4	B747-400[2]	
		Commuter (subtotal)			13,290
			57	SAAB 340	
			43	DHC-8	
	Air Cargo		100	C-402	3,020
	General Aviation		64	Single Engine Piston	48,140
			4	Multi-Engine Piston	3,010
			23	Multi-Engine Turboprop	17,300
			9	Turbojet	6,770
	Pilot Training		100	C-150/172, Apache, etc.	8,030
	Aircraft Maintenance		100	Various Types	4,270
				Total	119,440
2013	Air Passenger	Air Carrier (subtotal)			18,670
			40	B757-200[2]	
			56	B737-400[2]	
			4	B747-400[2]	
		Commuter (subtotal)			15,910
			57	SAAB 340	
			43	DHC-8	
	Air Cargo		100	C-402	3,070
	General Aviation		64	Single Engine Piston	60,720
			4	Multi-Engine Piston	3,800
			23	Multi-Engine Turboprop	21,820
			9	Turbojet	8,540
	Pilot Training		100	C-150/172, Apache, etc.	12,950
	Aircraft Maintenance		100	Various Types	5,530
				Total	151,010

[1] An operation is defined as a take-off or a landing.
[2] Stage 3 aircraft.
Note: Projections rounded to the nearest 10.
Source: LPA Group, Inc., 1992.

2.3.1.2 Aviation Support

Aviation support would be as described for the Proposed Action, with the exception of the total acreage, which would be maintained at 62 acres.

2.3.1.3 Industrial

To facilitate economic development opportunities, industrial development would include one industrial manufacturing area of 85 acres and another section of 220 acres for aviation-related industrial uses. Industrial growth on the eastern portion of the base would occur, while new aviation-related industrial development is proposed to be located at the center of the base. Several existing buildings adjacent to the flightline, including hangars and maintenance warehouses, shops, and administration and operations facilities, would be used largely as is for aviation-related industrial reuse. Some construction of new industrial structures is anticipated.

A preliminary phasing plan has been developed for the industrial uses based on assumptions of employment and floor area ratio by use. The potential industrial growth could be 600,000 square feet of space. Approximately 500,000 square feet of aviation-related industrial building construction could be available by the year 1998. Another 600,000 square feet is projected to be available by 2003. At buildout, 1.9 million square feet could be accommodated for aviation-related industry.

2.3.1.4 Institutional (Medical)

The base hospital and pharmacy would continue (under a new health care provider) as interim uses until approximately 2010, occupying 41 acres. When construction of the second runway is initiated these uses would be removed to accommodate the airport expansion.

2.3.1.5 Institutional (Educational)

There are no educational uses proposed.

2.3.1.6 Commercial

Two locations are identified for future commercial use, with combined acreage of 260 acres or 7 percent of the site. Both parcels have frontage on U.S. 17 Business and anticipated development would be as planned commercial centers. The smaller parcel, 45 acres, is located east of the airfield and would be suitable for use as a neighborhood shopping center. The larger commercial parcel, 215 acres of land at the southwest corner of the base (currently base housing), would be suitable for a community shopping center and office park development.

2.3.1.7 Residential

Two interim residential uses are proposed to incorporate 33 acres that would ultimately be used for the proposed second runway. Both of these uses would reuse existing base buildings. Base housing would be renovated to produce affordable housing with provisions for homeless housing. The Woodland Park

School would be used on an interim basis as a public school. The school is located where the second runway is proposed, and it would eventually be removed to accommodate airport expansion. These interim uses would remain until such time as construction of the second runway is undertaken. The proposed resort also would include 2,200 lodging units for visitors.

2.3.1.8 Public Facilities and Recreation

Five areas are proposed for public facilities and recreation use in this alternative.

- A destination resort is proposed to be developed on 870 acres in the western portion of the base.
- The base golf course, with clubhouse and driving range, would continue as a golf course on 201 acres under different ownership.
- Approximately 190 acres of the FOLTA is proposed to be converted to an attraction featuring an air museum.
- Playing fields and other recreational facilities on 131 acres west of Fourth Street would be available.
- The family campground and adjacent vacant land totalling 111 acres also would be available.

2.3.1.9 Agriculture

No agricultural use is proposed in this alternative.

2.3.1.10 Vacant Land

This alternative would reuse all of the base property.

2.3.1.11 Employment and Population

Table 2.3-5 shows projected employment and population growth effects at the time of base closure and after development of this alternative.

Table 2.3-5. Reuse-Related Permanent Employment and Population Effects - Expanded Airfield/Resort-Recreation Alternative

	Closure (1993)	1998	2003	2013
Direct Employment	285[1]	3,951	5,686	8,281
Resident Population Increase	37	6,316	6,840	9,872

[1] Includes 60 employees on base and 225 existing jetport employees.

2.3.1.12 Transportation

Based on land use and employment projections, average daily vehicular traffic to and from base property would be 66,741 vehicle trips per day in 1998, 91,667 vehicle trips per day in 2003; and 100,156 vehicle trips per day in 2013. A major traffic generator in this alternative is the destination resort, which contains a theme park and several large hotels. Most vehicular traffic would occur during daylight hours.

2.3.1.13 Utilities

Based on population and employment projections, this alternative would generate a demand for 3.2 MGD of potable water by 2013. Wastewater generated is estimated to be 2.7 MGD by 2013. Solid waste generated under this alternative would likely be 35.2 tons per day by 2013. Increased electricity demand is expected to be 208.3 MWH per day by 2013. The demand for natural gas is estimated to be 11,200 therms per day by 2013.

2.3.2 EXPANDED AIRFIELD/RESORT-COMMERCIAL-INDUSTRIAL ALTERNATIVE

The Expanded Airfield/Resort-Commercial-Industrial Alternative (Figure 2.3-2) is predicated upon a combination of industrial and commercial land uses in support of expanded aviation opportunities. Predominant among the proposed uses is the expansion of the existing airfield to include a second runway for corporate and general aviation uses. The destination resort development would be as discussed in both of the prior reuse scenarios.

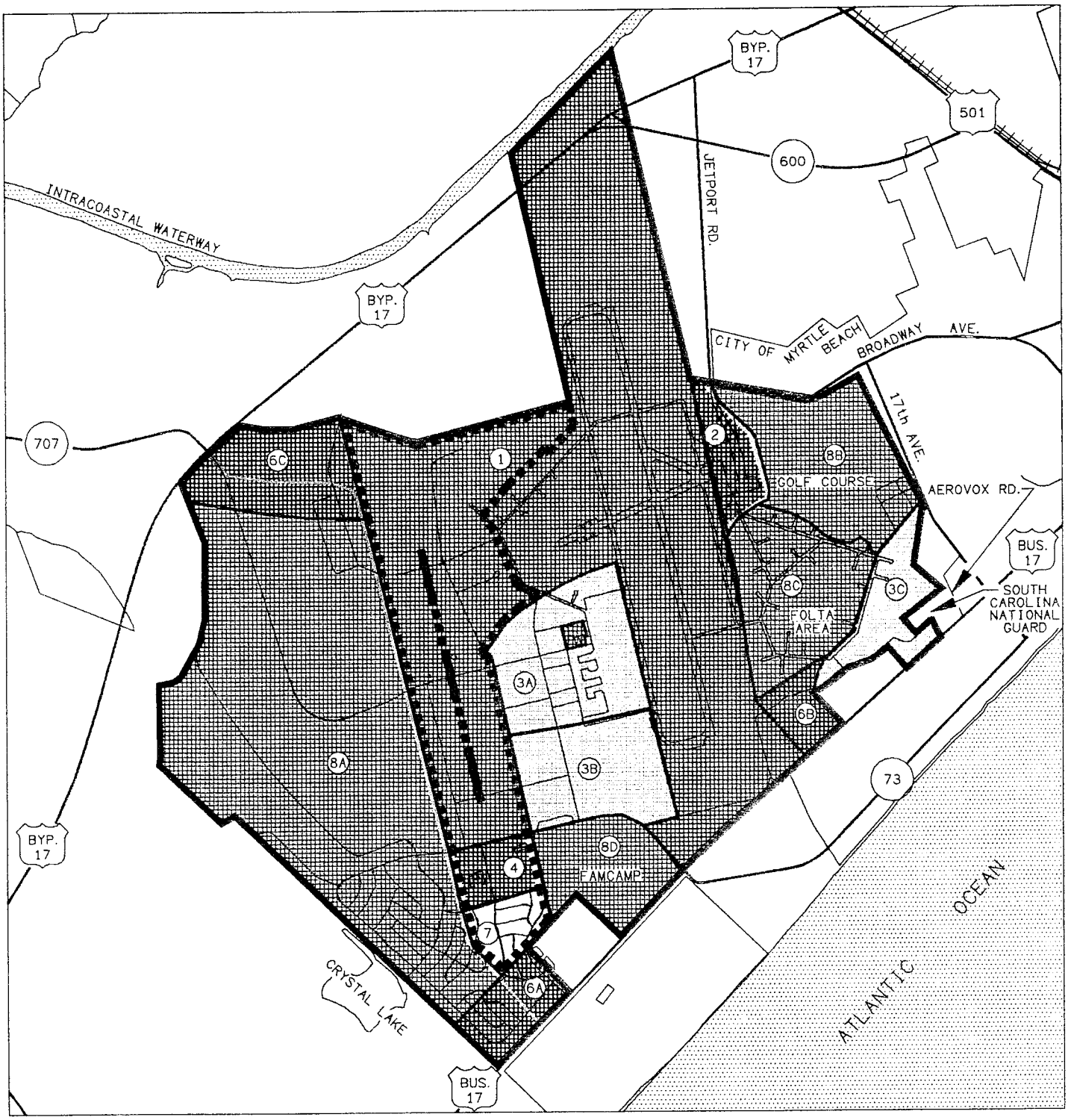
Elimination of military operations could lead to increased commercial operations at the jetport because of unimpeded runway access. General aviation demand would result in a need for a second runway to relieve pressures from other regional aviation facilities. This runway would become operational close to the end of the 20-year timeframe of this EIS, as described in the Expanded Airfield/Resort-Recreation Alternative.

Increased aviation activity would stimulate aviation-related industrial development near the airfield. Existing industry is anticipated to expand, and an R&D center also is envisioned.

The destination resort would be an integral part of the Expanded Airfield/Resort-Commercial-Industrial Alternative. Additional commercial development in support of new industry and the resort is anticipated at the intersection of proposed north-south thoroughfares with U.S. 17 Bypass and U.S. 17 Business.

A tabulation of land acreage by use type is depicted in Table 2.3-6. Off-base property would not be acquired under this alternative.

The amount of development, including existing facility demolition and retention and new facility construction, for each land use under the Expanded Airfield/Resort-Commercial-Industrial Alternative is provided in Table 2.3-7.



EXPLANATION

- (1) AIRFIELD
- (2) AVIATION SUPPORT
- (3) INDUSTRIAL
- (4) INSTITUTIONAL (MEDICAL)
- (5) INSTITUTIONAL* (EDUCATIONAL)
- (6) COMMERCIAL
- (7) RESIDENTIAL
- (8) PUBLIC FACILITIES & RECREATION
- (9) AGRICULTURE*
- (10) VACANT LAND*
- * NOT APPLICABLE
- ROAD REALIGNMENT
- AIRFIELD EXPANSION
- PROPOSED RUNWAY

0 1000 3000 feet

N W E S

EXPANDED AIRFIELD/ RESORT-COMMERCIAL-INDUSTRIAL ALTERNATIVE

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 2.3-2

Table 2.3-6. Land Use Acreage - Expanded Airfield/Resort-Commercial-Industrial Alternative

Land Use	Area Before 2010 (acres)		Percent	Area After 2010* (acres)		Percent
1 Airfield	1,510		40	1,605		42
2 Aviation Support	62		2	62		2
3 Industrial	416		11	416		11
A Aviation-related industry		182			182	
B Research and development		149			149	
C Industrial Expansion		85			85	
4 Institutional (Medical)	50		1	0		0
6 Commercial	244		7	244		7
A Southwest		65			65	
B South of FOLTA		45			45	
C Northwest		134			134	
7 Residential	45		1	0		0
8 Public Facilities & Recreation	1,417		38	1,417		38
A Destination resort		915			915	
B Existing golf course		201			201	
C Air museum		190			190	
D Campground		111			111	
TOTAL	3,744		100	3,744		100

* Construction of the airfield expansion is assumed to begin after the year 2010.

Table 2.3-7. Facility Development - Expanded Airfield/Resort-Commercial-Industrial Alternative

Land Use	Existing Facility Demolition		Existing Facility Retention[1]		New Facility Construction
	Prior to Airfield Expansion	After Airfield Expansion	Prior to Airfield Expansion	After Airfield Expansion	
Airfield	0	773	514	72	0
Aviation Support	0	0	80	80	22
Industrial	22	0	798	798	1,112
Institutional (Medical)	0	0	68	0[2]	0
Commercial	205	0	43	43	1,567
Residential	0	0	211	0[2]	0
Public Facilities & Recreation	540	0	45	45	N/A

Note: Units are in thousands of square feet (SF) of floor space. Buildings less than 3,000 SF are not reported, unless otherwise warranted.
[1] Square feet indicates space available, not space utilization.
[2] The difference in facility retention prior to and after expansion is incorporated in the airfield land use.

The acreage within each land use assumed to be disturbed by construction of facilities, infrastructure improvements, or other operational activities under this alternative is provided in Table 2.3-8 for three phases of development.

Table 2.3-8. Acres Disturbed by the Expanded Airfield/Resort-Commercial-Industrial Alternative

Land Use	1993-1998	1998-2003	2003-2013	Total
Airfield	0	0	602	602
Aviation Support	0	0	0	0
Industrial	234	0	0	234
Institutional (Medical)	0	0	0	0
Commercial	244	0	0	244
Residential	0	0	0	0
Public Facilities & Recreation	915	0	0	915
Total	1,393	0	602	1,995

2.3.2.1 Airfield

The airfield land use category after 2010 includes 1,605 acres on base and includes the existing and planned runways, taxiways, control tower, fire station, navigation aids, and runway protection zones as described for the Proposed Action. Other specific features of the airfield are similar to those of the Proposed Action. The projected flight operations for this alternative are shown in Table 2.3-9. Aviation activities, aircraft flight tracks, and safety zones for this alternative would be the same as for the Proposed Action.

Table 2.3-9. Projected Flight Operations - Expanded Airfield/Resort-Commercial-Industrial Alternative

Year	Operations	Function	%	Fleet Mix	Annual Operations[1]
1993	Air Passenger	Air Carrier (subtotal)			6,890
			26	B727-200	
			17	B737-200	
			1	B737-300	
			1	B737-400[2]	
			5	B757-200[2]	
			11	F-100	
			39	DC-9	
		Commuter (subtotal)			8,410
			29	SAAB 340	
			60	EMB 120	
			11	DHC-8	
	Air Cargo (subtotal)				2,550
			23	C-208	
			62	C-402	
			15	PA-34	
				Total	17,850

Table 2.3-9. Projected Flight Operations - Expanded Airfield/Resort-Commercial-Industrial Alternative

Year	Operations	Function	%	Fleet Mix	Annual Operations[1]
1998	Air Passenger	Air Carrier (subtotal)			13,120
			20	B727-200	
			1	B737-200	
			34	B737-300	
			32	B737-400[2]	
			4	B757-200[2]	
			9	F-100	
		Commuter (subtotal)			9,120
			88	SAAB 340	
			12	DHC-8	
	Air Cargo		100	C-402	2,870
	General Aviation		64	Single Engine Piston	40,280
			4	Multi-Engine Piston	2,520
			23	Multi-Engine Turboprop	14,470
			9	Turbojet	5,660
	Pilot Training		100	C-150/172, Apache, etc.	6,290
	Aircraft Maintenance		100	Various Types	3,460
				Total	97,790
2003	Air Passenger	Air Carrier (subtotal)			15,610
			40	B757-2002	
			56	B737-400[2]	
			4	B747-400[2]	
		Commuter (subtotal)			13,290
			57	SAAB 340	
			43	DHC-8	
	Air Cargo		100	C-402	3,020
	General Aviation		64	Single Engine Piston	46,730
			4	Multi-Engine Piston	2,920
			23	Multi-Engine Turboprop	16,800
			9	Turbojet	6,570
	Pilot Training		100	C-150/172, Apache, etc.	8,030
	Aircraft Maintenance		100	Various Types	4,050
				Total	117,020
2013	Air Passenger	Air Carrier (subtotal)			18,670
			40	B757-200[2]	
			56	B737-400[2]	
			4	B747-400[2]	
		Commuter (subtotal)			15,910
			57	SAAB 340	
			43	DHC-8	
	Air Cargo		100	C-402	3,070
	General Aviation		64	Single Engine Piston	58,960
			4	Multi-Engine Piston	3,680
			23	Multi-Engine Turboprop	21,190
			9	Turbojet	8,290
	Pilot Training		100	C-150/172, Apache, etc.	12,950
	Aircraft Maintenance		100	Various Types	5,250
				Total	147,970

[1] An operation is defined as a take-off or a landing.
[2] Stage 3 aircraft.
Note: Projections rounded to the nearest 10.
Source: LPA Group, Inc., 1992.

2.3.2.2 Aviation Support

Aviation support uses would be as described for the Proposed Action with the exception of the total acreage, which would be maintained at 62 acres.

2.3.2.3 Industrial

This alternative proposes 416 acres of base property (11 percent of the total) for industrial use. The concept includes aviation-related industry, an R&D center, and an industrial manufacturing area. The first two industrial components could use numerous existing buildings, including hangars and maintenance warehouses, shops, storerooms, and administrative buildings. New construction would be an integral part of the third development component. Land for aviation-related industry is proposed for a 182-acre parcel located on the central portion of the base west of the existing flightline. Land for the R&D center would comprise 149 acres also located on the central portion of the base, adjacent to the southern boundary of the aviation-related industrial parcel. The industrial manufacturing area on the eastern boundary of the base property would encompass about 85 acres.

A preliminary phasing plan has been developed for the industrial uses based on assumptions of employment and floor area ratio by use. The possible industrial manufacturing area could consist of approximately 600,000 square feet of space. An additional 305,000 square feet of aviation-related industrial building construction could be available by the year 1998. Another 675,000 square feet is projected to be completed by 2003. At buildout, 1.16 million square feet could be accommodated for aviation-related industry. A projected 65,000 square feet of R&D space could be available by the year 1998. Another 160,000 square feet is projected to be completed by 2003. At buildout, approximately 250,000 square feet could be accommodated for R&D activities.

2.3.2.4 Institutional (Medical)

The existing base hospital and pharmacy would have interim use by a new health-care provider through at least 2002. Construction of the second runway would result in the demolition of these buildings. Adaptive reuse of the Woodland Park School and Officers' Club is also proposed as part of this concept. These facilities are within the 50 acres proposed for medical uses in this alternative.

2.3.2.5 Institutional (Educational)

No education uses are proposed in this alternative.

2.3.2.6 Commercial

Three parcels of base property totalling 244 acres are proposed for commercial development. Highway commercial uses are proposed for the parcel fronting on U.S. 17 Business west of Memorial Park Cemetery. At the southwest corner of the base, existing housing (65 acres) would be replaced by a specialty commercial center. This parcel is bisected by a proposed arterial road connecting U.S. 17 Business and U.S. 17 Bypass that provides access to the proposed destination resort. A 134-acre parcel of commercial land also is

proposed for the northwest corner of the base, which is bisected by the proposed road, adjacent to the proposed resort site. None of the development projected for commercial land uses in this alternative would reuse existing base buildings.

2.3.2.7 Residential

Housing with provision for the homeless is proposed to occupy a 45-acre portion of the existing base housing area. The housing in this area would be available on a temporary basis until the second runway is developed. At that time, dwellings in conflict with the requirement for a runway protection zone would be removed. Commercial lodging units also are proposed for the destination resort parcel, including rental villas and two hotels totaling 2,200 visitor rooms.

Woodland Park School could receive interim use as a public school, if not adapted for medical space. School use would be discontinued at such time as runway expansion is implemented.

2.3.2.8 Public Facilities and Recreation

Sites proposed for public facilities and recreation use in this alternative comprise four parcels of base property totalling 1,417 acres.

- A destination resort is proposed to be developed on 915 acres in the western portion of the base. Natural features of the landscape would be incorporated into the concept, which would include a theme park, convention center, hotels, commercial uses, a golf course, and resort lodging accommodations in villas.
- The golf course, with clubhouse and driving range, would continue under different ownership on 201 acres.
- Approximately 190 acres of the FOLTA is proposed to be converted to an attraction featuring an air museum with exhibits of war planes and interpretive areas.
- The family campground and adjacent vacant land totalling 111 acres would continue to be used for recreation.

2.3.2.9 Agriculture

No agricultural use is proposed in this alternative.

2.3.2.10 Vacant Land

This alternative would utilize all base property.

2.3.2.11 Employment and Population

Population and employment changes over the 20-year period are shown in Table 2.3-10.

Table 2.3-10 Reuse-Related Permanent Employment and Population Effects - Expanded Airfield/Resort-Commercial-Industrial Alternative

	Closure (1993)	1998	2003	2013
Direct Employment	285[1]	4,842	7,641	10,159
Resident Population Increase	37	7,334	9,223	11,932

[1] Includes 60 employees on base and 225 existing jetport employees.

2.3.2.12 Transportation

Based on land use and employment projections, average daily vehicular traffic to and from base property would be approximately 77,173 vehicle trips per day in 1998, 105,619 trips per day in 2003, and 114,404 trips per day in 2013. A major traffic generator would be the destination resort, containing a theme park and several large hotels. Most vehicular traffic would occur during daylight hours.

2.3.2.13 Utilities

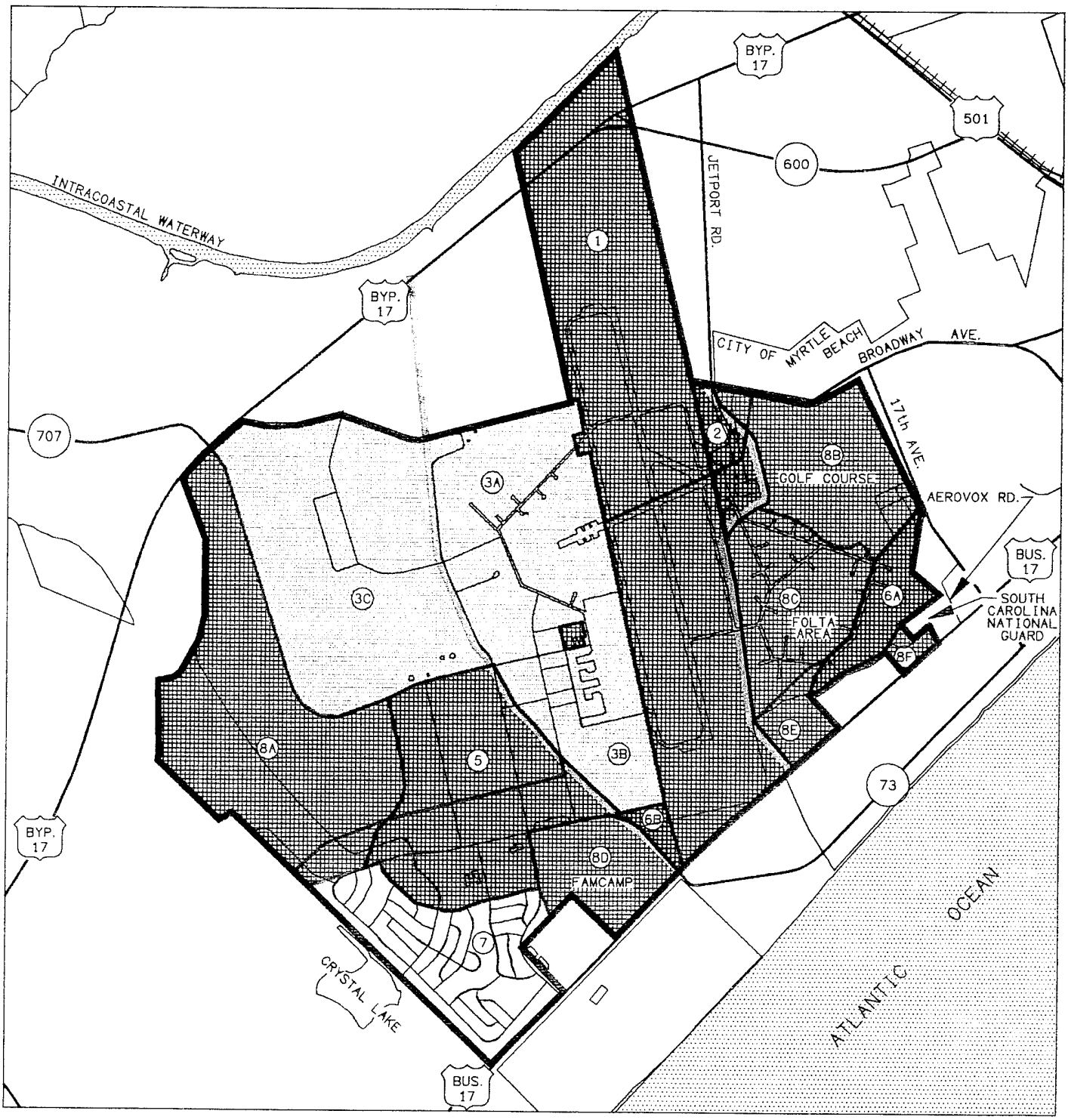
Based on population and employment projections, this alternative would generate a demand for 3.5 MGD of potable water by 2013. Wastewater generated is estimated to be 2.9 MGD by 2013. Solid waste generated under this alternative would likely be 42.6 tons per day by 2013. Electricity demand is expected to be 251.8 MWH per day by 2013. The demand for natural gas is estimated to be 13,600 therms per day by 2013.

2.3.3 EXISTING AIRFIELD/MIXED USE ALTERNATIVE

The Existing Airfield/Mixed Use Alternative differs from the previous alternatives in that a second runway is not proposed. Aviation support facilities would expand to accommodate general aviation operations, utilizing the existing airfield facilities.

Proposed land uses incorporate a broad mix of activities including residential, educational, commercial, industrial, and public facilities and recreation. Affordable housing with provision for the homeless, and medium density residential development are proposed as a means of meeting local housing demand. An educational campus is proposed to encompass those facilities previously discussed in the Proposed Action. Planned commercial nodes are proposed to accommodate neighborhood retail uses and office parks. Future industrial land use would incorporate aviation-related facilities and an R&D complex near the airfield. A low-to medium-security correctional facility is proposed that would incorporate a law enforcement training center. Anticipated public facilities and recreation development would include a veterans' cemetery, the existing golf course, an air museum, a campground, and a PGA golf complex. The features of this alternative are illustrated in Figure 2.3-3.

The total acreage occupied by proposed land uses is listed in Table 2.3-11. Off-base property would be acquired to accommodate right-of-way for a proposed thoroughfare, connecting U.S 17 Business and U.S. 17 Bypass.



EXPLANATION

- (1) AIRFIELD
- (2) AVIATION SUPPORT
- (3) INDUSTRIAL
- (4) INSTITUTIONAL* (MEDICAL)
- (5) INSTITUTIONAL (EDUCATIONAL)
- (6) COMMERCIAL
- (7) RESIDENTIAL
- (8) PUBLIC FACILITIES & RECREATION
- (9) AGRICULTURE*
- (10) VACANT LAND*
- ROAD REALIGNMENT

* NOT APPLICABLE

0 1000 3000 feet

EXISTING AIRFIELD/ MIXED USE ALTERNATIVE

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 2.3-3

Table 2.3-11. Land Use Acreage - Existing Airfield/Mixed Use Alternative

Land Use	Area (acres)		Percent
1 Airfield	875		23
2 Aviation Support	62		2
3 Industrial	1,082		29
A Aviation-related industry		420	
B Research and development		124	
C Correctional facility		538	
5 Institutional (Educational)	360		10
6 Commercial	86		2
A East		70	
B Southwest		16	
7 Residential	230		6
8 Public Facilities & Recreation	1,049		28
A PGA golf course		485	
B Existing golf course		201	
C Air museum		190	
D Campground		111	
E Cemetery		45	
F Fire station		17	
Sub-Total (on-base area)	3,744		100
Off-base right-of-way	9		
Total	3,753		

The amount of development, including existing facility demolition and retention and new facility construction, for each land use under the Existing Airfield/Mixed Use Alternative is provided in Table 2.3-12.

Table 2.3-12. Facility Development - Existing Airfield/Mixed Use Alternative

Land Use	Existing Facility Demolition	Existing Facility Retention*	New Facility Construction
Airfield	0	21	0
Aviation Support	0	80	0
Industrial	13	718	2,497
Institutional (Educational)	0	890	0
Commercial	0	53	1,442
Residential	0	412	0
Public Facilities & Recreation	1	90	N/A

Note: Units are in thousands of square feet (SF) of floor space. Buildings less than 3,000 SF are not reported, unless otherwise warranted.

* Square feet indicates space available, not space utilization.

The acreage within each land use assumed to be disturbed by construction of facilities, infrastructure improvements, or other operational activities under this alternative is provided in Table 2.3-13 for three phases of development.

Table 2.3-13 Acres Disturbed by the Existing Airfield/Mixed Use Alternative

Land Use	1993-1998	1998-2003	2003-2013	Total
Airfield	0	0	0	0
Aviation Support	0	0	0	0
Industrial	872	0	0	872
Institutional (Educational)	0	0	0	0
Commercial	86	0	0	86
Residential	0	0	0	0
Public Facilities & Recreation	485	0	0	485
Total	1,443	0	0	1,443

2.3.3.1 Airfield

The airfield land use category includes 875 acres on base and includes the existing runway, taxiways, control tower, fire station, and runway protection zones. The projected flight operations for this alternative are depicted in Table 2.3-14. Aviation activities for this alternative would be similar to the Proposed Action. However, since this alternative does not propose construction of a second runway, the flight track and safety zone requirements for the existing runway would be similar to the preclosure tracks and zones. Under this alternative, aircraft operations at the jetport could exceed the existing runway's projected annual service volume (ASV) sometime after the year 2003. In this situation, the ASV would become a restraint to growth of air traffic operations. The ASV is calculated to be approximately 126,500 operations. Thus, forecasted operations in excess of the ASV could then be diverted to other area airports to handle possible overcrowding.

2.3.3.2 Aviation Support

Aviation support uses would include the existing jetport terminal, which is currently undergoing expansion and upgrading, and other existing facilities. Aviation support is limited to only two percent of the total land area of the base because no new construction of facilities is needed. Any increase in commercial or general aviation activity would be accommodated by existing facilities. This area, consisting of 62 acres, is situated in close proximity to the airfield in the base's northeast quadrant.

Table 2.3-14. Projected Flight Operations - Existing Airfield/Mixed Use Alternative

Year	Operations	Function	%	Fleet Mix	Annual Operations[1]
1993	Air Passenger	Air Carrier (subtotal)			6,890
			26	B727-200	
			17	B737-200	
			1	B737-300	
			1	B737-400[2]	
			5	B757-200[2]	
			11	F-100	
			39	DC-9	
		Commuter (subtotal)			8,410
			29	SAAB 340	
			60	EMB-120	
			11	DHC-8	
	Air Cargo (subtotal)				2,550
			23	C-208	
			62	C-402	
			15	PA-34	
				Total	17,850
1998	Air Passenger	Air Carrier (subtotal)			13,120
			20	B727-200	
			1	B737-200	
			34	B737-300	
			32	B737-400[2]	
			4	B757-200[2]	
			9	F-100	
		Commuter (subtotal)			9,120
			88	SAAB 340	
			12	DHC-8	
	Air Cargo		100	C-402	2,870
	General Aviation		64	Single Engine Piston	40,280
			4	Multi-Engine Piston	2,520
			23	Multi-Engine Turboprop	14,470
			9	Turbojet	5,660
	Pilot Training		100	C-150/172, Apache, etc.	6,290
	Aircraft Maintenance		100	Various Types	3,900
				Total	98,230
2003	Air Passenger	Air Carrier (subtotal)			15,450
			40	B757-2002	
			56	B737-400[2]	
			4	B747-400[2]	
		Commuter (subtotal)			13,170
			57	SAAB 340	
			43	DHC-8	
	Air Cargo		100	C-402	3,020
	General Aviation		64	Single Engine Piston	46,730
			4	Multi-Engine Piston	2,920
			23	Multi-Engine Turboprop	16,800
			9	Turbojet	6,570
	Pilot Training		100	C-150/172, Apache, etc.	8,030
	Aircraft Maintenance		100	Various Types	4,570
				Total	117,260

Table 2.3-14. Projected Flight Operations - Existing Airfield/Mixed Use Alternative

Year	Operations	Function	%	Fleet Mix	Annual Operations[1]
2013	Air Passenger	Air Carrier (subtotal)			18,400
			40	B757-200[2]	
			56	B737-400[2]	
			4	B747-400[2]	
		Commuter (subtotal)			10,810
			38	SAAB 340	
			62	DHC-8	
	Air Cargo		100	C-402	2,620
	General Aviation		64	Single Engine Piston	50,300
			4	Multi-Engine Piston	3,140
			23	Multi-Engine Turboprop	18,070
			9	Turbojet	7,070
	Pilot Training		100	C-150/172, Apache, etc.	11,040
	Aircraft Maintenance		100	Various Types	5,050
				Total	126,500[3]

[1] An operation is defined as a take-off or a landing.
[2] Stage 3 aircraft.
[3] Restrained forecast.
Note: Projections rounded to the nearest 10.
Source: LPA Group, Inc., 1992.

2.2.3.3 Industrial

Proposed industrial reuse of the base includes aviation-related industrial development, an R&D center, and a low- to medium-security correctional facility. Aviation-related industry would develop on approximately 420 acres near the center of the base adjacent to the airfield. Some of the industrial development would require new construction. Other industries could reuse existing hangars, maintenance and shop facilities, education and training facilities, administrative buildings, and a flight simulation facility located immediately north of the center of the base.

The R&D center would develop on the south side of the aviation-related industry, on approximately 124 acres. The R&D center would use existing buildings, if possible. Some of the buildings available for reuse include the base administrative and operations buildings, warehouses, and maintenance facilities located to the west of existing hangars and the flight line.

The correctional institution with a law enforcement training facility would be located on 538 acres in the northwestern portion of the base adjacent to aviation-related industry property.

2.3.3.4 Institutional (Medical)

No medical uses are proposed in this alternative.

2.3.3.5 Institutional (Educational)

The development of a higher education center would occur on 360 acres of land located between the southern and western corners of the base. The center would include two-year and four-year curricula, research and public service programs, graduate programs, and a "magnet" high school.

The educational complex would rely heavily on existing buildings such as the dormitories, recreational buildings, the Base Exchange, and several administrative offices. The existing airfield/mixed use alternative proposes the educational use to be a permanent reuse strategy, not interim as in the Proposed Action.

Opportunities for adapting buildings and facilities for reuse include dormitories, visiting airmen's quarters and visiting officers' quarters, offices and administrative buildings, the post office, hospital, Woodland Park School, the youth center, ball fields, tennis courts, the outdoor track, gymnasium, bowling center, theater, and the chapel.

2.3.3.6 Commercial

Two commercial locations are proposed in this reuse alternative. One 70-acre parcel in the eastern quadrant of the base, north of Memorial Park cemetery and extending east to the base boundary, is proposed for a planned commercial office center. This site would contain 1,400,000 square feet of office space at buildout. The second parcel southwest of the airfield would be for neighborhood retail commercial use.

2.3.3.7 Residential

A 230-acre site in the southwest corner of the base is proposed for residential development. Existing base housing adjacent to U.S. 17 Business would be used for affordable housing and homeless housing. New medium density residential development including duplexes and multifamily units also would be developed.

2.3.3.8 Public Facilities and Recreation

Six uses for public facilities and recreation are proposed under this alternative.

- A 485-acre site adjacent to the correctional institution would be proposed for development as a PGA golf course. This facility would include 18 or 27 holes for golf and appurtenant PGA facilities.
- On the eastern side of the airfield, the base golf course, clubhouse, and driving range would continue under different sponsorship.
- Adjacent to the base golf course, the 190-acre FOLTA is proposed to be converted to an attraction featuring an air museum.
- On the western side of the airfield, the family campground and adjacent land totaling 111 acres would be used for public facilities and recreation.
- A memorial cemetery dedicated to veterans is proposed on the 45-acre site adjacent to the west boundary of Memorial Park Cemetery.

- A 17-acre parcel at the southeast corner of the base, fronting on U.S. 17 Business, is proposed for a fire station and related emergency services.

2.3.3.9 Agriculture

No agricultural use is proposed in this alternative.

2.3.3.10 Vacant Land

The Existing Airfield/Mixed Use Alternative would occupy all available base property.

2.3.3.11 Employment and Population

Forecast changes in population and employment are shown in Table 2.3-15.

Table 2.3-15. Reuse-Related Permanent Employment and Population Effects - Existing Airfield/Mixed Use Alternative

	Closure (1993)	1998	2003	2013
Direct Employment	285[1]	3,048	6,090	9,889
Resident Population Increase	37	3,954	6,894	11,041

[1] Includes 60 employees on base and 225 existing jetport employees.

2.3.3.12 Transportation

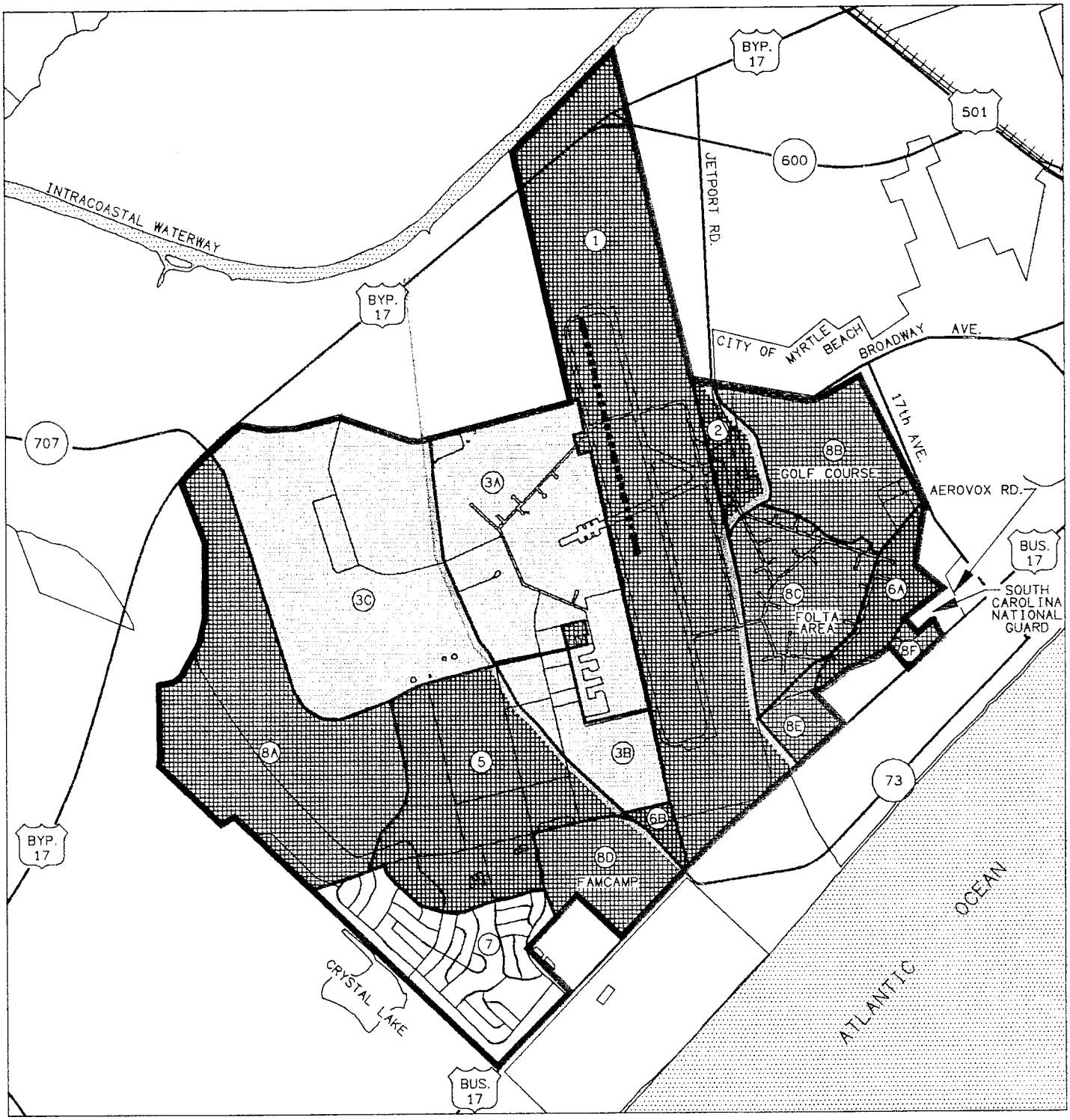
Based on land use and employment projections, average daily vehicular traffic to and from base property would be approximately 37,979 vehicle trips per day in 1998, 60,586 trips per day in 2003, and 82,737 trips per day in 2013. A major traffic generator in this alternative is the industrial park. Most vehicular traffic would occur during daylight hours.

2.3.3.13 Utilities

Based on population and employment projections, this alternative would generate a demand for 2.2 MGD of potable water by 2013. Wastewater generated is estimated to be 1.9 MGD by 2013. Solid waste generated under this alternative would likely be 39.4 tons per day by 2013. Electricity demand is expected to be 233.0 MWH per day by 2013. The demand for natural gas is estimated to be 12,600 therms per day by 2013.

2.3.3.14 Restricted Second Runway Option

An option to the land use plan in this alternative could be the employment of a second restricted utility runway parallel to and west of the existing runway (Figure 2.3-4). In addition to the second runway, this option also would



EXPLANATION

- (1) AIRFIELD
- (2) AVIATION SUPPORT
- (3) INDUSTRIAL
- (4) INSTITUTIONAL (MEDICAL)*
- (5) INSTITUTIONAL (EDUCATIONAL)
- (6) COMMERCIAL
- (7) RESIDENTIAL
- (8) PUBLIC FACILITIES & RECREATION
- (9) AGRICULTURE*
- (10) VACANT LAND*
- * NOT APPLICABLE
- ROAD REALIGNMENT
- PROPOSED RUNWAY

0 1000 3000 feet

EXISTING AIRFIELD/ MIXED USE ALT. WITH SECOND RUNWAY OPTION

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 2.3-4

include the existing runway, taxiways, navigation aids, fire station, and runway protection zones. The second runway would be shorter than the existing runway and operations on it would be restricted to aircraft weighing less than 12,500 pounds. The runway would be used only during VFR conditions and there would be no instrument approaches to the runway. The flight tracks for this additional runway would be very similar to those established for the existing runway because there would be only about 700 feet lateral separation between runway centerlines. With parallel runways this close together, aircraft control and sequencing restrictions would apply to aircraft operating from these runways.

The combination of a utility runway restricted to use by only small, general aviation aircraft with the longer, existing runway should increase the jetport's ASV. This dual runway configuration should remove the single runway ASV restraints mentioned in paragraph 2.3.3.1. With this runway layout, the jetport should be able to accommodate the unrestrained flight operations projections for 2013 in Table 2.3-16. The projections for years 1993, 1998, and 2003 as stated in Table 2.3-14 would apply to this option.

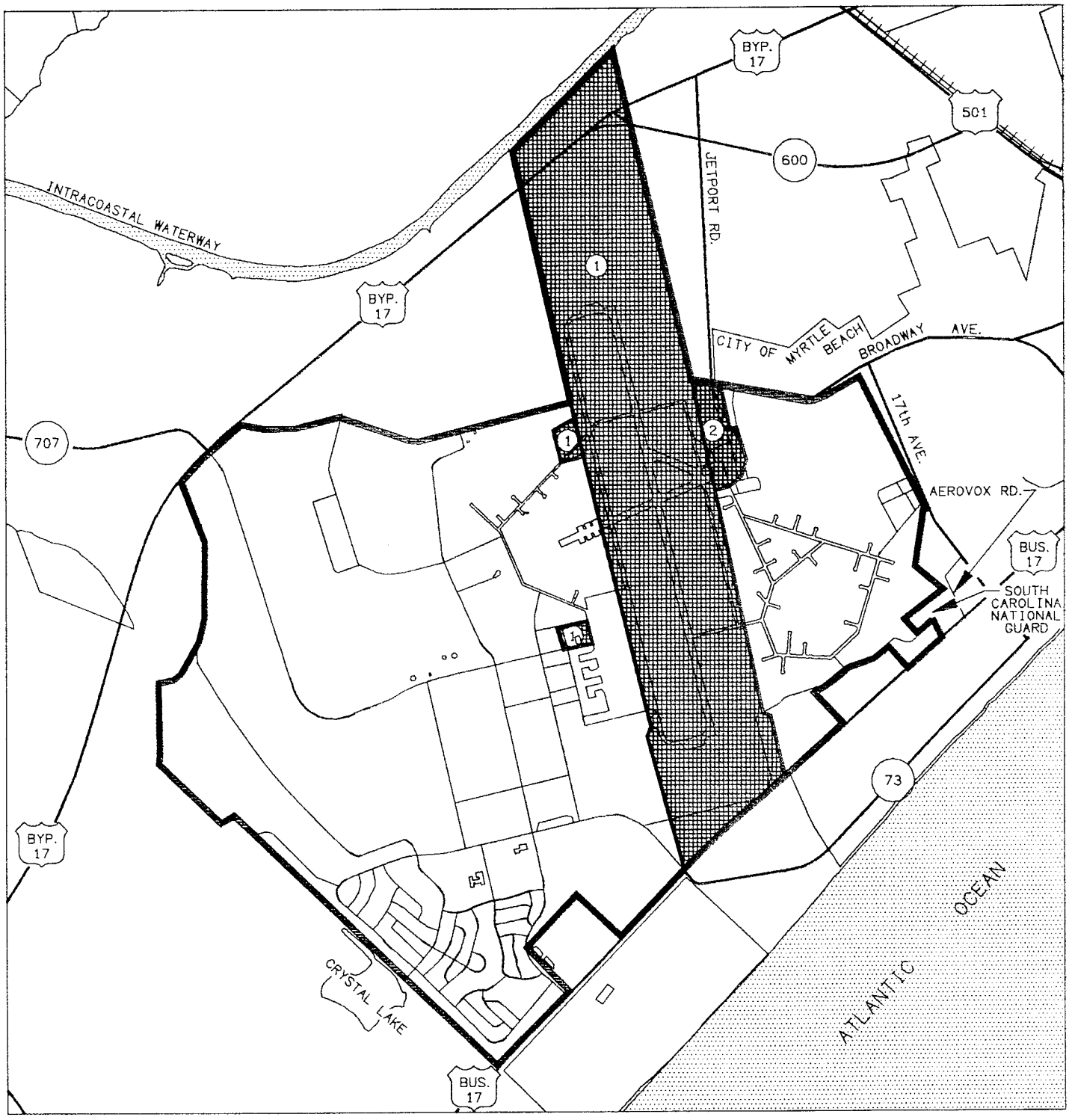
Table 2.3-16. Projected Flight Operations - Existing Airfield/Mixed Use Alternative Restricted Second Runway Option

Year	Operations	Function	%	Fleet Mix	Annual Operations[1]
2013	Air Passenger	Air Carrier (subtotal)			18,490
			40	B757-200[2]	
			56	B737-400[2]	
			4	B747-400[2]	
		Commuter (subtotal)			15,750
			57	SAAB 340	
			43	DHC-8	
	Air Cargo		100	C-402	3,070
	General Aviation		64	Single Engine Piston	58,960
			4	Multi Engine Piston	3,680
			23	Multi Engine Turboprop	21,190
			9	Turbojet	8,290
	Pilot Training		100	C-150/172 Apache, etc.	12,950
	Aircraft Maintenance		100	Various Types	5,920
				Total	148,300

[1] An operation is defined as a take-off or a landing.
[2] Stage 3 aircraft.
Note: Projections rounded to the nearest 10. Table 2.3-14 data apply to years 1993, 1998, and 2003.
Source: LPA Group, Inc., 1992.

2.3.4 NO-ACTION ALTERNATIVE (EXISTING AIRFIELD/CARETAKER)

The No-Action Alternative would result in the U.S. Government retaining ownership of the property after closure. Except for continued operation of the Myrtle Beach Jetport, the property would not be put to further use. The base would be preserved, i.e., placed in a condition intended to limit deterioration and ensure public safety. An Air Force Base Disposal Agency operating location (OL) would be provided to ensure that base resource protection, grounds maintenance, existing utilities operations as necessary, and building care are accomplished. No other military activities/missions are anticipated to be performed on the property. Land use features of the No-Action Alternative are shown on Figure 2.3-5.



EXPLANATION

1. AIRFIELD
2. AVIATION SUPPORT
3. INDUSTRIAL*
4. INSTITUTIONAL* (MEDICAL)
5. INSTITUTIONAL* (EDUCATIONAL)
6. COMMERCIAL*
7. RESIDENTIAL*
8. PUBLIC FACILITIES & RECREATION*
9. AGRICULTURE*
10. VACANT LAND*

* NOT APPLICABLE

0 1000 3000 feet

N W E S

NO-ACTION ALTERNATIVE

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 2.3-5

The future land uses and levels of maintenance would be as follows:

- Provide minimal maintenance to structures to limit deterioration.
- Isolate or deactivate utility distribution lines on base.
- Provide limited maintenance of roads to ensure access.
- Provide limited grounds maintenance of open areas to minimize fire, health, and safety hazards.
- Maintain the golf course in such a manner as to facilitate economical resumption of use.

An OL has been established at Myrtle Beach AFB. The responsibilities of this team include coordinating disposal activities, establishing a caretaker force to maintain Air Force properties after closure, and serving as the Air Force liaison supporting community reuse. For the purposes of environmental analysis, it was assumed that this team would consist of approximately 11 Air Force civilian personnel at the time of closure plus additional contractor personnel.

The OL, as used in this document, may refer to the Air Force disposal personnel or to one of the caretaker contractors. In some cases each team may have distinct responsibilities. For example, under the No-Action Alternative, each contractor is responsible for the management and disposition of its own hazardous materials and waste. The Air Force OL would be responsible for inspection and oversight to ensure that hazardous substance practices are in compliance with pertinent regulations.

The base would continue to fulfill its water requirements from the same on-base well system although the amount drawn would be substantially reduced. Nonessential water lines would be drained and shut off. Grand Strand Water and Sewer Authority would continue to provide wastewater treatment under caretaker status, but the amount would be negligible. Solid waste collection from the base would likely be reduced to a negligible level under this alternative. The existing power and space-heating systems serving Myrtle Beach AFB would likely be used at substantially reduced levels while the base is in caretaker status. Electrical power would be required for security lighting and other essential systems, and natural gas would probably be required during winter months to maintain minimal space heating in mothballed facilities.

Table 2.3-17 lists the land use categories of the No-Action Alternative.

Table 2.3-17. Land Use Acreage - No-Action Alternative

Land Use	Area (Acres)	Percent
1 Airfield	905	24
2 Aviation Support	32	1
Caretaker Status	2,807	75
TOTAL	3,744	100

2.3.4.1 Airfield

Since the U.S. Government would retain the base property, the airfield would be outleased to operate the jetport. The airfield category includes the existing runway, taxiways, parking apron, control tower, fire station, and runway protection zones. Flight track, navigation aid, and safety zone requirements would be similar to those that existed prior to base closure. Aviation activities would be limited to those associated with the commercial operations allowed under the Joint Use Agreement (air carrier and air cargo) that would exist at base closure. The number of annual aircraft operations would continue to be capped not to exceed the maximum jetport commercial operations allowed under the Joint Use Agreement (92 operations per day; 33,580 operations per year). The Joint Use Agreement was executed between Horry County Department of Airports and the U.S. Air Force to allow the jetport to use the Myrtle Beach AFB runway. The limitation should not affect projected operations until the year 2013. Table 2.3-18 depicts the aircraft operations projected under this alternative.

2.3.4.2 Aviation Support

Existing support facilities, including the terminal and maintenance operations, would remain an integral part of the jetport. No expansion of these facilities would be anticipated in this alternative.

2.3.4.3 Other Land Use

No other land uses are anticipated in the no-action alternative.

2.3.4.4 Employment and Population

Population and employment changes over the 20-year period are shown in Table 2.3-19.

Table 2.3-19. Reuse-Related Permanent Employment and Population Effects-No Action Alternative

	1993 (Closure)	1998	2003	2013
Direct Employment[1]	285	375	460	530
Resident Population Increase	37	79	153	213

[1] Includes 60 caretaker employees on base, plus jetport employees.

2.3.4.5 Transportation

The No-Action Alternative includes increased activity at the jetport and maintenance of the Myrtle Beach AFB property. Average daily vehicular traffic to and from base property would be approximately 5,601 vehicle trips per day in 1998, 8,235 vehicle trips per day in 2003, and 9,915 vehicle trips per day in 2013. Most vehicle traffic would occur during daylight hours.

2.3.4.6 Utilities

Based on population and employment projections, the No-Action Alternative would generate a demand for 0.06 MGD of potable water by 2013. Wastewater generated is estimated to be 0.05 MGD by 2013. Solid waste

Table 2.3-18. Projected Flight Operations - No-Action Alternative

Year	Operations	Function	%	Fleet Mix	Annual Operations[1]
1993	Air Passenger	Air Carrier (subtotal)			6,890
			26	B727-200	
			17	B737-200	
			1	B737-300	
			1	B737-400 [2]	
			5	B757-200 [2]	
			11	F-100	
			39	DC-9	
		Commuter (subtotal)			8,410
			29	SAAB 340	
			60	EMB 120	
	Air Cargo (subtotal)		11	DHC-8	2,550
			23	C-208	
			62	C-402	
			15	PA-34	
				TOTAL	17,850
1998	Air Passenger	Air Carrier (subtotal)			13,120
			21	B727-200	
			5	B737-200	
			33	B737-300	
			27	B737-400 [2]	
			4	B757-200 [2]	
			10	F-100	
		Commuter (subtotal)			9,120
			88	SAAB 340	
			12	DHC-8	
	Air Cargo		100	C-402	2,870
				TOTAL	25,110
2003	Air Passenger	Air Carrier (subtotal)			15,450
			40	B757-200 [2]	
			56	B737-400 [2]	
			4	B747-400 [2]	
		Commuter (subtotal)			13,170
			57	SAAB 340	
			43	DHC-8	
	Air Cargo		100	C-402	3,020
				TOTAL	31,640
2013	Air Passenger	Air Carrier (subtotal)			19,250
			40	B757-200 [2]	
			56	B737-400 [2]	
			4	B747-400 [2]	
		Commuter (subtotal)			11,310
			38	SAAB 340	
			62	DHC-8	
	Air Cargo		100	C-402	3,020
				TOTAL	33,580

[1] An operation is a take-off or a landing.
[2] Stage 3 aircraft.
Note: Projections rounded to the nearest 10.
Source: LPA Group, Inc., 1992

generated by the No-Action Alternative would likely be 0.84 tons per day by 2013. Electricity demand is expected to be 4.96 MWH per day by 2013. The demand for natural gas is estimated to be 270 therms per day by 2013.

2.3.5 SUGGESTED REUSE PROPOSALS

In compliance with the Federal Property and Administrative Services Act of 1949, the Air Force notified other federal agencies regarding availability of property at Myrtle Beach AFB. Responses include several proposals for direct federal use, as well as sponsorship of local governmental programs.

This section contains reuse proposals that have been integrated into the Proposed Action or one of the reuse alternatives or that could be initiated on an individual basis. These concepts could include proposed federal transfers and conveyances to non-federal agencies and private parties.

- DOD finance center
- Veterans' cemetery
- State park
- Education facility
- Fire station
- Air museum
- Army National Guard aviation facility
- South Carolina Air National Guard unit
- Airplane restoration
- Horse race track
- Road course racetrack
- Youth services facility
- U.S. Army Corps of Engineers use
- Postal facilities
- Airport expansion
- Correctional facility
- City recreation facility
- U.S. Army recreation facility
- Destination resort
- Industrial expansion
- U.S. Army Reserve unit
- Mass transit facility
- Fireworks storage area
- Homeless facilities
- Drug treatment facility
- Family housing
- Wildlife refuge
- Foreign trade zone

2.4 ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION

Other reuse proposals submitted for Myrtle Beach AFB were either addressed as alternatives or other land use concepts and fell within the context of the reuse alternatives described above or were considered and eliminated from detailed analysis. The following options were considered and eliminated.

- Retention of the Base Exchange, Commissary, medical facility, and golf course under Air Force operation. This alternative was eliminated because the base is scheduled to close in March 1993, pursuant to Public Law 101-510.

- Floodway corridor. The purpose of this proposal was to provide a waterway connecting the Intracoastal Waterway and the Atlantic Ocean to provide flood relief and a boating thoroughfare. The floodway corridor was eliminated after consultation with the U.S. Army Corps of Engineers because of hydraulic and salt water concerns in the Intracoastal Waterway and concern for protection of marine species in the Atlantic Ocean.

2.5 INTERIM USES

Interim uses include predisposal short-term uses of the base facilities and property. Predisposal interim uses are conducted under lease agreements with the Air Force. The terms and conditions of the lease would be arranged to ensure that the predisposal interim uses do not prejudice future disposal and reuse plans of the base. The continuation of interim uses beyond disposal would be arranged with the new property owner(s).

A baseline representing conditions at the point of closure is used for the environmental analysis. The interim uses that could occur prior to property disposal are not considered within this baseline with the exception of continuing operation of the Myrtle Beach Jetport.

Certain post-disposal interim use scenarios have been incorporated into the reuse alternatives. Where appropriate, impacts of these operations are reflected in the environmental analysis of pertinent resource areas.

2.6 OTHER FUTURE ACTIONS IN THE REGION

Two reasonably foreseeable actions could be considered as contributing to a potential cumulative impact on the disposal and reuse of Myrtle Beach AFB.

The Carolina Bays Parkway is a proposed expressway that will parallel U.S. 17 to the west of the Intracoastal Waterway (See Figure 3.2-12). It will provide a route to direct traffic from U.S. 17 and will relieve some of its traffic congestion.

The Conway Bypass is planned for construction between U.S. 501 west of Conway and U.S. 17 Bypass near Atlantic Beach. This roadway should relieve traffic on U.S. 501 between Conway and Myrtle Beach, and on U.S. 17 Bypass between U.S. 501 and Atlantic Beach.

2.7 COMPARISON OF ENVIRONMENTAL IMPACTS

A summary comparison of the influencing factors and environmental impacts along with their potential mitigations on each biophysical resource affected by the Proposed Action and alternatives over the 20-year study period is presented in Tables 2.7-1 and 2.7-2. Influencing factors are non-biophysical elements,

such as population, employment, land use, aesthetics, public utility systems, and transportation networks that directly impact the environment. Impacts to the environment are described briefly in the summary and discussed in detail in Chapter 4.0. Potential mitigations to environmental impacts also are summarized in Table 2.7-2. A quantitative summary of impacts on a parcel-by-parcel basis is presented in Appendix 0.

Table 2.7-1. Summary of Reuse-Related Influencing Factors

Factor	Proposed Action (Expanded Airfield Resort-Education)			Expanded Airfield/Resort-Recreation			Expanded Airfield/Resort-Commercial-Industrial			Existing Airfield/Mixed Use			No-Action Alternative*		
	1998	2003	2013	1998	2003	2013	1998	2003	2013	1998	2003	2013	1998	2003	2013
Ground Disturbance (acres by phase)	1,460	0	609	1,215	0	498	1,393	0	602	1,443	0	0 (13)**	0	0	0
Aircraft Operations (annual)	89,940	119,380	150,950	99,860	119,440	151,010	97,790	117,020	147,970	98,230	117,260	126,500 (148,300)**	25,110	31,640	33,580
Direct Employment	3,791	6,612	9,843	3,951	5,686	8,281	4,842	7,641	10,159	3,048	6,090	9,889	375	460	530
Secondary Employment	2,430	4,238	6,181	2,533	3,645	5,308	3,104	4,898	6,512	1,954	3,904	6,339	240	295	340
Construction-Related Employment	2,981	1,084	1,030	3,033	901	1,194	3,089	1,276	1,201	904	298	277	37	45	52
Resident Population Increase	6,107	7,973	11,267	6,316	6,840	9,872	7,334	9,223	11,932	3,954	6,894	11,041	79	163	213
Peak Visitor Population Increase	19,755	26,207	29,118	19,755	26,207	29,118	18,155	24,607	27,518	1,861	1,925	2,001	0	0	0
Traffic (average daily trips)	67,000	99,000	116,000	67,000	92,000	100,000	77,000	106,000	114,000	38,000	61,000	83,000 (83,000)**	6,000	8,000	10,000
Increase in Water Demand (MGD)	2.0	2.7	3.4	2.0	2.5	3.2	2.1	2.8	3.5	0.8	1.4	2.2	0.05	0.06	0.06
Increase in Wastewater Production (MGD)	1.7	2.3	2.9	1.7	2.1	2.7	1.8	2.4	2.9	0.7	1.2	1.9	0.04	0.05	0.05
Increase in Solid Waste (tons/day)	21.8	28.5	40.2	22.5	24.4	35.2	26.2	32.9	42.6	14.1	24.6	39.4	0.59	0.73	0.84
Increase in Electricity Demand (MWH/day)	128.9	168.2	237.5	133.3	144.3	208.3	154.7	194.6	251.8	83.4	145.5	233.0	3.51	4.30	4.96
Increase in Natural Gas Demand (therms/day)	7,000	9,100	12,800	7,200	7,800	11,200	8,300	10,500	13,600	4,500	7,900	12,600	200	230	270

*The No-Action Alternative summarizes influencing factors relative to the closure baseline conditions.
**Projected for Existing Airfield/Mixed Use Alternative, Restricted Second Runway Option. Projections for other factors remain the same as the alternative without the option.
MGD: Million gallons/day; MWH: Megawatt hours.

Table 2.7-2. Summary of Environmental Impacts and Mitigation from the Proposed Action and Reuse Alternatives
Page 1 of 7

Resource Category	Proposed Action (Expanded Airfield/Resort-Education)	Expanded Airfield/ Resort - Recreation	Expanded Airfield/Resort Commercial - Industrial	Existing Airfield/ Mixed Use	No-Action Alternative (Existing Airfield/Caretaker)
LOCAL COMMUNITY					
■ Land Use and Aesthetics	IMPACTS: Expansion of airfield to include construction of second runway. New transportation corridors through base. Change in general appearance of the base.	Same as Proposed Action	Same as Proposed Action	Retention of existing airfield. New transportation corridors through base. Change in general appearance of the base.	Retention of existing airfield, aviation support, and public jetport. The remainder is under caretaker status. No change in general appearance of the base.
	Potential impacts could result in 4 existing land use, 8 zoning, 4 general plan, and 2 aesthetic conflicts.	Potential impacts could result in 4 existing land use, 8 zoning, 4 general plan, and 2 aesthetic conflicts.	Potential impacts could result in 4 existing land use, 8 zoning, 4 general plan, and 2 aesthetic conflicts.	Potential impacts could result in 4 existing land use, 7 zoning, and 6 general plan conflicts.	Potential impacts could result in 2 existing land use, 7 zoning, and 1 general plan conflicts.
	MITIGATION: Reuse Proponent/Agencies: The above conflicts could be mitigated through design standards and site plan review.	Reuse Proponent/Agencies: The above conflicts could be mitigated through design standards and site plan review.	Reuse Proponent/Agencies: The above conflicts could be mitigated through design standards and site plan review.	Reuse Proponent/Agencies: The above conflicts could be mitigated through design standards and site plan review.	Reuse Proponent/Agencies: The above conflicts could be mitigated through design standards and site plan review.
■ Transportation	IMPACTS: Access to land uses provided by two new on-site roadways.	Access to land uses provided by two new on-site roadways.	Access to land use provided by two new on-site roadways.	Access to land uses provided by two new on-site roadways.	No added roadways required.
	116,000 daily vehicle trips generated.	100,000 daily vehicle trips generated.	114,000 daily vehicle trips generated.	83,000 daily vehicle trips generated.	10,000 daily vehicle trips generated.
	No airspace issues.	No airspace issues.	No airspace issues.	No airspace issues.	No airspace issues.
	MITIGATION: Reuse Proponent/Agencies: Extensive transit improvements could mitigate some U.S. 17 Business improvements. Transit reduces development input to 107,000 daily vehicle trips.	Reuse Proponent/Agencies: Extensive transit improvements could mitigate some U.S. 17 Business improvements. Transit reduces development input to 92,000 daily vehicle trips.	Reuse Proponent/Agencies: Extensive transit improvements could mitigate some U.S. 17 Business improvements. Transit reduces development input to 105,000 daily vehicle trips.	Reuse Proponent/Agencies: Extensive transit improvements could mitigate some U.S. 17 Business improvements. Transit reduces development input to 76,000 daily vehicle trips.	Reuse Proponent/Agencies: Extensive transit improvements could mitigate some U.S. 17 Business improvements. Transit reduces development input to 89,000 daily vehicle trips.
	Overall traffic volumes require U.S. 17 Business, U.S. 17 Bypass, and U.S. 501 to be modified with extensive capacity improvements.	Overall traffic volumes require U.S. 17 Business, U.S. 17 Bypass, and U.S. 501 to be modified with extensive capacity improvements.	Overall traffic volumes require U.S. 17 Business, U.S. 17 Bypass, and U.S. 501 to be modified with extensive capacity improvements.	Overall traffic volumes require U.S. 17 Business, U.S. 17 Bypass, and U.S. 501 to be modified with extensive capacity improvements.	Overall traffic volumes require U.S. 17 Business and U.S. 501 to be modified with extensive capacity improvements.

Table 2.7-2. Summary of Environmental Impacts and Mitigation from the Proposed Action and Reuse Alternatives
Page 2 of 7

Resource Category	Proposed Action (Expanded Airfield/Resort-Education)	Expanded Airfield/ Resort - Recreation	Expanded Airfield/Resort Commercial - Industrial	Existing Airfield/ Mixed Use	No-Action Alternative (Existing Airfield/Caretaker)
■ Utilities					
Water	3.4 MGD, 6.5% increase in ROI.	3.2 MGD, 6.2% increase in ROI.	3.5 MGD, 6.7% increase in ROI.	2.2 MGD, 4.2% increase in ROI.	Minimal demand. No impact on local suppliers.
Wastewater	2.9 MGD, 6.5% increase in ROI.	2.7 MGD, 6.1% increase in ROI.	2.9 MGD, 6.5% increase in ROI.	1.9 MGD, 4.3% increase in ROI.	Minimal demand. No impact on local suppliers.
Solid Waste	40.2 tons/day, 4.0% increase in ROI.	35.2 tons/day, 3.5% increase in ROI.	42.6 tons/day, 4.3% increase in ROI.	39.4 tons/day, 3.9% increase in ROI.	Minimal demand. No impact on local suppliers.
Electricity	237.6 MWH/day, 3.9% increase in ROI.	208.3 MWH/day, 3.5% increase in ROI.	261.8 MWH/day, 4.2% increase in ROI.	233.0 MWH/day, 3.9% increase in ROI.	Minimal demand. No impact on local suppliers.
Natural Gas	12,800 therms/day, 3.9% increase in ROI.	11,200 therms/day, 3.4% increase in ROI.	13,600 therms/day, 4.2% increase in ROI.	12,600 therms/day, 3.9% increase in ROI.	Minimal demand. No impact on local suppliers.
	MITIGATION: Reuse Proponent/Agencies: Measures may be required for wastewater treatment. Required actions dependent on type and quantity of discharge per land use activity. Specific mitigation requirements stated by GSWSA in advance of receipt of discharge permit.	Reuse Proponent/Agencies: Measures may be required for wastewater treatment. Required actions dependent on type and quantity of discharge per land use activity. Specific mitigation requirements stated by GSWSA in advance of receipt of discharge permit.	Reuse Proponent/Agencies: Measures may be required for wastewater treatment. Required actions dependent on type and quantity of discharge per land use activity. Specific mitigation requirements stated by GSWSA in advance of receipt of discharge permit.	Reuse Proponent/Agencies: Measures may be required for wastewater treatment. Required actions dependent on type and quantity of discharge per land use activity. Specific mitigation requirements stated by GSWSA in advance of receipt of discharge permit.	No mitigation required.
HAZARDOUS MATERIALS AND HAZARDOUS WASTE MANAGEMENT					
■ Hazardous Materials Mgt.	IMPACTS: Increase in types and quantities of materials. Need for emergency response capability.	Increase in types and quantities of materials. Need for emergency response capability.	Increase in types and quantities of materials. Need for emergency response capability.	Increase in types and quantities of materials. Need for emergency response capability.	Small quantities of materials used by OL for maintenance functions.
	MITIGATION: Reuse Proponent/Agencies: Conform to environmental standards.	Reuse Proponent/Agencies: Conform to environmental standards.	Reuse Proponent/Agencies: Conform to environmental standards.	Reuse Proponent/Agencies: Conform to environmental standards.	Air Force: Conform to environmental standards.
■ Hazardous Waste Mgt.	IMPACTS: Moderate increase in types and quantities of wastes.	Moderate increase in types and quantities of wastes.	Moderate increase in types and quantities of wastes.	Moderate increase in types and quantities of wastes.	Minimal quantities of waste generated as a result of maintenance activities.
	MITIGATION: Reuse Proponent/Agencies: Employ waste minimization practices.	Reuse Proponent/Agencies: Employ waste minimization practices.	Reuse Proponent/Agencies: Employ waste minimization practices.	Reuse Proponent/Agencies: Employ waste minimization practices.	Air Force: Employ waste minimization practices.

Table 2.7-2. Summary of Environmental Impacts and Mitigation from the Proposed Action and Reuse Alternatives
Page 3 of 7

Resource Category	Proposed Action (Expanded Airfield/Resort-Education)	Expanded Airfield/ Resort - Recreation	Expanded Airfield/Resort Commercial - Industrial	Existing Airfield/ Mixed Use	No-Action Alternative (Existing Airfield/Caretaker)
■ Installation Restoration Program	IMPACTS: Remediation of certain areas may delay the conveyance of some parcels and limit land uses with overlying areas. MITIGATION: Air Force: Address and properly close out. Reuse Proponent/Agencies: Follow recommended land use restrictions.	Remediation of certain areas may delay the conveyance of some parcels and limit land uses with overlying areas. Air Force: Address and properly close out. Reuse Proponent/Agencies: Follow recommended land use restrictions.	Remediation of certain areas may delay the conveyance of some parcels and limit land use with overlying areas. Air Force: Address and properly close out. Reuse Proponent/Agencies: Follow recommended land use restrictions.	Remediation of certain areas may delay the conveyance of some parcels and limit land uses with overlying areas. Air Force: Address and properly close out. Reuse Proponent/Agencies: Follow recommended land use restrictions.	No impacts. No mitigation required.
■ Storage Tanks	IMPACTS: All USTs not meeting standards to be removed. Tanks in compliance maintained in caretaker status or conveyed. MITIGATION: Air Force: Close unused tanks in conformance with appropriate federal, state, and local regulations. Reuse Proponent/Agencies: Acceptable leak detection methods, spill and overfill protection, cathodic protection, secondary containment for the tank systems including the piping, and liability insurance.	All USTs not meeting standards to be removed. Tanks in compliance maintained in caretaker status or conveyed. Air Force: Close unused tanks in conformance with appropriate federal, state, and local regulations. Reuse Proponent/Agencies: Acceptable leak detection methods, spill and overfill protection, cathodic protection, secondary containment for the tank systems including the piping, and liability insurance.	All USTs not meeting standards to be removed. Tanks in compliance maintained in caretaker status or conveyed. Air Force: Close unused tanks in conformance with appropriate federal, state, and local regulations. Reuse Proponent/Agencies: Acceptable leak detection methods, spill and overfill protection, cathodic protection, secondary containment for the tank systems including the piping, and liability insurance.	All USTs not meeting standards to be removed. Tanks in compliance maintained in caretaker status or conveyed. Air Force: Close unused tanks in conformance with appropriate federal, state, and local regulations. Reuse Proponent/Agencies: Acceptable leak detection methods, spill and overfill protection, cathodic protection, secondary containment for the tank systems including the piping, and liability insurance.	All USTs not meeting standards to be removed. Tanks in compliance maintained in caretaker status. Air Force: Close unused tanks in conformance with appropriate federal, state, and local regulations. Acceptable leak detection methods, spill and overfill protection, cathodic protection, secondary containment for the tank systems including the piping, and liability insurance.

Table 2.7-2. Summary of Environmental Impacts and Mitigation from the Proposed Action and Reuse Alternatives
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Resource Category	Proposed Action (Expanded Airfield/Resort-Education)	Expanded Airfield/ Resort - Recreation	Expanded Airfield/Resort Commercial - Industrial	Existing Airfield/ Mixed Use	No-Action Alternative (Existing Airfield/Caretaker)
■ Asbestos	IMPACTS: Friable asbestos removed or encapsulated; continued management of non-friable asbestos in place. Buildings containing asbestos can be divided into two categories: those to be demolished, and those to be managed. Demolished: 25 Managed: 36 MITIGATION: Reuse Proponent/Agencies: Compliance with National Emissions Standards for Hazardous Air Pollutants (NESHAP) would mitigate impacts and preclude asbestos hazards.	Friable asbestos removed or encapsulated; continued management of non-friable asbestos in place. Buildings containing asbestos can be divided into two categories: those to be demolished, and those to be managed. Demolished: 25 Managed: 36 Reuse Proponent/Agencies: Compliance with National Emissions Standards for Hazardous Air Pollutants (NESHAP) would mitigate impacts and preclude asbestos hazards.	Friable asbestos removed or encapsulated; continued management of non-friable asbestos in place. Buildings containing asbestos can be divided into two categories: those to be demolished, and those to be managed. Demolished: 26 Managed: 35 Reuse Proponent/Agencies: Compliance with National Emissions Standards for Hazardous Air Pollutants (NESHAP) would mitigate impacts and preclude asbestos hazards.	Friable asbestos removed or encapsulated; continued management of non-friable asbestos in place. Buildings containing asbestos can be divided into two categories: those to be demolished, and those to be managed. Demolished: 3 Managed: 60 Reuse Proponent/Agencies: Compliance with National Emissions Standards for Hazardous Air Pollutants (NESHAP) would mitigate impacts and preclude asbestos hazards.	Continued management of asbestos in place. Buildings containing asbestos can be divided into two categories: those to be demolished, and those to be managed. Demolished: 0 Managed: 61 Air Force: Compliance with National Emissions Standards for Hazardous Air Pollutants (NESHAP) would mitigate impacts and preclude asbestos hazards.
■ Pesticides	IMPACTS: Intensive landscape management, increased usage. MITIGATION: Reuse Proponent/Agencies: Conform to environmental standards.	Intensive landscape management, increased usage. Reuse Proponent/Agencies: Conform to environmental standards.	Intensive landscape management, increased usage. Reuse Proponent/Agencies: Conform to environmental standards.	Intensive landscape management, increased usage. Reuse Proponent/Agencies: Conform to environmental standards.	Minimal maintenance level usage. Air Force: Conform to environmental standards.
■ Polychlorinated Biphenyls (PCBs)	IMPACTS: No Air Force owned PCB or PCB-contaminated equipment exists on base.	No Air Force owned PCB or PCB-contaminated equipment exists on base.	No Air Force owned PCB or PCB-contaminated equipment exists on base.	No Air Force owned PCB or PCB-contaminated equipment exists on base.	No Air Force owned PCB or PCB-contaminated equipment exists on base.
■ Radon	IMPACTS: Below level of concern, no impact.	Below level of concern, no impact.	Below level of concern, no impact.	Below level of concern, no impact.	Below level of concern, no impact.
■ Medical/Biohazardous Waste	IMPACTS: None generated, no impact. MITIGATION: No mitigation required	New provisions for waste handling required (existing incinerator not reusable). Reuse Proponent/Agencies: Conform to environmental standards.	New provisions for waste handling required (existing incinerator not reusable). Reuse Proponent/Agencies: Conform to environmental standards.	None generated, no impact. No mitigation required	None generated, no impact. No mitigation required.

Table 2.7-2. Summary of Environmental Impacts and Mitigation from the Proposed Action and Reuse Alternatives
Page 5 of 7

Resource Category	Proposed Action (Expanded Airfield/Resort-Education)	Expanded Airfield/ Resort - Recreation	Expanded Airfield/Resort Commercial - Industrial	Existing Airfield/ Mixed Use	No-Action Alternative (Existing Airfield/Caretaker)
NATURAL ENVIRONMENT					
■ Soils and Geology	IMPACTS: Increase in erosion potential and alteration of natural surface and soil conditions. (1,959 acres of soil disturbed.) MITIGATION: Reuse Proponent/Agencies: Mitigate through use of proper construction mitigation techniques such as protective cover and diversion dikes.	Increase in erosion potential and alteration of natural surface and soil conditions. (1,713 acres of soils disturbed.) Reuse Proponent/Agencies: Mitigate through use of proper construction mitigation techniques such as protective cover and diversion dikes.	Increase in erosion potential and alteration of natural surface and soil conditions. (1,995 acres of soil disturbed.) Reuse Proponent/Agencies: Mitigate through use of proper construction mitigation techniques such as protective cover and diversion dikes.	Increase in erosion potential and alteration of natural surface and soil conditions. (1,443 acres of soil disturbed; 1,456 acres with Restricted Second Runway Option). Reuse Proponent/Agencies: Mitigate through use of proper construction mitigation techniques such as protective cover and diversion dikes.	No impacts. No mitigation required
■ Water Resources Groundwater	IMPACTS: 163% net increase to existing groundwater overdraft of (non-potable use only). MITIGATION: Reuse Proponent/Agencies: Mitigate through use of proper construction mitigation techniques such as protective cover and diversion dikes.	142% net increase to existing groundwater overdraft of (non-potable use only). Reuse Proponent/Agencies: Mitigate through use of proper construction mitigation techniques such as protective cover and diversion dikes.	122% net increase to existing groundwater overdraft of (non-potable use only). Reuse Proponent/Agencies: Mitigate through use of proper construction mitigation techniques such as protective cover and diversion dikes.	171% net increase to existing groundwater overdraft of (non-potable use only). Reuse Proponent/Agencies: Mitigate through use of proper construction mitigation techniques such as protective cover and diversion dikes.	No impacts. No mitigation required.
Surface Water	IMPACTS: Total annual runoff increase of 30%. Surface water annual pollutant load increase of 72%. MITIGATION: Mitigation cannot be specified at this time. It should be consistent with local, state, and federal regulations. Potable water supply is adequate for foreseeable demand.	Total annual runoff increase of 20%. Surface water annual pollutant load increase of 23%. Mitigation cannot be specified at this time. It should be consistent with local, state, and federal regulations. Potable water supply is adequate for foreseeable demand.	Total annual runoff increase of 5% percent. Surface water annual pollutant load increase of 33%. Mitigation cannot be specified at this time. It should be consistent with local, state, and federal regulations. Potable water supply is adequate for foreseeable demand.	Total annual runoff increase of 60%. surface water annual pollutant load increase of 91%. Mitigation cannot be specified at this time. It should be consistent with local, state, and federal regulations. Potable water supply is adequate for foreseeable demand.	No variations in total runoff. Reductions of 90 percent in surface water pollutant load. No mitigation required.

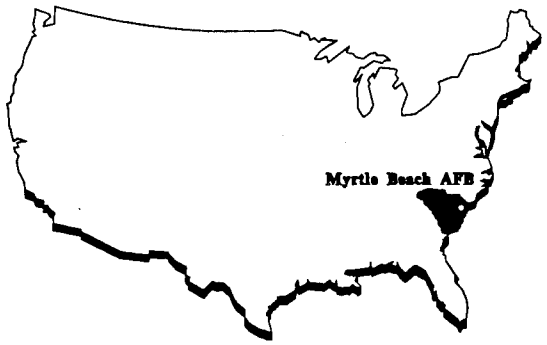
Table 2.7-2. Summary of Environmental Impacts and Mitigation from the Proposed Action and Reuse Alternatives
Page 6 of 7

Resource Category	Proposed Action (Expanded Airfield/Resort-Education)	Expanded Airfield/ Resort - Recreation	Expanded Airfield/Resort Commercial - Industrial	Existing Airfield/ Mixed Use	No-Action Alternative (Existing Airfield/Caretaker)
■ Air Quality	IMPACTS: Increase in air pollution emissions. No interference with maintaining attainment status of federal and state ambient air quality standards. MITIGATION: Reuse Proponent/Agencies: Possible mitigation of fugitive dust emissions from construction activities. Mitigate through watering, clear areas on a selective basis, treat disturbed areas as soon as possible, reduce vehicle traffic and speed.	Same as Proposed Action. Reuse Proponent/Agencies: Possible mitigation of fugitive dust emissions from construction activities. Mitigate through watering, clear areas on a selective basis, treat disturbed areas as soon as possible, reduce vehicle traffic and speed.	Same as Proposed Action. Reuse Proponent/Agencies: Possible mitigation of fugitive dust emissions from construction activities. Mitigate through watering, clear areas on a selective basis, treat disturbed areas as soon as possible, reduce vehicle traffic and speed.	Same as Proposed Action. Reuse Proponent/Agencies: Possible mitigation of fugitive dust emissions from construction activities. Mitigate through watering, clear areas on a selective basis, treat disturbed areas as soon as possible, reduce vehicle traffic and speed.	Decrease in air pollution emissions. No mitigation required.
■ Noise	IMPACTS: No residential areas would be exposed to DNL of 65 dBA or higher from aircraft noise. During 1998, parts of the Springmaid Beach resort areas would be within the DNL of 65 dBA. After year 2000 when Stage 2 aircraft are replaced by Stage 3 aircraft, this resort would not be impacted. During 2013 the area within DNL of 65 dBA would be 518 acres, which is 3,882 acres less than preclosure conditions. During 2013, there would be approximately 146 residential structures and 4 churches within DNL of 65 dBA generated by vehicular traffic.	Same as Proposed Action, but during 2013 the area within DNL of 65 dBA would be 512 acres, which is 3,888 acres less than preclosure conditions.	Same as Proposed Action, but during 2013 the area within DNL of 65 dBA would be 499 acres, which is 3,901 acres less than preclosure conditions.	Same as Proposed Action, but during 2013 the area within DNL of 65 dBA would be 442 acres, which is 3,958 acres less than preclosure conditions. For the Restricted Second Runway Option, it would be 506 acres, which is 3,894 acres less than preclosure.	No residential area would be exposed to DNL of 65 dBA or higher from aircraft noise. During 1998, parts of the Springmaid Beach resort trailer park would be within the DNL of 65 dBA. After year 2000 when Stage 2 aircraft are replaced by Stage 3 aircraft, this resort would not be impacted. During 2013 the area within DNL of 65 dBA would be 243 acres, which is 4,157 acres less than preclosure conditions. Approximately 146 residential structures and 4 churches would be within DNL of 65 dBA generated by vehicular traffic.

Table 2.7-2. Summary of Environmental Impacts and Mitigation from the Proposed Action and Reuse Alternatives
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Resource Category	Proposed Action (Expanded Airfield/Resort-Education)	Expanded Airfield/ Resort - Recreation	Expanded Airfield/Resort Commercial - Industrial	Existing Airfield/ Mixed Use	No-Action Alternative (Existing Airfield/Caretaker)
■ Biological Resources	IMPACTS: Potential loss or alteration of approximately 1,296 acres of native, commercial forest lands, including approximately 167 acres of forested wetlands. Loss of associated wildlife habitat for native species. MITIGATION: Reuse Proponent/Agencies: Mitigation of wildlife habitat and wetland acreage lost or disturbed is determined through coordination and permitting actions with affected agencies.	Same as Proposed Action Reuse Proponent/Agencies: Mitigation of wildlife habitat and wetland acreage lost or disturbed is determined through coordination and permitting actions with affected agencies.	Same as Proposed Action Reuse Proponent/Agencies: Mitigation of wildlife habitat and wetland acreage lost or disturbed is determined through coordination and permitting actions with affected agencies.	Same as Proposed Action Reuse Proponent/Agencies: Mitigation of wildlife habitat and wetland acreage lost or disturbed is determined through coordination and permitting actions with affected agencies.	No impact. No mitigation required.
■ Cultural Resources	IMPACTS: Potential impact to 12 historic properties on base due to loss of federal protection. Potential ground disturbance could adversely affect 2 archaeological sites. MITIGATION: Reuse Proponent/Agencies: Conduct mitigation in accordance with preservation covenants. Other Mitigation Measures: Reduce impacts to no adverse effect through MOA terms to be signed with SHPO and Advisory Council.	Potential impact to 12 historic properties on base due to loss of federal protection. Potential ground disturbance could adversely affect 2 archaeological sites. Reuse Proponent/Agencies: Conduct mitigation in accordance with preservation covenants. Other Mitigation Measures: Reduce impacts to no adverse effect through MOA terms to be signed with SHPO and Advisory Council.	Potential impact to 12 historic properties on base due to loss of federal protection. Potential ground disturbance could adversely affect 2 archaeological sites. Reuse Proponent/Agencies: Conduct mitigation in accordance with preservation covenants. Other Mitigation Measures: Reduce impacts to no adverse effect through MOA terms to be signed with SHPO and Advisory Council.	Potential impact to 12 historic properties on base due to loss of federal protection. Potential ground disturbance could adversely affect 2 archaeological sites. Reuse Proponent/Agencies: Conduct mitigation in accordance with preservation covenants. Other Mitigation Measures: Reduce impacts to no adverse effect through MOA terms to be signed with SHPO and Advisory Council.	Federal protection remains. No mitigation required.

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CHAPTER 3
AFFECTED ENVIRONMENT

3.0 AFFECTED ENVIRONMENT

3.1 INTRODUCTION

This chapter describes the environmental conditions of Myrtle Beach AFB and its Region of Influence (ROI) as it would be at the time of base closure. It provides information to serve as a baseline from which to identify and evaluate environmental changes resulting from disposal and reuse of Myrtle Beach AFB. Although this EIS focuses on the biophysical environment, some non-biophysical elements are addressed. The non-biophysical elements (influencing factors) of population and employment, land use and aesthetics, public utility systems, and transportation networks in the region and local communities are addressed. This chapter also describes the storage, use, and management of hazardous materials found on base, including storage tanks, asbestos, pesticides, polychlorinated biphenyls (PCBs), radon, medical/biohazardous waste, and photochemical waste. The current status of the Installation Restoration Program (IRP) also is described. Finally, the chapter describes the pertinent natural resources of geology and soils, water resources, air quality, noise, biological resources, and cultural resources.

The ROI to be studied will be defined for each resource area affected by the Proposed Action and alternatives. The ROI determines the geographical area to be addressed as the Affected Environment. Although the base boundary may constitute the ROI limit for many resources, potential impacts associated with certain issues (e.g., air quality, utility systems, and water resources) transcend these limits.

The baseline conditions assumed for the purposes of analysis are the conditions projected at base closure in March 1993. Impacts associated with disposal and/or reuse activities may then be addressed by comparing projected conditions under various reuses to closure conditions. A description of preclosure conditions is provided for the following categories:

- Infrastructure
- Airspace
- Noise
- Air quality
- Hazardous materials/hazardous waste management

Preclosure conditions are described for these categories in order to provide a comparative analysis over time. This will assist the decision maker and agencies in understanding potential long-term impacts in comparison to conditions when the installation was active. For infrastructure and hazardous materials/hazardous waste management, 1991 conditions are described for preclosure. For airspace, noise, and air quality, 1989 is used for preclosure conditions because base flying operations in 1990 and 1991 were atypical as flight operations at the base were reduced because of Desert Storm and Desert Shield support activities.

3.2 LOCAL COMMUNITY

3.2.1 COMMUNITY SETTING

Myrtle Beach AFB is located in Horry County, South Carolina, about 85 miles north of Charleston, South Carolina, and about 60 miles south of Wilmington, North Carolina. The base is within the city limits of Myrtle Beach. All or part of the counties of Horry, Dillon, Marion, Florence, Williamsburg, Berkeley, Georgetown, and Charleston in South Carolina and Brunswick, Columbus, and Robeson in North Carolina lie within a 50-mile radius. The regional features are illustrated in Figure 3.2-1.

The base is bordered by U.S. 17 and the Intracoastal Waterway on the north, by U.S. 17 Business and developed portions of the city of Myrtle Beach on the east, on the south by U.S. 17 Business, and on the west by less developed portions of Horry County and U.S. 17. It lies within the Grand Strand, a popular beach resort area that extends from the North Carolina border though Georgetown, South Carolina.

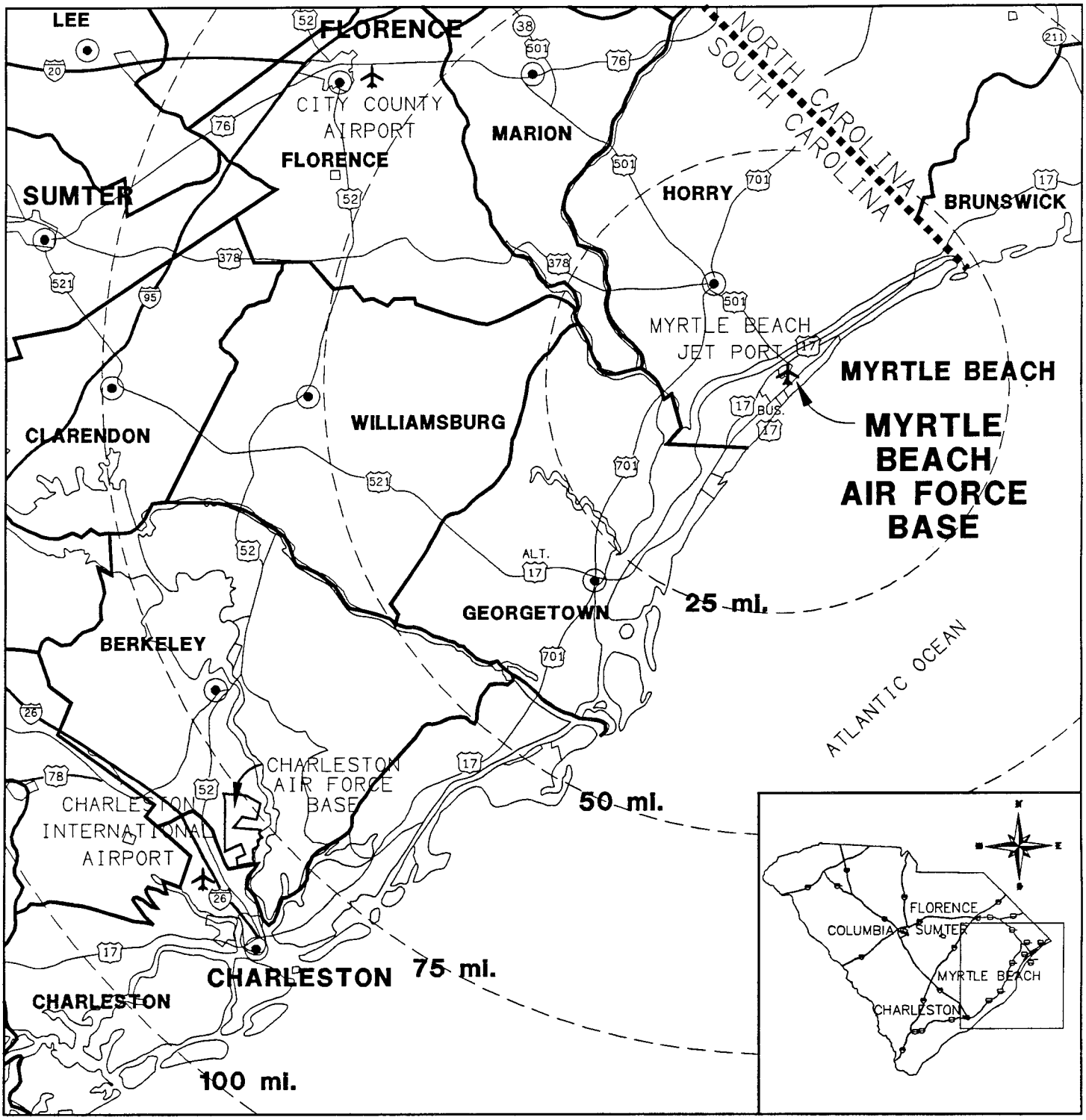
The Myrtle Beach climate is temperate, with warm, humid summers and mild winters. Temperatures may drop below freezing in winter, though snow is uncommon. Summer brings the possibility of hurricanes.

Myrtle Beach AFB was activated as the Army Air Corps Airfield in June 1940, serving as a gunnery and bombing range. Over the next two years, fighter and bombardment squadrons trained at the base. A prisoner of war camp also was operated on the base. The base was deactivated in 1947 and the facilities were turned over to the city of Myrtle Beach to use as a municipal airport. In 1954, the city donated the base to the Air Force and construction of facilities began. However, a close relationship between the base and the community has remained, as evidenced by the Myrtle Beach civilian jetport that shares use of the base runway.

The 354th Fighter Wing is the host unit at Myrtle Beach AFB under the direction of the former Tactical Air Command (TAC), now the Air Combat Command (ACC). The wing's primary mission is to maintain the capacity to deploy worldwide and provide close air-to-ground support through the use of A-10 fighter aircraft.

The base is composed of 3,744 acres of land. The base contains its own housing, elementary school, hospital and pharmacy, commercial and recreational facilities, as well as the operational air base.

The two counties of Georgetown and Horry are considered the ROI for purposes of describing and analyzing population and employment effects. The area identified is the same as that included under the economic analysis study in the *Socioeconomic Impact Analysis Study* (SIAS) *for Myrtle Beach AFB*. However, the greatest job and population effects are expected to occur in Horry County, the location of 90 percent of military-based population. The county is the primary focus of analysis for community impacts in this EIS. The boundaries are illustrated in Figure 3.2-1.



EXPLANATION

- AIRPORTS
- COUNTY SEATS
- STATE BOUNDARY
- COUNTY BOUNDARY

0 5 10 20 MILES

REGIONAL MAP

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 3.2-1

Population. Horry County's growth in resident population during the 1980s places it among the fastest growing counties in the United States for the period. The ROI increased in population from an estimated 143,880 in 1980 to 186,806 in 1990, a change of 30 percent. Comparatively, South Carolina grew by twelve percent over the same period. Table 3.2-1 provides data on resident population growth and change between 1970 and 1990 for the two counties. The data indicate that resident population growth is increasing, but not as rapidly as in the past decade.

Table 3.2-1. Resident Population Growth and Change Georgetown and Horry Counties, 1970-1990

County	1970	1980	1990	% Change 1970-80	% Change 1980-90
Georgetown	33,500	42,461	42,753	27%	0.6%
Horry	69,992	101,419	144,053	45%	42%
Total	103,492	143,880	186,806	39%	30%

Source: U. S. Department of Commerce, Bureau of the Census, 1970, 1980, 1990.

In 1992, Myrtle Beach AFB had a reported total military-related population of 10,630, comprising 3,099 active duty personnel, and 7,531 dependents of active duty personnel. Civilian employees were reported to include 446 appropriated fund personnel and 216 non-appropriated fund personnel. About 4,052 retirees also are estimated to be located in the ROI.

Employment. The most significant industry sectors in the region, based on employment, are the service and retail trade sectors. In 1990, these two sectors provided employment for 44,850 persons, 64 percent of all private sector regional employment (Table 3.2-2). The public sector, including federal, state and local sectors, but not including military employment, is the third largest employer in the region, with 10,886 employees, or 12.9 percent of regional employment.

Housing. Housing permit activity continued at a substantial level in the ROI during the 1980s. The most activity occurred in the unincorporated areas of Horry County, averaging 1,904 new housing units per year for the decade; however, declines in activity occurred each year, with only 889 new units permitted at the close of 1990.

3.2.2 LAND USE AND AESTHETICS

This section describes the land uses and aesthetic features for the base property and adjacent environs of Myrtle Beach AFB at the time of base closure. As the proposed closure date is March 1993, off-base land uses at closure are assumed to be similar to existing land uses in the vicinity of the base. The ROI includes the base property and potentially affected adjacent land uses within the political jurisdictions of Myrtle Beach, Ocean Lakes, Surfside Beach, and adjacent portions of Horry County.

Myrtle Beach AFB is located within the corporate limits of the city of Myrtle Beach. It is bounded on the north by U.S. 17 and the Intracoastal Waterway, on the east by developed portions of Myrtle Beach, on the south by U.S. 17

Table 3.2-2. Employment by Major Industry Sector in the Myrtle Beach AFB ROI

Industry	Horry		Georgetown		ROI		Percent
Private Sector							
Agriculture/forestry/fishing	03		226		529		0.63
Mining	22		0		22		0.03
Construction	3,678		1,177		4,855		5.76
Manufacturing	5,814		4,646		10,460		12.40
Non-durable		1,801		2,008		3,809	
Durable		4,013		2,638		6,651	
Transportation/communications/ public utilities	1,790		525		2,315		2.74 1.96
Wholesale trade	1,328		329		1,657		
Non-durable		713		136		849	
Durable		615		193		808	
Retail trade	21,759		3,626		25,385		30.10
Finance/insurance/real estate	4,588		800		5,388		6.39
Services	16,975		2,490		19,465		23.08
Total Private Sector	56,257		13,819		70,076		83.09
Public Sector							
Federal[1]	4,563		202		4,765		5.65
Myrtle Beach AFB (military)		2,687		55		2,742	
Myrtle Beach AFB (civilian)		592		42		634	
Other		1,284		105		1,389	
State	1,399		655		2,054		2.43
Local	4,969		2,474		7,443		8.83
Total Public Sector	10,931		3,331		14,262		16.91
Total Public and Private	67,188		17,150		84,338		100

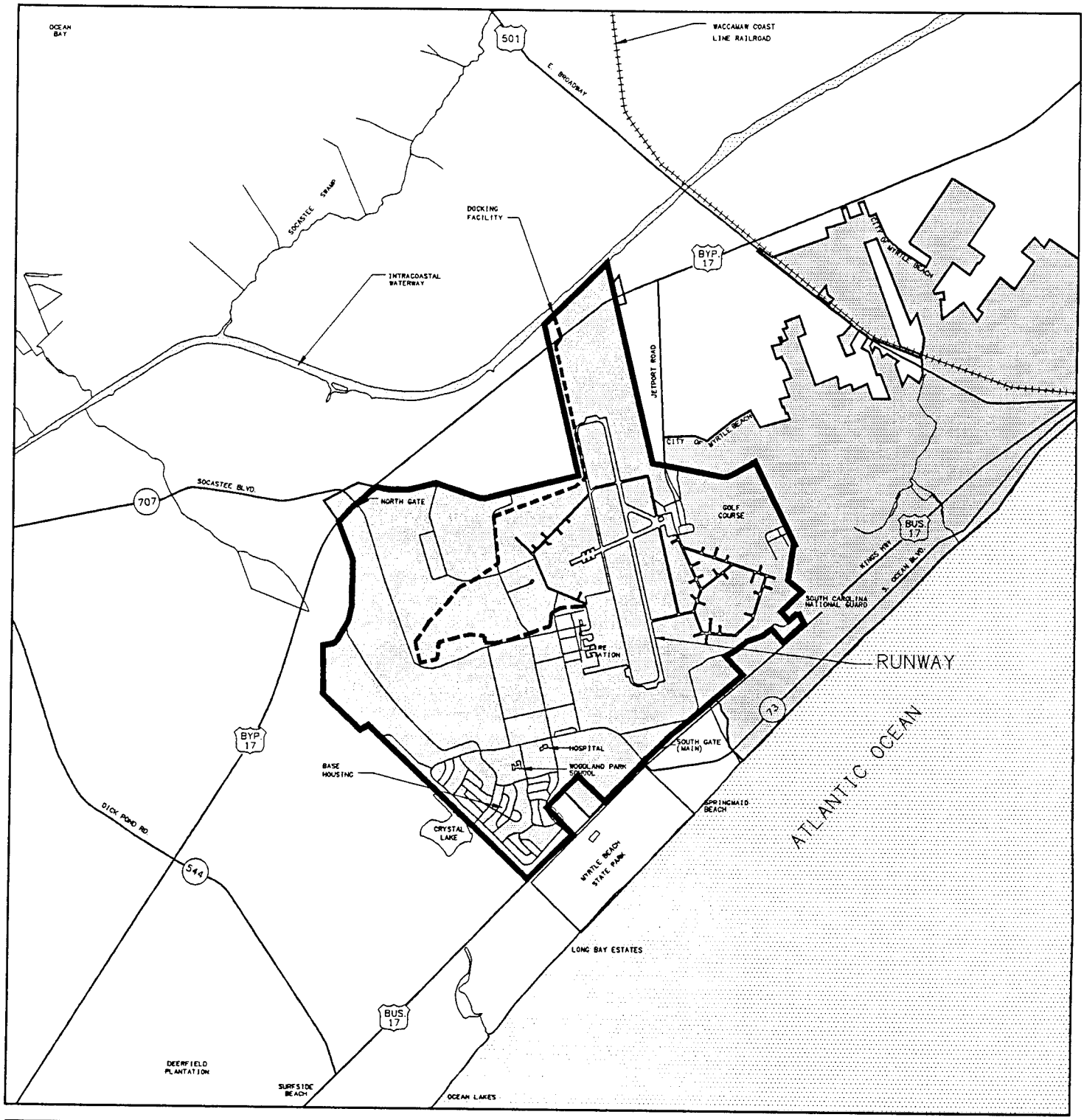
[1]Does not include active duty military.
Source: South Carolina Employment Security Commission, 1990;
South Carolina Employment Security Commission, 1992;
U.S. Air Force, 1991s.

Business, and on the west by U.S. 17 and less intensively developed portions of Horry County. The total land area of the base is 3,744 acres.

The city of Myrtle Beach has an adopted comprehensive plan, zoning ordinance, and subdivision regulation; however, although the base is included in the comprehensive plan and zoned, federal activities on the base have not been subject to their provisions. Figure 3.2-2 illustrates the location of Myrtle Beach AFB in relationship to the surrounding ROI.

3.2.2.1 Land Use

Land Use Plans. The city of Myrtle Beach has a comprehensive plan that was revised in 1984. Horry County has a 1983 land use plan in force, a revision of which is scheduled after the Myrtle Beach AFB reuse plan is completed to avoid any non-compatible land uses adjacent to each other. Myrtle Beach's Comprehensive Plan supports the Air Force's compatibility program for land use around air installations (see discussion in this section entitled Air Force Policies



EXPLANATION

CITY OF MYRTLE BEACH

FUEL PIPELINE

BASE BOUNDARY

0 1/4 1/2 1 MILE

LOCAL AREA MAP

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 3.2-2

Affecting Adjacent Land Uses) by incorporating it into land use planning and building codes.

Three neighborhoods adjacent to Myrtle Beach AFB have been defined by the city. The first, Southwest Neighborhood, borders the northern portion of the base. The second, U.S. 17 Business Corridor Neighborhood, extends the full length of the southeastern boundary of the base. The South Beach Neighborhood is the last to have restrictions placed on building codes and land uses to comply with the Air Force's compatibility program for land use around air installations.

The Myrtle Beach Comprehensive Plan indicates that these neighborhoods should be maintained in open space or nonresidential compatible uses such as agriculture or forestry, and that no further construction be permitted.

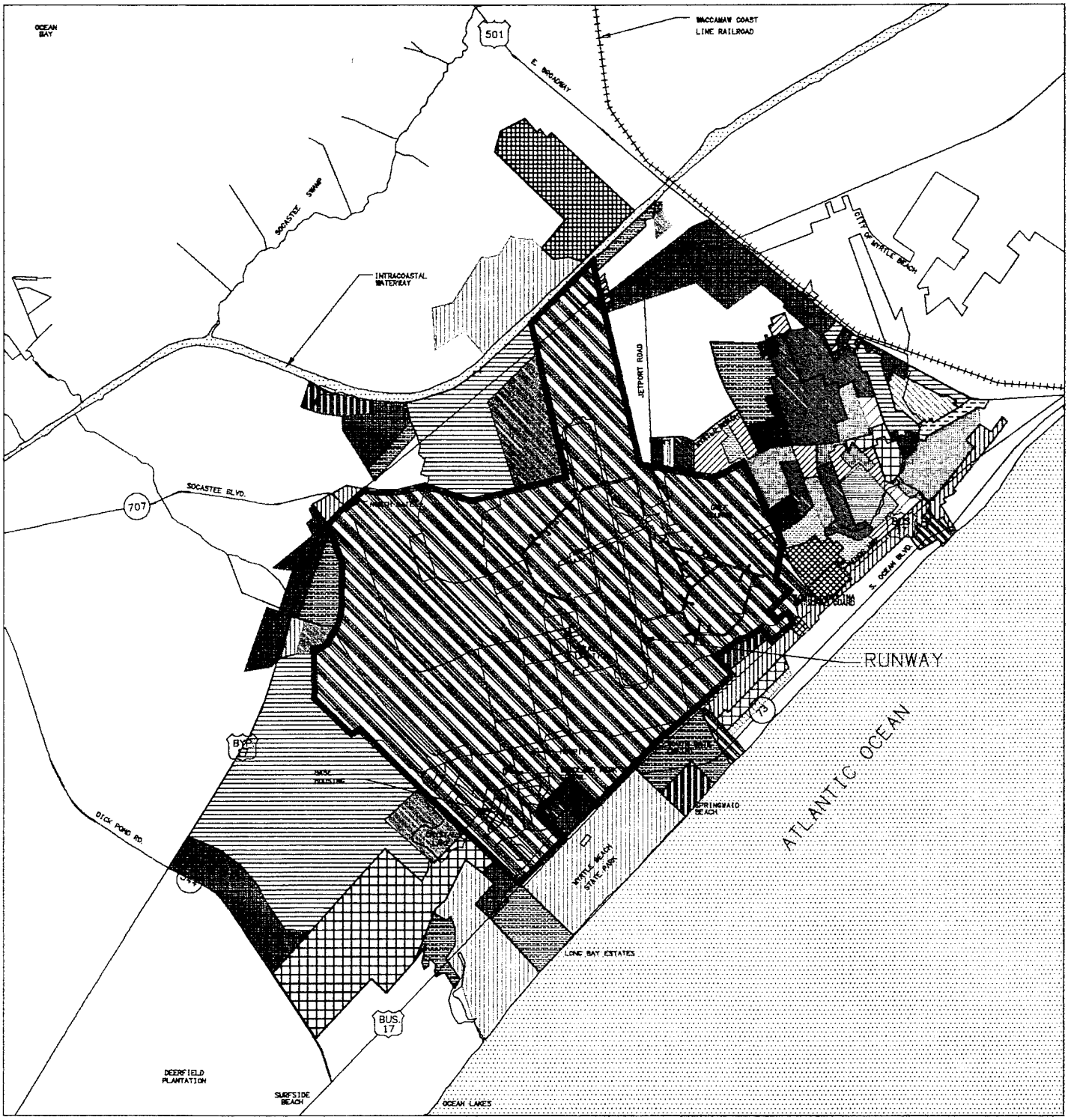
Zoning. Zoning provides for the division of the jurisdiction, in conformity with the general plan, into districts within which permitted uses, the height, open space, building coverage, density, and off-street parking are provided for. The purposes of zoning are to regulate development and to achieve various community development goals.

The land surrounding Myrtle Beach AFB falls under two local governmental jurisdictions; Horry County to the north, south, and west, and the city of Myrtle Beach to the east.

Figure 3.2-3 depicts the zoning for and around Myrtle Beach AFB, and Table 3.2-3 defines each zoning classification. The city of Myrtle Beach has zoned the land within the base boundaries to a C-10 classification. This zone is intended to provide a military/transportation district within the city, where military land uses and related transportation and support activities can be accommodated.

Table 3.2-3. Zoning Districts
Page 1 of 2

City of Myrtle Beach	
AC-2	Accommodations/Commercial
AC-3	Accommodations/Commercial
C-1	Central Commercial
C-10	Military District
C-2	Highway Commercial
C-3	General Commercial
C-4	Neighborhood Commercial
C-5	Special Neighborhood Commercial
C-9	Commercial Trade
MH-1	Mobile Home Park
MH-3	Mobile Home/Single Family
MTA	Mobile Transient Accommodations
PUD	Planned Unit Development
R-10	One Family Residential
R-15	One Family Residential
R-7	One Family Residential
RM-12	Duplex/Multi-Family Residential



EXPLANATION

CITY OF MYRTLE BEACH ZONING

AC-2	C-9	R-7	RM-20
AC-3	C-10	R-10	TA-40
C-2	MH-1	R-15	TA-55
C-3	MH-3	RM-8	TA-80
C-4	MTA	RM-12	TA-120
C-5	PUD	RM-16	

HORRY COUNTY ZONING

AC	MHP
CC	PUD
DP	RC
FA	R-4
HC	R-7
LI	

OUTSIDE OF ZONING ROI

SOURCE: CITY OF MYRTLE BEACH ZONING MAP, MAY 1989

0 1/4 1/2 1 MILE

N W E S

EXISTING ZONING

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 3.2-3

Table 3.2-3. Zoning Districts
Page 2 of 2

City of Myrtle Beach (Continued)	
RM-16	Medium Density Multi-Family Residential
RM-20	High Density Multi-Family Residential
RM-8	Single Family/Multi-Family Residential
TA-120	Transient Accommodations
TA-40	Transient Accommodations
TA-55	Transient Accommodations
TA-80	Transient Accommodations
Horry County	
AC	Amusement Commercial
CC	Community Commercial
DP	Destination Park
FA	Forest Agriculture
GR	General Residential
HC	Highway Commercial
HI	Heavy Industrial
LI	Limited Industrial
MHP	Mobile Home Park
MR-4, R-7, MR-7	Single Family Residential
NC	Neighborhood Commercial
OP	Office Professional
PUD	Planned Unit Development
R-1, R-2, R-4	Single Family Residential
RC	Resort Commercial

On-Base Land Use. Until base closure, Myrtle Beach AFB will continue to house the 354th Fighter Wing and its support services. The base property has land uses as shown in Table 3.2-4.

Table 3.2-4. On-Base Land Use

Land Use Category	Acreage	Percent
Airfield	1,349	36.0
Aviation support	122	3.3
Industrial	189	5.0
Commercial	55	1.5
Institutional (Educational)	5	0.1
Institutional (Medical)	13	0.3
Residential	365	9.8
Public Facilities & Recreation	327	8.7
Vacant Land	1,319	35.2
Total	3,744	100

Existing on-base land uses are depicted on Figure 3.2-4. The following text describes the on-base land uses by category.

Airfield land uses are a runway, aprons, taxiways, and the Forward Operating Location Training Area (FOLTA). These uses occupy the majority of the eastern half of the base. The north-south instrument runway is 9,500 feet long and 150 feet wide. The runway is jointly used by military missions and commercial flights into and out of Myrtle Beach. Taxiways are located on either side of the runway. Military aprons are adjacent to the west side of the runway. The FOLTA is located to the east of the runway, south of the golf course. The fire station is located west of the runway.

Commercial airline facilities, including a terminal, hanger area, and support facilities, are located in the northeast corner of the base.

Aviation Support areas are clustered around taxiways and aprons to the west of the runway. These flightline support areas include hangers, ground equipment and maintenance facilities, offices, and warehouses.

Industrial land uses are concentrated in two areas of the base. The west-central portion of the base has a transportation complex, utilities areas, and warehouses. These uses are north of Phillis Boulevard and on either side of Shine Avenue and Operations Road. The munitions storage area near the north boundary of the base on Ordnance Road contains ordnance materials. An isolated industrial parcel is located at the extreme southeast edge of the base adjacent to U.S. 17 Business.

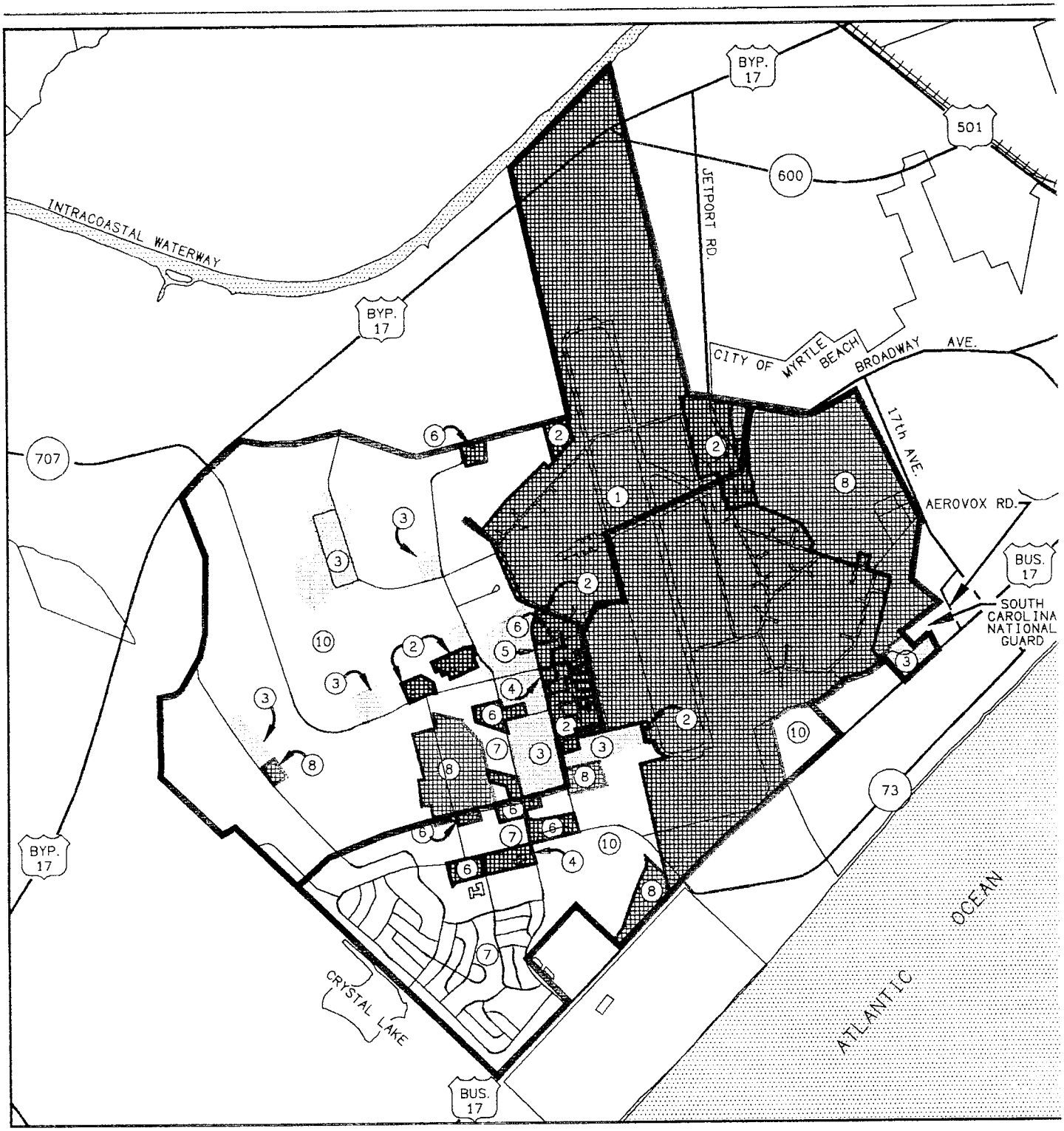
Commercial land uses at Myrtle Beach AFB are retail and service establishments including stores, commissary, bank, educational, postal, and other related services. These uses are clustered south of Avenue B, between Fourth Street and Shine Avenue. Administrative land uses are centrally located west of the flightline and include offices and the base command facilities.

Institutional (Educational) facilities are the Education Center, which offers college level courses from three area institutions. The Education Center is located at the intersection of Phillis Boulevard and Shine Avenue.

Institutional (Medical) land uses include medical, dental, and pharmacy facilities located at or adjacent to the base hospital. The hospital and associated facilities are located along Farrow Boulevard, adjacent to the residential area at the southwest corner of the base. The dental clinic is located on Phillis Boulevard and Shine Avenue.

Residential land uses are concentrated in the southwest quadrant of the base and consist of accompanied and unaccompanied housing. Single-family, duplex, and multiple-family dwellings constitute the base residential land use component. There are 245 two-bedroom homes, 540 three-bedroom homes, and 15 four-bedroom homes. There are eight dormitory units that can house 980 people, and six temporary housing units that can handle 134 people.

The residential land use includes Woodland Park School on Hemlock Street.



EXPLANATION

- (1) AIRFIELD
- (2) AVIATION SUPPORT
- (3) INDUSTRIAL
- (4) INSTITUTIONAL (MEDICAL)
- (5) INSTITUTIONAL (EDUCATIONAL)
- (6) COMMERCIAL
- (7) RESIDENTIAL
- (8) PUBLIC/ RECREATION
- (9) AGRICULTURE*
- (10) VACANT LAND

* NOT APPLICABLE

0 1000 3000 feet

ON-BASE LAND USE

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 3.2-4

Public Facilities and Recreation land uses are a golf course and driving range, campground, and a large land area containing active recreational facilities. The golf course occupies most of the northeast portion of the base. Most of the land area between Phillis Boulevard on the north and Woodland Park School to the south consists of recreational facilities. Seven ballfields, two swimming pools, multiple tennis courts, a gymnasium, football and soccer fields, and a running track are located in this area. The family campground is located southwest of the south gate, adjacent to U.S. 17 Business.

Vacant Land comprises the rest of the base, occupying most of the northwest quadrant. A second expanse of undeveloped land is located along Farrow Boulevard adjacent to the South Gate.

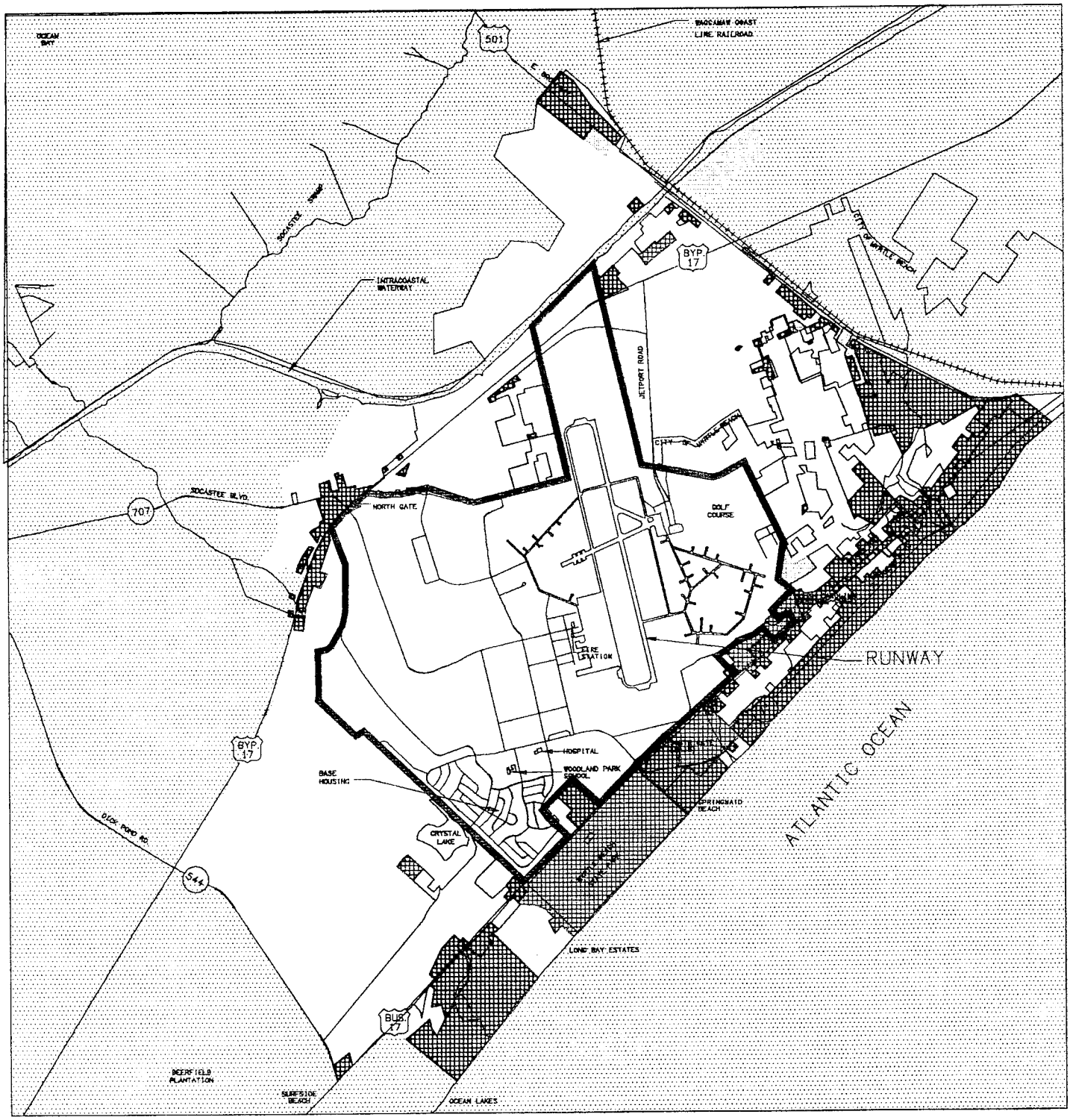
Easements and Leased Land. The base maintains two types of easements off base. The first are drainage easements that allow for proper drainage of surface water on the base into the Intracoastal Waterway and the Atlantic Ocean. These easements will need to remain active for future drainage needs. The second type of easement maintained by the Air Force deals with safety and height restrictions. These easements have been requested by the Federal Aviation Administration (FAA) to be used in their runway protection zones (RPZs). There is only one off-base leased property, an instrument landing site located off the southern end of the runway on the south side of U.S. 17 Business. The FAA has requested that this facility remain for use by the jetport.

There are numerous utility and governmental agency easements and leased property on the base. The easements are occupied by the South Carolina Public Service Authority (electricity), Grand Strand Water and Sewer Authority, General Telephone, the city of Myrtle Beach Public Utilities Department, Cablevision, Western Union, and the jet fuel supplier. The leased lands are occupied by the jetport, a U.S. Post Office, the credit union, a Navy tower site, Defense Reutilization Marketing Office, and Woodland Park School.

Adjacent Land Use. The entire base is incorporated within the city limits of Myrtle Beach, and bounded to the north and west by Horry County. The highest densities of development occur to the east and south of the base. The principal land uses along the coast consist of a mix of commercial resorts and residential resort communities. Adjacent land is privately owned and zoned for various densities of residential, commercial, and industrial purposes. Figure 3.2-5 illustrates land uses adjacent to Myrtle Beach AFB.

North. Development directly adjacent to the northern boundaries of the base consists primarily of single family residences in subdivisions and mobile home parks. Several mobile homes are located contiguous to the base boundaries, directly adjacent to the airfield. Mixed commercial and industrial land uses are adjacent to U.S. 501 just north of the Intracoastal Waterway. To the immediate northeast of U.S. 501 and the Waccamaw Coastline Railroad right-of-way is a large planned industrial park.

East. Higher densities of residential land uses, typified by planned subdivisions, are on this side of the base. Mixed commercial land uses, multi-family and single family residences, mobile homes, and a commercial campground are just south of U.S. 501, adjacent to the corporate limits of the



EXPLANATION

OFF-BASE LAND USE

- (1) AIRFIELD*
- (2) AVIATION SUPPORT*
- (3) INDUSTRIAL
- (4) INSTITUTIONAL (MEDICAL)*
- (5) INSTITUTIONAL (EDUCATIONAL)*
- (6) COMMERCIAL
- (7) RESIDENTIAL
- (8) PUBLIC/ RECREATION
- (9) AGRICULTURE*
- (10) VACANT LAND
- OUTSIDE OF LAND USE ROI

* NOT APPLICABLE

N

W E

S

0 1/4 1/2 1 MILE

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 3.2-5

city of Myrtle Beach. A South Carolina National Guard installation is located along U.S. 17 Business and Aerovox Road.

South. Land uses adjacent to the southern boundary of the base are commercial resorts (within the city of Myrtle Beach), golf courses, Myrtle Beach State Park, trailer parks, and resort recreational developments at Long Bay Estates and Ocean Lakes. Strip commercial land uses are prevalent along U.S. 17 Business, and increase in number and density to the northeast of 29th Avenue South. Resort commercial land uses are located the length of Ocean Boulevard from 29th Avenue South to well northeast of the base. Between U.S. 17 Business and Ocean Boulevard, the land use is generally multi-family, with some single family uses spread throughout.

West. The lowest development densities are found to the west of the base. Undeveloped land predominates. To the immediate west of the base boundary is the Crystal Lake mobile home park containing 375 units. Adjacent to the mobile home park is Lakewood Elementary School. Further to the southwest is the Prestwick Golf Club, a planned residential/recreational community that has 82 single family units and a golf course. Northwest of the base is the community of Socastee, which is characterized by residential developments spread throughout the area, and limited commercial land uses located mainly at the intersection of U.S. 17 Bypass and State Road 707.

Air Force Policies Affecting Adjacent Land Uses. The Air Force has developed the Air Installation Compatible Use Zone (AICUZ) program to minimize development that is incompatible with aviation operations in areas on and adjacent to military airfields. The AICUZ land use recommendations are based on (1) land uses compatible with exposure to aircraft noise and (2) safety considerations. Recommended compatible land uses are derived from data on noise contours (noise zones) and safety zones (accident potential zones-APZs). These zones are delineated specifically for each base, using operational information derived from the base mission. Municipalities with jurisdiction over adjacent lands may zone this land in accordance with AICUZ recommendations, but they are not required to do so. An AICUZ report for Myrtle Beach AFB was issued in 1976 (U.S. Air Force, 1976).

The safety zones are vertical as well as horizontal. The vertical component is the approach-departure clearance surface, which extends 50,200 feet beyond each end of the runway horizontally, and to an elevation of 500 feet above the airfield surface.

Noise contours are based on standard noise ratings that are calculated from types of aircraft, number of aircraft daily operations, time of day flown, aircraft flight patterns, power settings, air speeds, altitudes, and climatic conditions. A day-night weighted average sound level (DNL) is used to describe the noise environment. Noise contours for preclosure conditions at Myrtle Beach AFB are presented and discussed in Section 3.4.4. A total of 4,400 acres are exposed to aircraft noise levels of DNL of 65 A-weighed decibels (dBA) and above (U.S. Air Force, 1990d). This acreage includes residential, commercial, and industrial zonings.

The AICUZ delineates areas at both ends of the runway where the probability of aircraft accidents is highest, based on the locations of past aircraft accidents

at various bases. The risk of accidents is highest in the area at the immediate end of the runway (known as the clear zone-CZ). The Air Force has a program to purchase property or acquire easements in the CZ to preclude most land uses. Certain land use restrictions are recommended in lower risk areas, identified as APZ I and APZ II (Figure 3.2-6).

At Myrtle Beach AFB, there are commercial land uses within the southern CZ. Myrtle Beach AFB has not been able to acquire the impacted areas in this CZ. Industrial, agricultural, recreation, and vacant land uses are compatible with APZ I, but residential and other high population density land uses are discouraged. Commercial land uses are present at Myrtle Beach AFB within APZ I. Low intensity residential and non-residential uses (maximum of 20 percent building coverage per acre) are compatible with APZ II, in addition to those uses listed for APZ I. At Myrtle Beach AFB, there are no residential units within APZ II.

Closure Baseline. Under baseline conditions, Myrtle Beach AFB would be closed and Air Force activities terminated in March 1993. This action may not eliminate land use conflicts due to continuing commercial aviation activities at the Myrtle Beach Jetport.

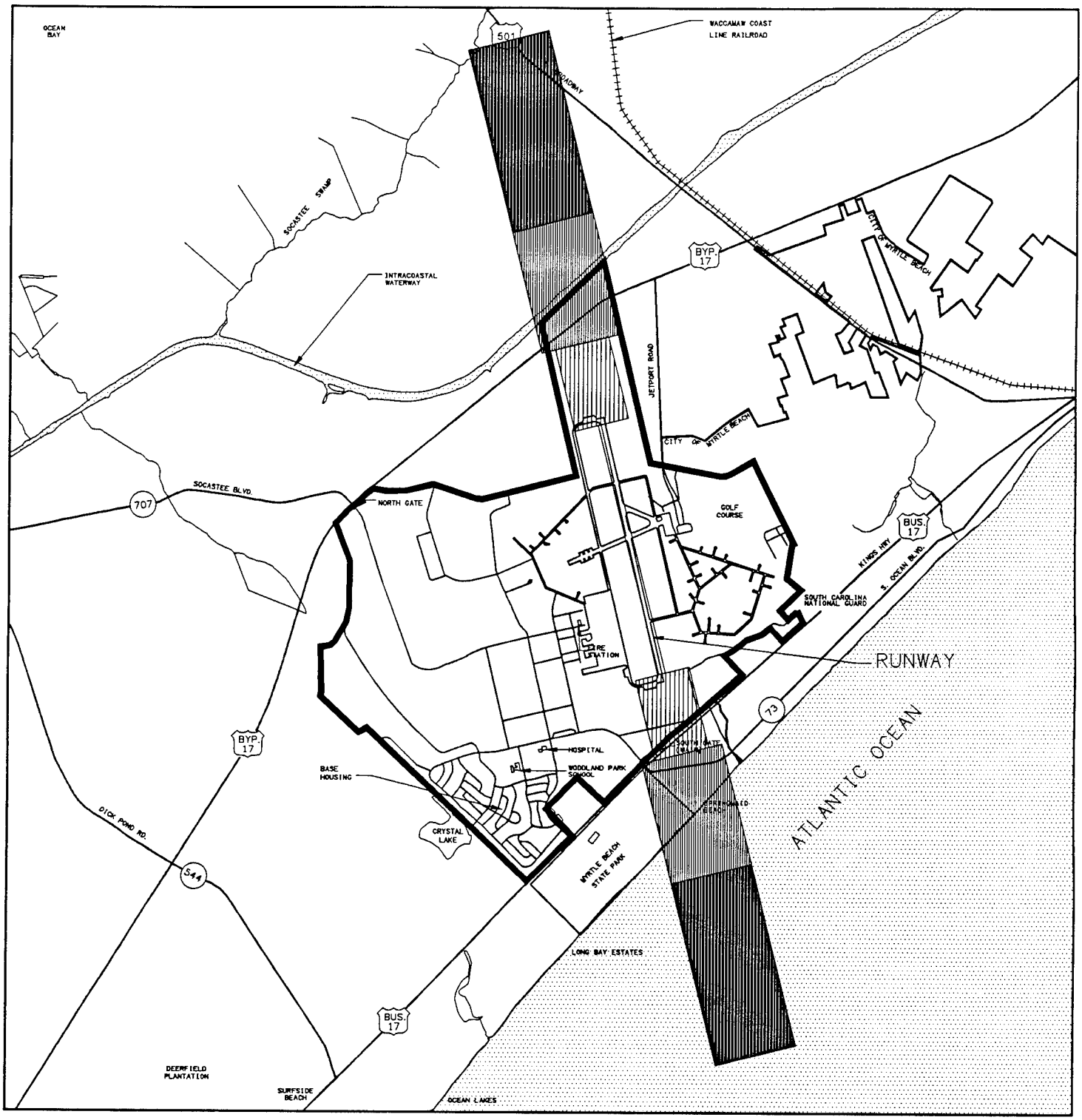
The AICUZ program applies only to military airfields. Similar criteria will apply to civil aviation activities established by the FAA for civilian airports. After closure of Myrtle Beach AFB, FAA criteria will apply to commercial aviation activities at the Myrtle Beach Jetport.

3.2.2.2 Aesthetics

Visual resources include natural and man-made features that give a particular environment its aesthetic qualities. One criterion used in the analysis of these resources is visual sensitivity, which is the degree of public interest in a visual resource and concern over adverse changes to its quality. Visual sensitivity is categorized in terms of high, medium, or low levels. Figure 3.2-7 shows the visually sensitive views from the base.

High visual sensitivity exists in areas where views are rare, or in other ways special, such as in remote or pristine environments. High-sensitivity views include landscapes that have landforms, rare vegetative communities, water bodies, or rock formations of unusual or outstanding quality. The forested areas and wetlands to the west of the base are considered high sensitivity views.

Areas of medium visual sensitivity are more developed than those of high sensitivity. Human influence is more apparent in these areas and the presence of motorized vehicles and other evidence of modern civilization is commonplace. These landscapes generally have features containing varieties in form, line, color, and texture, but tend to be more common than high visual sensitivity areas. In the Grand Strand area, vegetative communities that play a role in maintaining a natural environmental balance with developed areas are considered medium sensitivity areas. The view of the state park near the family campground could be a high visual sensitivity area; however, the presence of U.S. 17 Business can only allow it to be a medium visual



EXPLANATION

CLEAR ZONE

APZ I

APZ II

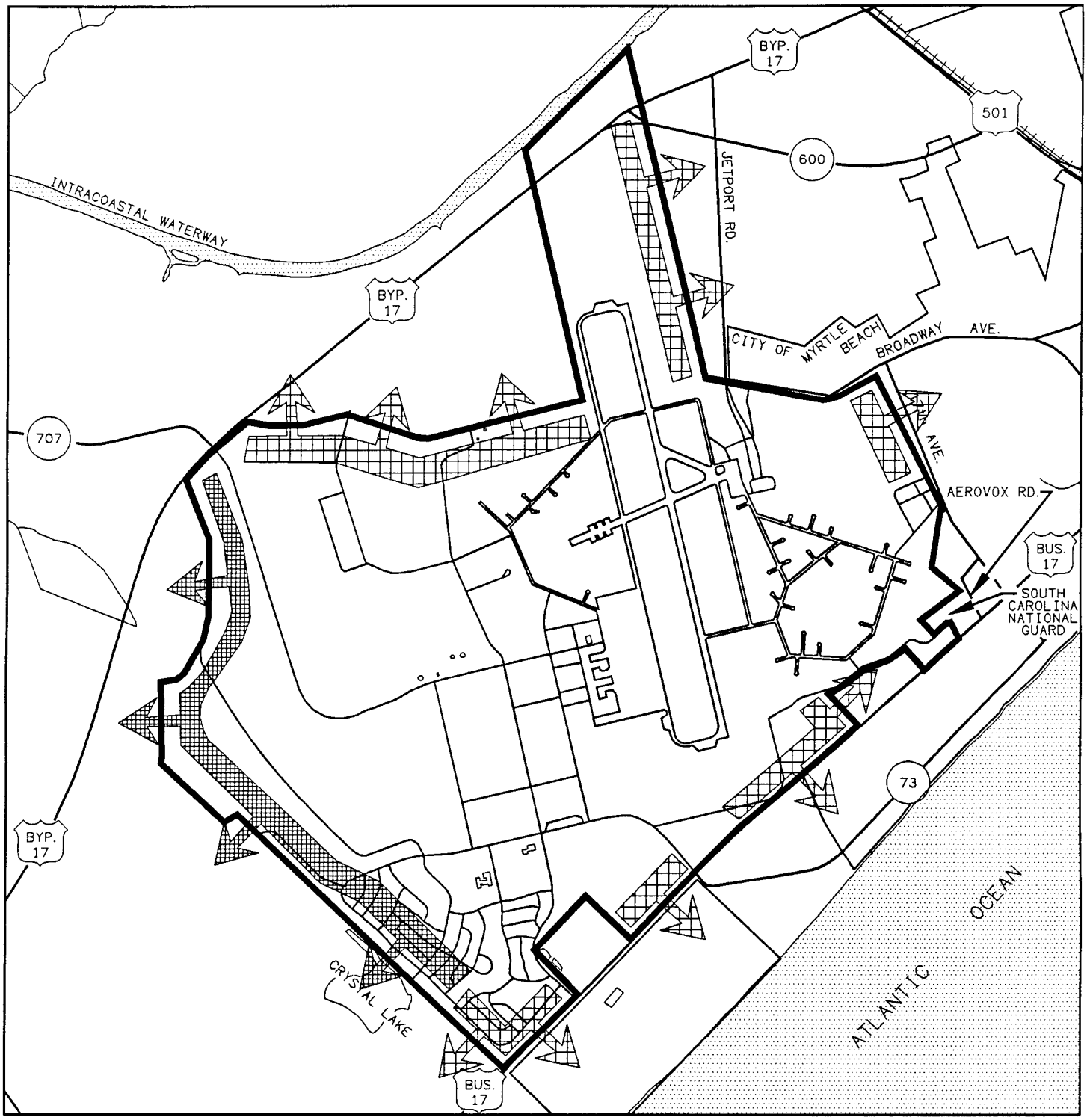
0 1/4 1/2 1 MILE

SOURCE: U. S. AIR FORCE, 1976

CLEAR ZONES AND ACCIDENT POTENTIAL ZONES (APZs)

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 3.2-6



EXPLANATION

HIGH VISUAL SENSITIVITY

MEDIUM VISUAL SENSITIVITY

0 1000 3000 feet

VISUAL SENSITIVITY MAP

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 3.2-7

sensitivity. In addition, the recreational resort communities constructed along canals and golf courses fall into this aesthetic category.

Low visual sensitivity areas tend to have minimal landscape features, with little change in form, line, color, and texture. Areas adjacent to Myrtle Beach AFB not previously mentioned in terms of aesthetics are considered to have low visual sensitivity.

The visual features of Myrtle Beach AFB match those of the surrounding community well. Landscaping is well maintained, and plentiful water allows the maintenance of large, grassy areas. Trees, including pine and oak, are abundant throughout the developed area of the base. Much of the base is forested and structurally undeveloped. The majority of the base buildings are block type and painted in light earth tones.

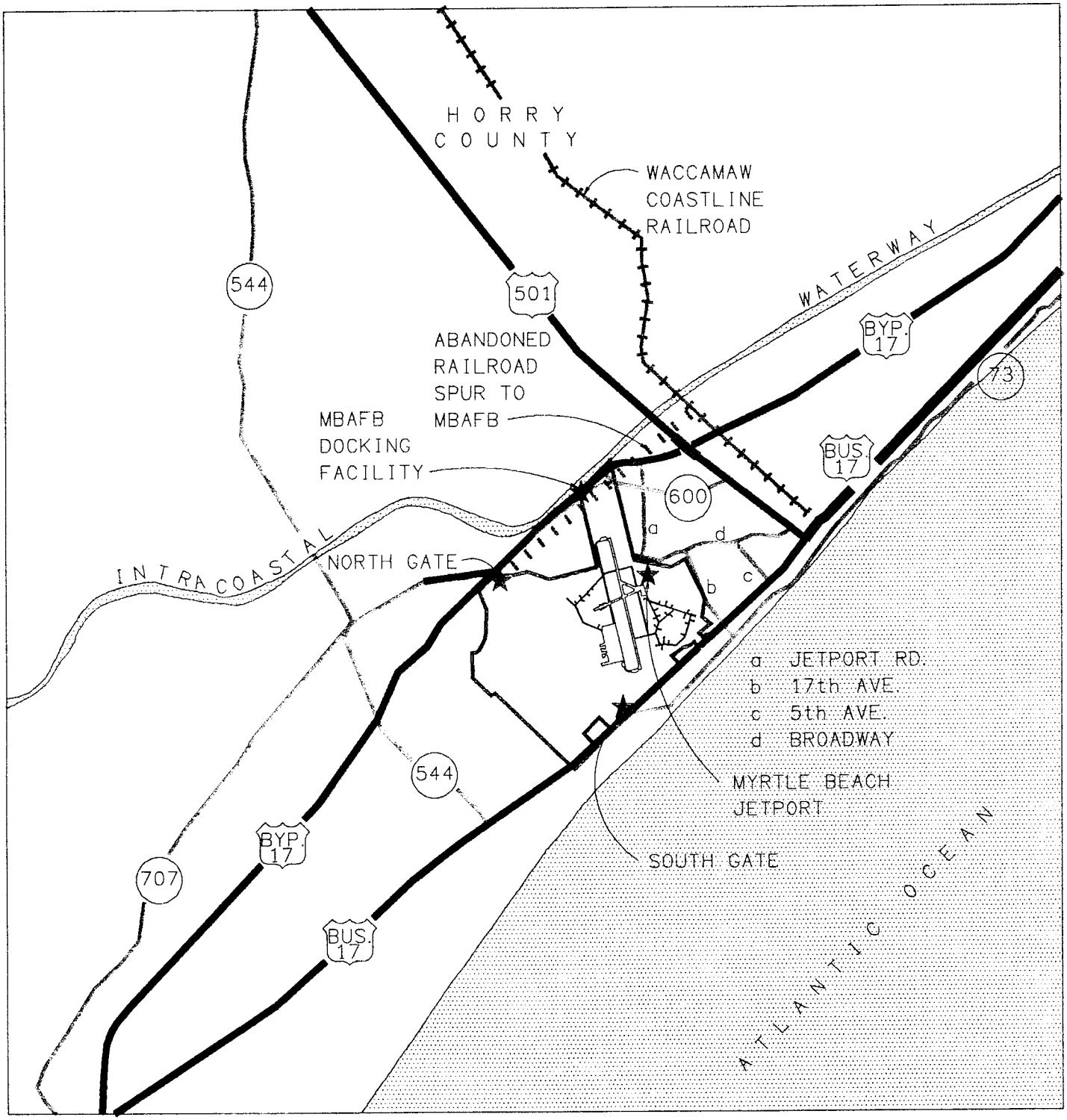
3.2.3 TRANSPORTATION

Transportation addresses roadways, mass transit, airspace and air transportation, and railroads. The ROI for the transportation analysis includes the existing principal road, air, and rail networks, as well as seaports in the Myrtle Beach area with emphasis on the immediate area surrounding Myrtle Beach AFB. Within this geographic area, the analysis focuses on the segments of the transportation networks that serve as direct or key indirect linkages to the base and those that are commonly used by Myrtle Beach AFB personnel.

The ROI for the transportation analysis varies with the mode of transportation. The ROI for highways and transit consists of the eastern portion of Horry County and the northeastern portion of Georgetown County. The ROI for airspace use consists of the area within 20 nautical miles (nm) of Myrtle Beach AFB. The ROI for air transportation includes the jetport and the general aviation airports in Horry County. The ROI for railroads consists of the segments owned by Horry County and includes the abandoned spur to the base. The ROI for seaports includes the fuel delivery dock on the Intracoastal Waterway and the Ports of Georgetown and Charleston. Transportation systems in the Myrtle Beach area are shown in Figure 3.2-8.

3.2.3.1 Roadways

The evaluation of the existing roadway conditions focuses on capacity, which reflects the ability of the network to serve the traffic demand and volume. The capacity of a roadway depends mainly on the street width, number of lanes, intersection control, distance between intersections, and other physical factors. Traffic volumes typically are reported, depending on the project and data base available, as the daily number of vehicular movements in both directions on a segment of roadway, averaged over a full calendar year (average annual daily traffic-AADT) and/or the number of vehicular movements on a road segment during the average peak hour. The average peak-hour volume on urban arterials in the Myrtle Beach area is approximately 7.9 percent of the AADT (South Carolina Department of Highways and Public Transportation, 1990). This figure is typical for a tourist area that has relatively congested roadways. These values are useful indicators in determining the extent to which the roadway segment is used and in assessing the potential for congestion and other problems.



EXPLANATION

- 6 – LANE ROAD
- 4 – LANE ROAD
- 2 – LANE ROAD
- 17 U. S. HIGHWAYS
- 707 STATE HIGHWAYS

0 1/2 1 2 MILES

LOCAL TRANSPORTATION SYSTEM

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 3.2-8

The performance of a roadway segment is generally expressed in terms of level of service (LOS). The LOS scale ranges from A to F, with each level defined by a range of volume-to-capacity ratios. LOS A, B, and C are considered good operating conditions where minor or tolerable delays are experienced by motorists. LOS D represents below average conditions. LOS E corresponds to the maximum capacity of the roadway. LOS F represents a jammed situation. Table F-1 in Appendix F presents the LOS designations and their associated volume/capacity ratios. These levels are based primarily on the Highway Capacity Manual (Transportation Research Board, 1985), and are adjusted for local conditions.

Urban areas often set goals to achieve reduction of congestion. The Grand Strand Area Transportation Study (GSATS) Policy Committee anticipates setting LOS standards in the future. It is common for urban areas to set LOS standards of D for roadways that exhibit congested conditions for certain times of the year.

Due to the heavy influx of tourists during the summer months in Myrtle Beach and the resulting increase in traffic on the major roadways, both daily traffic and peak hour traffic are measured as peak season average daily traffic and peak season peak hour traffic in this traffic analysis. Baseline and forecast conditions are presented on a peak season peak hour basis.

Existing roads and highways within the ROI are described at three levels: (1) regional, representing the major links within the region; (2) local, representing key community roads; and (3) on-base roads.

Regional Roads. The region surrounding Myrtle Beach AFB is served by a network of state highways. The north gate of the base provides access to U.S. 17 Bypass, which parallels the Carolina coast and connects Myrtle Beach with the remainder of the Grand Strand, as well as other coastal Carolina cities, including Charleston, South Carolina and Wilmington, North Carolina. The south gate of the base provides access to U.S. 17 Business, which serves Myrtle Beach as the primary business route. It connects with U.S. 17 to the south near Murrell's Inlet and again to the north of Myrtle Beach. U.S. 501 and state road (SC) 544 provide access to communities west of Myrtle Beach. U.S. 501 is located north of Myrtle Beach AFB and connects Myrtle Beach with Conway, South Carolina. U.S. 501 continues west and ultimately interchanges with Interstate 95 (I-95), the interstate highway paralleling the Atlantic coastline. SC 544 is located west of the base and connects Surfside Beach, South Carolina with Conway. Socastee, a bedroom community west of the base, is located on SC 544. SC 707 provides an access between the north gate of the base and SC 544.

Local Roads. Several roadways provide important access to Myrtle Beach AFB, but serve mainly local traffic. In this case, local traffic is defined as Myrtle Beach area traffic. SC 600 connects U.S. 17 with U.S. 501 and also intersects Jetport Road, the main entrance to the Myrtle Beach Jetport. On the east side of the jetport, significant roadways are 17th Avenue and Broadway Avenue. Another important roadway is Ocean Boulevard, which intersects U.S. 17 Business at the south gate of the base. Due to the locations of these roadways, they are not primary carriers of Myrtle Beach AFB-related traffic.

On-Base Roads. Myrtle Beach AFB is served by a network of roadways. Farrow Boulevard leads to the south gate of the base and carries base traffic to U.S. 17 Business. Phillis Boulevard leads to the north gate of the base and carries traffic to U.S. 17 Bypass. Other on-base roads are shown in Figure 3.2-9.

No roadway improvements are expected to be constructed by 1993, the year of Myrtle Beach AFB closure.

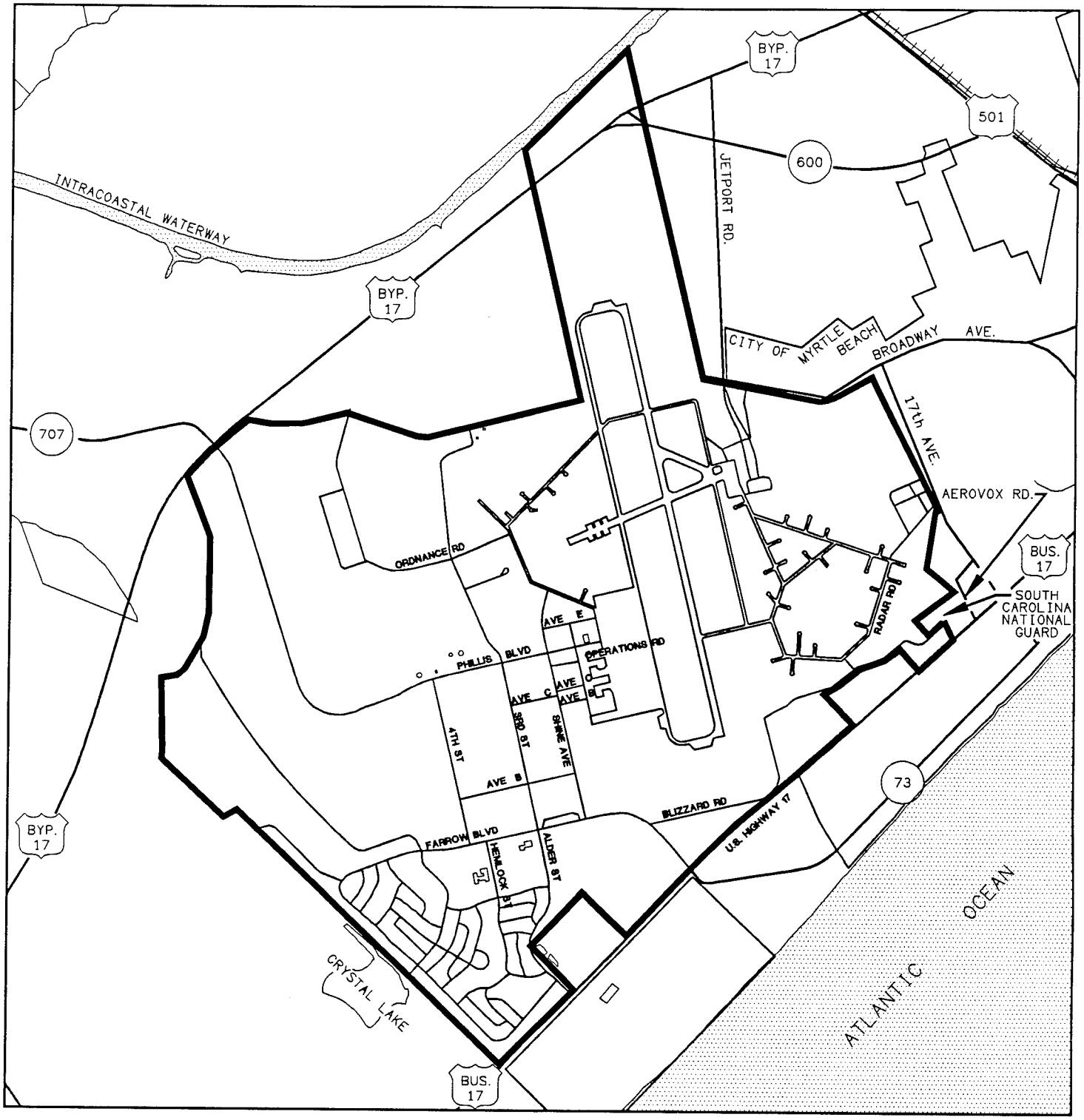
Preclosure Reference. Myrtle Beach AFB lies at the southern tip of Myrtle Beach. The south gate to the base is on U.S. 17 Business, also called Kings Highway. The south gate accesses U.S. 17 Business at its intersection with SC 73, also called Ocean Boulevard. A north gate is provided on U.S. 17 Bypass, at its intersection with SC 707, also known as Socastee Boulevard. The north gate has the higher daily volumes, with approximately 5,000 vehicles travelling through it on a typical day during the summer peak season. The south gate serves approximately 4,700 vehicles per day (vpd) during the summer months. Between 5:00 and 6:00 P.M., the peak hour of the Myrtle Beach roadway system, only 490 vehicles pass through the two gates to add congestion to the roadways in the area. This is due to the fact that the base operating hours are generally 7:30 A.M. to 4:30 P.M. and most of the base traffic is off the area roadways prior to 5:00 P.M.

1990 peak hour traffic volumes on the significant roadways in the area range from under 1,400 vehicles per hour (vph) on SC 544 between U.S. 17 Bypass and U.S. 17 Business to nearly 5,000 vph on U.S. 501 near the Intracoastal Waterway. Many of the regional roadways in the ROI are congested when comparing the volumes to the LOS standards shown in Table F-1. U.S. 501 to the west of the Intracoastal Waterway is very congested, operating at LOS F. None of the local roadways are operating at congested LOS. Figure 3.2-10 shows the 1990 traffic volumes and LOS in the vicinity.

Several major roadway improvements are planned to alleviate this congestion. Both U.S. 501 and SC 544 are scheduled for improvements in the 5- to 10-year time frame (South Carolina Department of Highways and Public Transportation, 1991a). In addition, two new roadways, the Conway Bypass and the Carolina Bays Parkway will help to relieve the congestion in the area by taking some of the traffic from the existing road system. The Conway Bypass is planned for construction by 1998, while the Carolina Bays Parkway should occur after 2003. Figure 3.2-11 shows the planned roadway improvements for the area.

Roadways on the base currently are operating at an adequate LOS. Third Street has the highest traffic volumes on an average day with approximately 5,000 vpd counted (peak hour information is not available for Myrtle Beach AFB roads). Phillis Boulevard follows closely behind with 4,800 vpd counted.

The Myrtle Beach area is served by the Coastal Rapid Public Transit Authority (CRPTA). The system currently operates three trolley units, fifteen coaches, and nine vans. Annual ridership is approximately 210,000 persons (Burner, 1992). Daily ridership fluctuates from 700 persons during the nonpeak season to 1,800 riders during the peak season. Service is provided between Conway, South Carolina and Myrtle Beach and between north Myrtle Beach and the



EXPLANATION

BASE BOUNDARY

ON BASE ROADS BLIZZARD RD

0 1000 3000 feet

ON-BASE ROADS

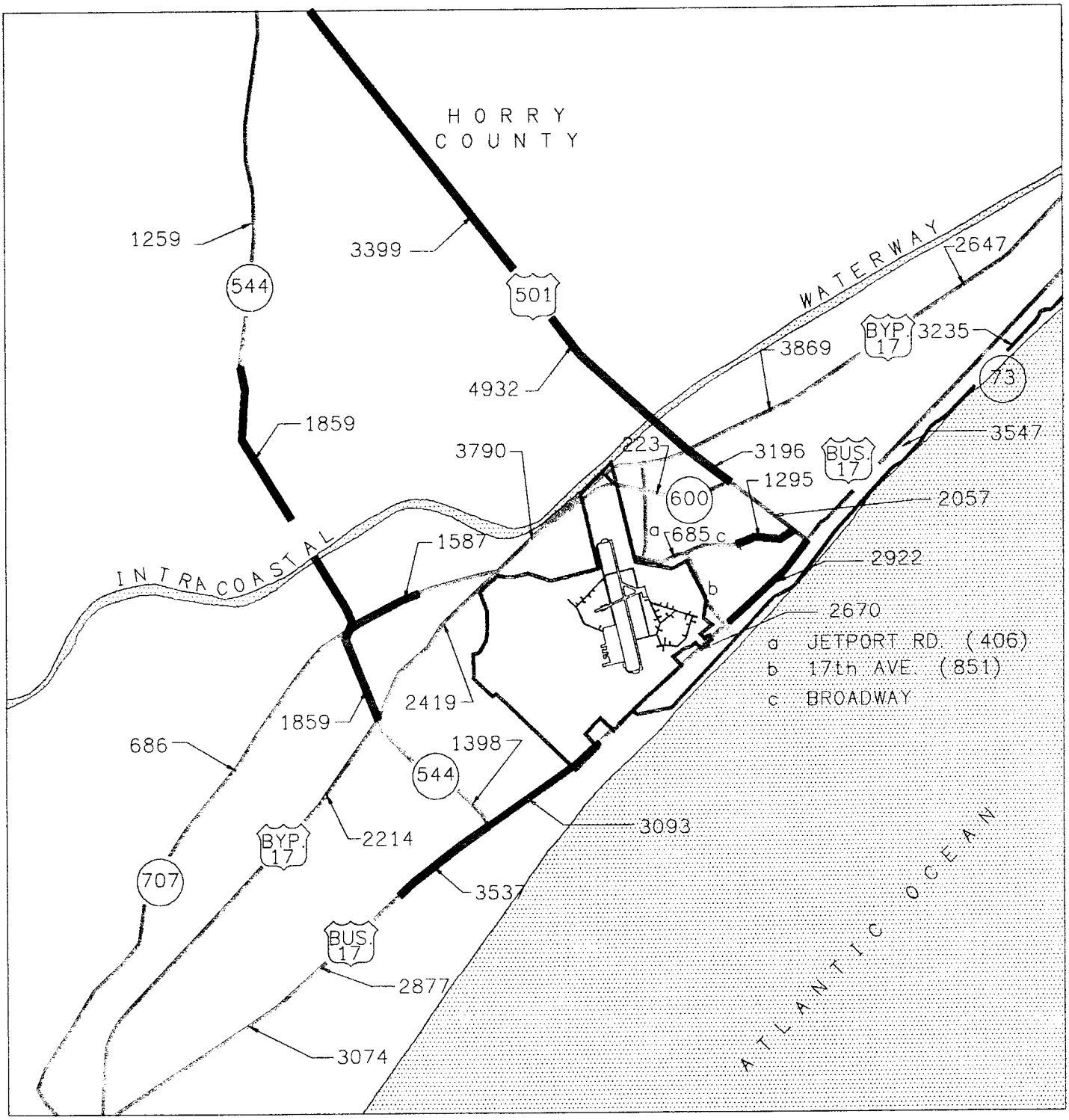
N

W E

S

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 3.2-9



EXPLANATION

XXXX- PEAK SEASON PEAK HOUR TRAFFIC (PKHR)-1990

LEVEL OF SERVICE
- ABC
- D
- EF

17 U. S. HIGHWAYS

707 STATE HIGHWAYS

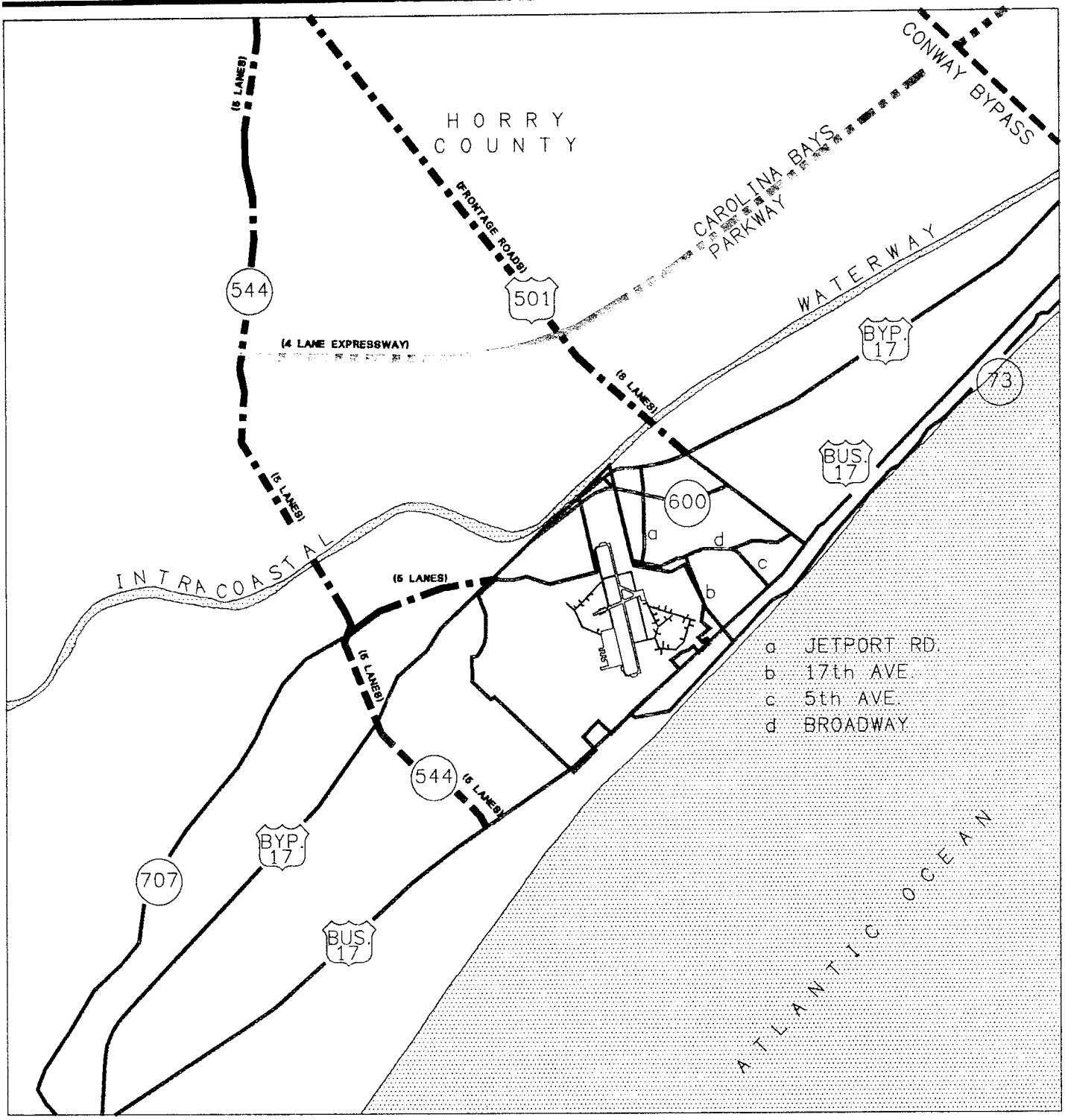
0 1/2 1 2 MILES

1990 PEAK SEASON PEAK HOUR TRAFFIC AND LEVELS OF SERVICE

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 3.2-10

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EXPLANATION

IMPROVEMENTS PRIOR TO 1998(NO. OF LANES, IF KNOWN)

IMPROVEMENTS PRIOR TO 2003(NO. OF LANES, IF KNOWN)

IMPROVEMENTS PRIOR TO 2013(NO. OF LANES, IF KNOWN)

17 U.S. HIGHWAYS

707 STATE HIGHWAYS

0 1/2 1 2 MILES

PLANNED ROADWAY IMPROVEMENTS

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 3.2-11

base. The Myrtle Beach local (route #2) serves the south gate of the base and provides service along Ocean Boulevard to north Myrtle Beach (Coastal Rapid Public Transit Authority, 1991). Headways range from 30 minutes during midday to 70 minutes in the morning and afternoon. Transfers can be made to the Conway to Myrtle Beach route (#3) at bus stops on Ocean Boulevard between 10th Avenue North and 25th Avenue North. CRPTA does not operate on Myrtle Beach AFB. Figure 3.2-12 describes the CRPTA routes that operate in the Myrtle Beach area.

Supplies generally are delivered to the base by large trucks. An average of 15 deliveries are made each week, usually by tractor-trailer trucks.

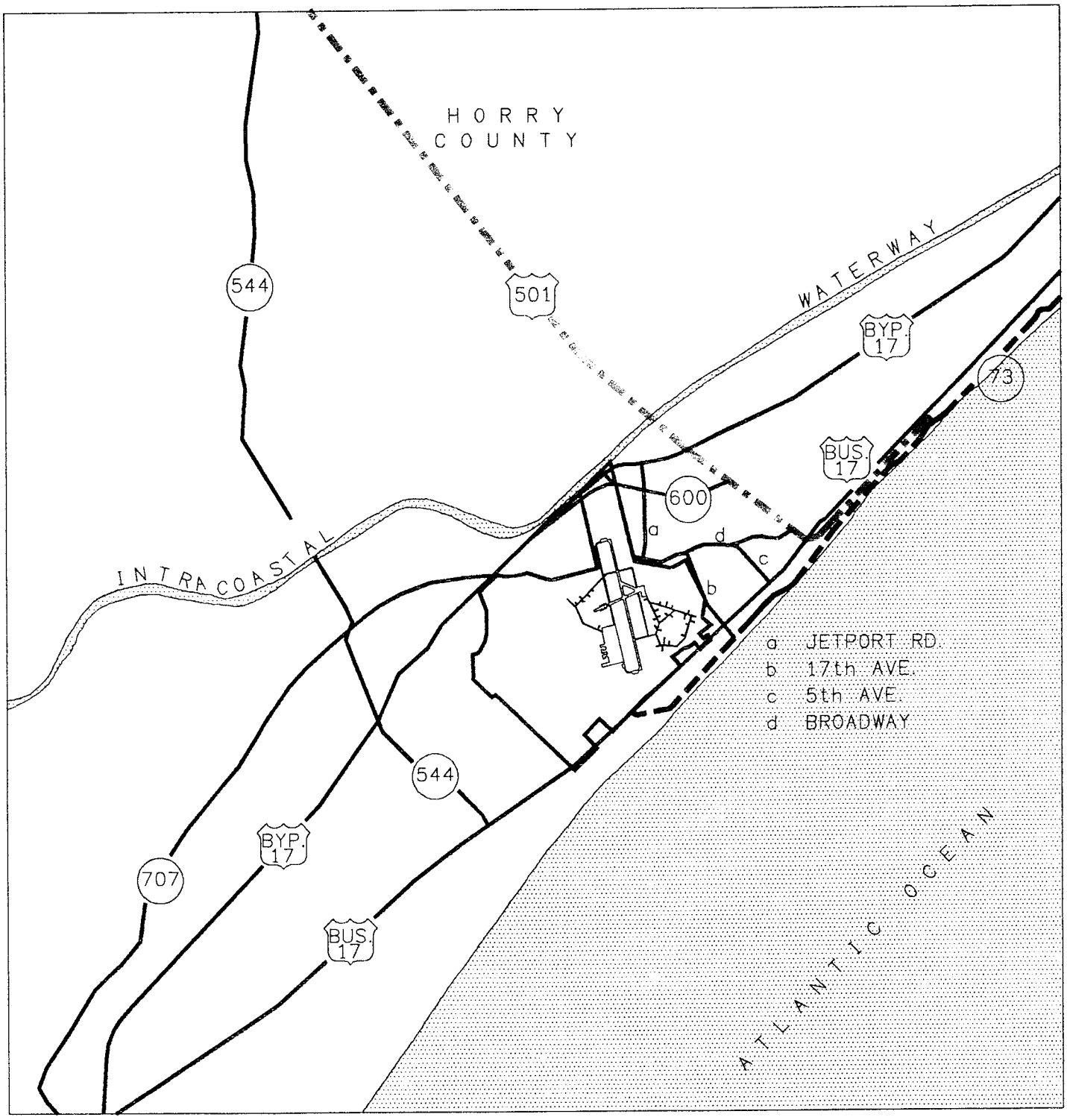
Closure Baseline. Traffic on the key roads in the vicinity has increased approximately 2.2 percent each year between 1987 and 1990 (South Carolina Department of Highways and Public Transportation, 1991b). This annual increase is assumed to remain until 1993. Figure 3.2-13 displays the 1993 peak season peak hour traffic volumes less the traffic generated by the base. As the normal operating hours of the base are outside the 5:00 to 6:00 P.M. peak traffic period of the area, the deletion of base traffic produces little improvement to the congestion. An exception to this statement is the improvement of the two-lane portion of SC 707, which increases in LOS from D to C. While overall traffic volumes have increased on most of the roads, LOS is the same as the 1990 condition with the exception of several sections of U.S. 17 Bypass and U.S. 17 Business that have lowered in LOS from C to D.

On-base roads would be used by the maintenance crew for Myrtle Beach AFB and LOS would remain high.

3.2.3.2 Airspace

Airspace is a finite resource that can be defined vertically and horizontally, as well as temporally, when describing its use for aviation purposes. As such, it must be managed and used in a manner that best serves the competing needs of commercial, general, and military aviation interests. The FAA is responsible for the overall management of airspace and has established different airspace designations that are designed to protect aircraft while operating to or from an airport, transiting enroute between airports, or operating within "special use" areas identified for defense related purposes. Rules of flight and air traffic control (ATC) procedures have been established that govern how aircraft must operate within each type of designated airspace. All aircraft operate under either instrument or visual flight rules (IFR or VFR). IFR aircraft (primarily commercial, military aviation, and business-related general aviation) operate within controlled airspace and are tracked and separated by the ATC system. VFR aircraft (primarily general aviation light aircraft) normally are not tracked by ATC but fly under a "see and be seen" concept in which pilots are responsible for their own separation from other air traffic. Airspace around the busier airports is more stringently controlled and may require that all aircraft (including VFR) be in contact with and monitored by an ATC agency while transiting through the area or approaching and departing the airport.

The type and dimension of individual airspace areas established within a given region and their spatial and procedural relationships to each other are contingent upon the different aviation activities conducted in that region.



EXPLANATION

CRPTA ROUTE 2

CRPTA ROUTE 3

17 U. S. HIGHWAYS

707 STATE HIGHWAYS

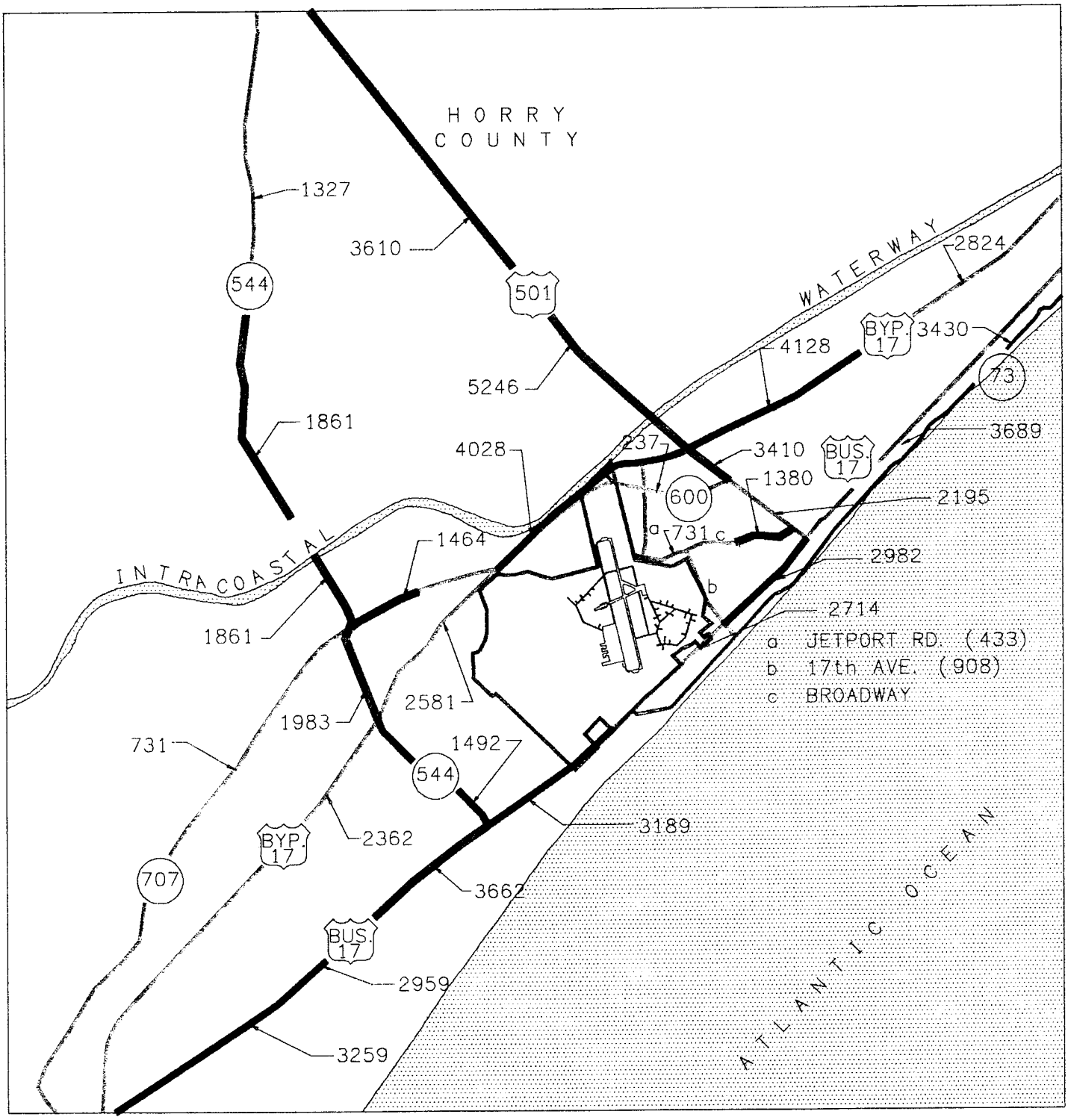
TRANSIT ROUTES

0 1/2 1 2 MILES

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 3.2-12

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EXPLANATION

XXXX- PEAK SEASON PEAK HOUR TRAFFIC (PKHR)-1993 (W/O MBAFB)

17 U. S. HIGHWAYS

707 STATE HIGHWAYS

LEVEL OF SERVICE
ABC
D
EF

0 1/2 1 2 MILES

1993 PEAK SEASON PEAK HOUR TRAFFIC AND LEVELS OF SERVICE

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 3.2-13

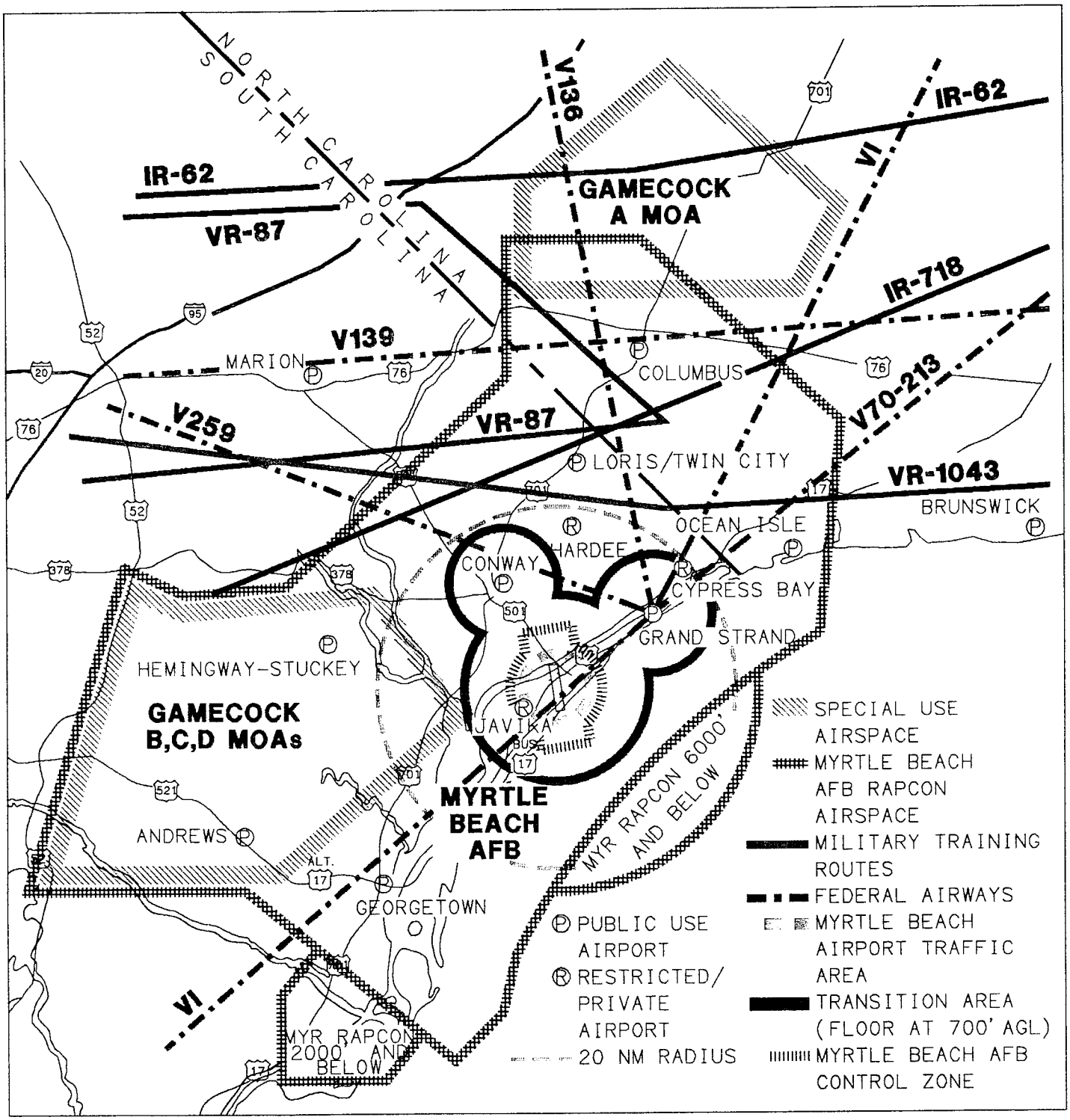
When any significant change is planned for this region, such as airport expansion, a new military flight mission, etc., the FAA will reassess the airspace configuration to determine if such changes will adversely affect (1) air traffic control systems or facilities, (2) movement of other air traffic in the area, or (3) airspace already designated and used for other purposes (i.e., military operations areas [MOAs] or restricted areas). Therefore, considering the limited availability of airspace for air traffic purposes, the given region may or may not be able to accommodate any significant airport or airspace area expansion plans.

Airspace ROI. The airspace selected for this study includes the parts of Horry and Georgetown Counties that encompass an area within a 20-nm radius of Myrtle Beach AFB from the ground surface to 10,000 feet above mean sea level (MSL). This represents a three-dimensional volume of airspace normally reserved to support IFR air traffic operations at a typical military or civil regional airport (Figure 3.2-14).

A given geographical area also may encompass several different types of airspace that apply not only to normal IFR and VFR aircraft operations, but to military flight training operations as well. MOAs and restricted areas are the most common types of airspace that have been designated for defense related activities. Nonhazardous air intercept flight training operations and low altitude tactical navigation flights are conducted in these areas. A MOA does not restrict the transit of other aircraft through the area. Myrtle Beach AFB has four MOAs used for air combat training.

Myrtle Beach AFB is a joint use facility on which land is leased to the Myrtle Beach Jetport, a commercial aviation airport operated by the Horry County Department of Airports (HCDA). Under an existing Joint Use Agreement (JUA), up to 46 civil aircraft flights (92 operations) per day are permitted on the Myrtle Beach AFB runway provided that these operations do not conflict with military use. The Myrtle Beach AFB airfield contains a single 9,500-foot runway with a north-south (17/35) orientation, ramp and apron area, a navigational and instrument flight system (radar approach control facility-RAPCON), control tower, and related utilities. There are two aircraft arresting systems (barriers) installed in the overrun on each end of the runway as well as an arresting cable approximately 1,400 feet from the runway ends. The Myrtle Beach Jetport consists of 55,000 square feet of terminal and related facilities, as well as ramp and apron area. Through a Letter of Agreement (LOA) with the FAA's Jacksonville Air Route Traffic Control Center (ARTCC), Myrtle Beach AFB maintains air traffic control responsibility below 10,000 feet MSL for all aircraft arriving at or departing from the base or jetport. During the base's nonoperating hours (midnight to 6:00 A.M.), control of this airspace reverts to Jacksonville ARTCC.

The terms of the JUA limit the number of commercial operations and prohibit general aviation operations at Myrtle Beach Jetport. The jetport provides the only jet and turbo-prop passenger service to the Grand Strand area and northeastern South Carolina. There are no other airports in Horry County with a runway and navigational aids suitable to accommodate the larger commercial B-727, B-737, DC-9, and MD-80 series aircraft that use the Myrtle Beach Jetport. In 1991, these types of aircraft comprised 43 percent of the commercial operations at the jetport.



EXPLANATION

SEE LEGEND ABOVE

1 NAUTICAL MILE = 1.15 STATUTE MILES

0 10 20 NAUTICAL MILES

AIRSPACE REGION OF INFLUENCE (20-NM RADIUS OF MYRTLE BEACH AFB)

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 3.2-14

Preclosure Reference. An understanding of the ROI airspace/air traffic environment and its use under the preclosure reference is necessary to help determine its capability and capacity to assimilate future aviation activities into the National Airspace System (NAS). The same constraints and considerations such as terrain, runway alignments, and other air traffic flows would apply under alternate aviation uses of Myrtle Beach AFB.

Myrtle Beach AFB and Myrtle Beach Jetport operations data for 1989 were used to determine the preclosure reference because deployment requirements for the 354th Fighter Wing in 1990 and 1991 resulted in atypical airfield and local airspace utilization for those two years.

Airspace designated for ATC purposes around Myrtle Beach AFB consists of the radar controlled area, transition areas established in conjunction with Myrtle Beach AFB instrument approach procedures or overlying federal airways, a control zone, and an airport traffic area (ATA).

Myrtle Beach AFB has a flying mission consisting of advanced flying and ordnance delivery training for aircrews in the assigned A-10 aircraft. Flight paths in the vicinity of Myrtle Beach are designed to minimize interference with populated areas, consistent with operational requirements and flight safety. The flight paths depicted in this report represent the flight activities of base-assigned, transient military, and commercial aircraft (Figure 3.2-15).

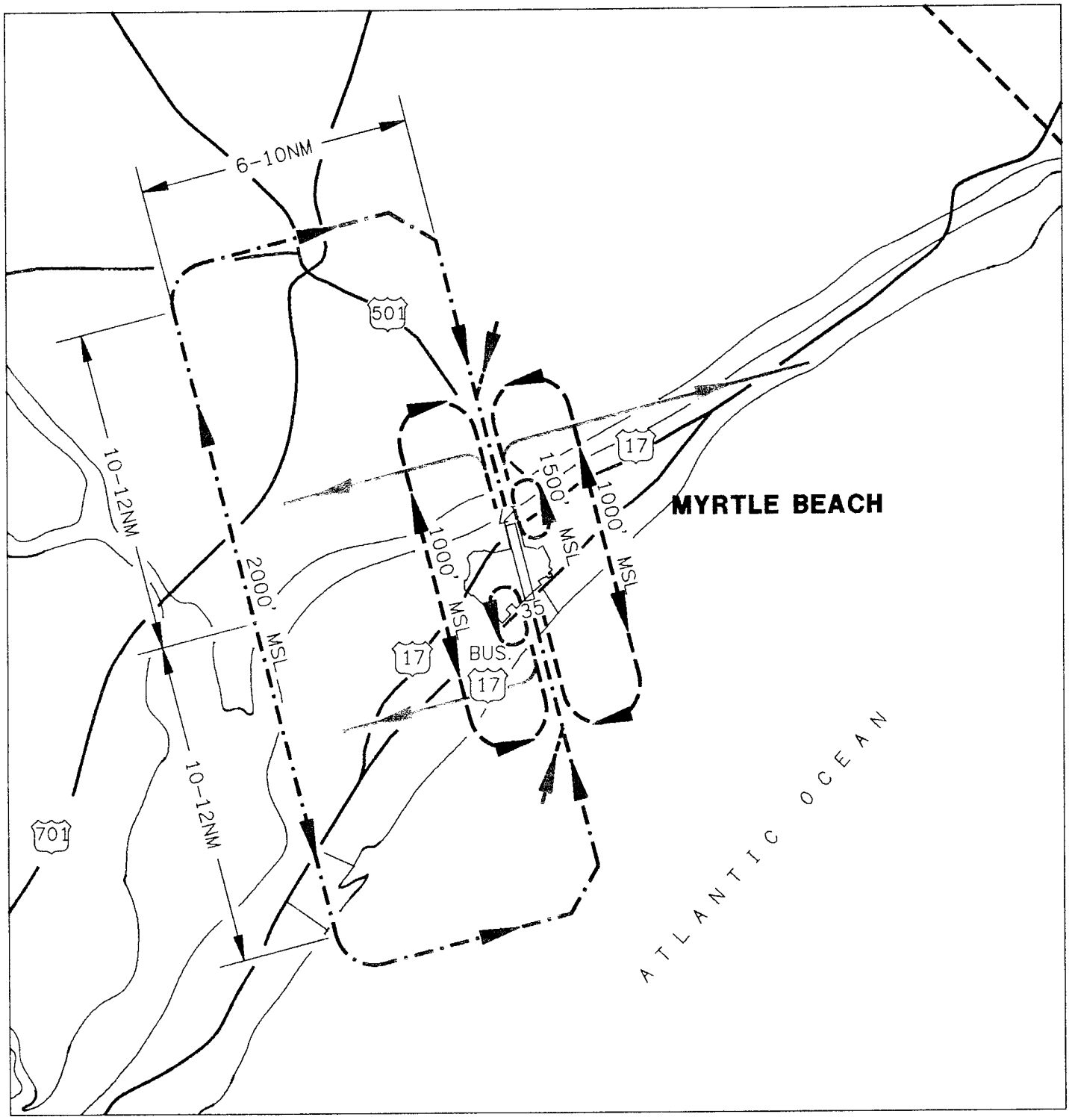
The flight paths of aircraft for Myrtle Beach AFB are the composite result of several factors, namely:

- Departure and arrival patterns established to avoid heavily populated areas, and
- Air Force criteria governing the speed, rate of climb, and turning radius for each aircraft.

The military (A-10, A-4, AV-8B, C-130, C-141, C-5, C-9, T-37, T-38, OV-10, F-15, F-16, F-111) and civilian (737-200/300/400, DC-9, MD-80, F-28, Emb 120, DH-8) pilots use the following seven basic flight patterns as shown in Figure 3.2-15:

- Straight-out departures
- Radar vectored departures
- Closed patterns
- Straight-in arrival
- Modified straight-in arrival
- Overhead landing
- Re-entry.

Operations are coordinated with the FAA and flight paths are integrated to minimize conflict with civilian aircraft and other private flying activities. Efforts are continually expended to control and schedule missions to keep noise levels to an absolute minimum, especially at night. Flight corridors have been selected with community disturbances and public reactions as a primary consideration. Pilot exposure to public needs is frequently provided through flying safety, training, and standardization meetings.



EXPLANATION

- RADAR TRAFFIC PATTERN
- RECTANGULAR TRAFFIC PATTERN (VFR)
- OVERHEAD TRAFFIC PATTERN (VFR)
- RADAR DEPARTURE (Not To Scale)

SOURCE: U. S. AIR FORCE, undated/d

1 NAUTICAL MILE = 1.15 STATUTE MILES

0 3 6 NAUTICAL MILES

AIRCRAFT TRAFFIC PATTERNS

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 3.2-15

The following civilian and private airfields are within the ROI of Myrtle Beach AFB (Figure 3.2-14): Conway/Horry County Airport (13 nm NW); Grand Strand (13 nm NE); Javika (private, 4 nm SW); Cypress Bay (private, 19 nm NE); and Hardee (private, 19 nm NW). Civilian airfields outside the ROI (20 to 32 nm from Myrtle Beach AFB), but within the Myrtle Beach AFB RAPCON airspace, are: Georgetown (29 nm SW); Hemingway-Stuckey (30 nm W); Ocean Isle (28 nm NE); Loris/Twin City (25 nm N); and Columbus (32 nm N).

Traffic enroute to Grand Strand Airport in North Myrtle Beach passes over Myrtle Beach AFB at various altitudes ranging from 3,000 to 10,000 feet MSL. In addition, a flight restriction is imposed around Conway/Horry County Airport that requires no flying below 3,000 feet MSL within three miles of the airport to avoid congestion due to considerable pilot training activity. This buffer requires minor modifications for an approach to runway 17 at Myrtle Beach AFB.

Six enroute low altitude federal airways (V1, V259, V136, V70, V213, and V139) pass through the airspace controlled by the Myrtle Beach AFB RAPCON. These airways are for use up to but not including 18,000 feet MSL. One IFR (IR-718) and two VFR (VR-87, VR-1043) military training routes transit the northern portion of the airspace controlled by the Myrtle Beach AFB RAPCON. IR-62 crosses just north of the Myrtle Beach AFB RAPCON area and below Gamecock A MOA. These routes are for low level navigation training at altitudes from 100 feet above ground level (AGL) to 8,000 feet MSL.

A majority of the operations conducted at the airport are military (approximately 70 percent), with civil aircraft activity limited to scheduled air carrier jet and commuter turboprop operations (approximately 30 percent). Although the existing JUA allows up to 46 commercial flights per day, this activity accounts for only 25 to 27 flights per day. Table 3.2-5 presents the operations by major aircraft category and type for the airfield for 1989 and 1991. (Airfield operations data are not available for 1990.) Data from 1989 are used as the baseline because the 1991 figures do not represent a typical year due to deployments of Myrtle Beach AFB's A-10s during the year. The data are based on an average of approximately 29,750 total aircraft operations per year, where one operation equals one aircraft arrival or departure. Civilian aircraft use taxiways east of the runway to transit to and from the jetport terminal. Military aircraft use taxiways west of the runway to go to and from the military ramp. Occasionally military aircraft use taxiways east of the runway to move to the FOLTA, which is located on the east side of the runway.

The A-10 is the predominately operated aircraft at the airfield, followed by commuter turboprops, air carrier jets, transient military aircraft, and military Aero Club aircraft (light airplanes). As the predominant user of airspace around Myrtle Beach AFB, A-10s usually will depart under VFR to the northeast, west, or southwest and reach 1,600 feet MSL altitude. Under IFR, A-10s depart on stereotyped flight plan routes to the north, west, or southwest and reach 3,000 feet MSL before proceeding to flight level (FL) 200 (20,000 feet MSL altitude) enroute to various low-altitude training areas. Commercial air carriers usually depart the jetport to the west toward Florence, South Carolina, or northeast toward Wilmington, North Carolina. The air carriers lowest filed altitude is FL 200. Standard air carrier departures involve relatively high climb

Table 3.2-5. Air Traffic History, Myrtle Beach AFB and Jetport, Calendar Years 1989 and 1991

Aircraft Type		Number of Operations* 1989	1991
Military Operations			
354 FW A-10s		37,706	29,308
Transient		2,640	2,194
Myrtle Beach Aero Club & Misc.		1,838	**
Total Military		42,184	31,502
Commercial Operations			
Piedmont/USAir	737-200	2,500	1,796
	737-300	2,522	1,312
	737-400	1,348	634
	BAC-111	78	0
	F-28	20	10
	DC-9	644	996
	MD-80	0	126
	F-100	0	240
	727-200	0	344
American Airlines	ATR-42	18	0
	METRO-3	0	350
	727-100	1,234	1,020
	727-200	0	204
	DC-9	0	2
	SAAB-340	0	216
	Misc.	138	0
American Eagle	Misc.	712	0
American Flagship Airlines	SAAB-340	0	6
	Jetstream	0	2
	ATR-42	0	356
Eastern Metro	Misc.	2,464	0
	Jetstream	0	90
Atlantic Southeast Airlines	Misc.	2,994	0
	EMB-120	0	4,824
Bankair	Misc.	1,544	0
	MU-2	0	2
	PA-32	0	24
	PA-34	0	600
	Cessna 402	0	454
	Cessna 404	0	38
Mountain Air Cargo	Misc.	488	0
	Cessna 208	0	702
Pelican Air Cargo	Misc.	610	0
	Cessna 402	0	590
Tempus Air	Convair 580	14	0
Charter Flights	727-100	0	6
	Dash-8	0	486
	DC-9	0	8
	ATR-42	0	16
Total Commercial		17,328	15,454
TOTAL		59,512	46,956

*An operation represents one aircraft arrival or one departure. 1990 data not representative of a typical year.

**1991 Aero Club and misc. data are not available.

Sources: U.S. Air Force, undated; U.S. Air Force, 1990d.

rates until an altitude of 10,000 feet MSL is reached approximately 20 miles from the airport.

Runway use is dictated by prevailing winds. Wind records from a 25-year period indicate that runway 17 would be used 60 to 65 percent of the time and runway 35, 35 to 40 percent.

The Myrtle Beach AFB RAPCON facility provides air traffic control for the base and the Myrtle Beach Jetport as well as a large area in northeastern South Carolina and southeastern North Carolina under 10,000 feet MSL. The Jacksonville ARTCC controls the airspace above 10,000 feet MSL and sequences traffic into the Myrtle Beach AFB RAPCON area and receives departing aircraft from the RAPCON. To ensure effective air traffic control with surrounding air traffic control agencies, the Myrtle Beach AFB RAPCON maintains LOAs detailing airspace management procedures with the Jacksonville and Washington ARTCCs and the control towers at Fayetteville, North Carolina, Wilmington, North Carolina, Shaw AFB, South Carolina, Florence, South Carolina, and Charleston, South Carolina. The Myrtle Beach AFB RAPCON also has LOAs for interfacility coordination procedures with the HCDA for Grand Strand Airport; F-16 Simulated Flameout Operations at Myrtle Beach AFB with Det. 1, 107th Fighter Interceptor Group (NYANG); and Javika Airport (a private airport within the Myrtle Beach AFB control zone).

Myrtle Beach AFB RAPCON provides ground controlled approach (GCA) precision approach radar (PAR) and airport surveillance radar (ASR) approaches to Myrtle Beach AFB (Figure 3.2-15). The RAPCON also provides radar service (no controlled approaches) to aircraft proceeding to or departing from Grand Strand Airport. IFR departures from the airfields are radar controlled and the pilots are given specific instructions prior to takeoff. No standardized instrument departures exist for Myrtle Beach AFB or Grand Strand Airport.

Grand Strand Airport is operated by the HCDA and serves general aviation. The runway is 6,000 feet long and has low altitude nondirectional beacon, very high frequency omnidirectional range (VOR), tactical air navigation (TACAN), and instrument landing system (ILS) instrument approaches that are initiated from at or above 1,600 feet MSL. Maneuvering airspace for the approaches keeps the aircraft within 10 nm of the airfield. Table 3.2-6 lists operational data for Grand Strand Airport, and the two other airports operated by the HCDA.

Table 3.2-6. Horry County Department of Airports Operations History Calendar Years 1989 and 1991

Airport	Operations*	
	1989	1991
Grand Strand	100,517	95,525
Conway/Horry County	100,918	97,000
Loris/Twin City	3,000	2,900
TOTALS	204,435	195,425

*An operation represents one aircraft arrival or one departure.
Source: Horry County, 1992.

Myrtle Beach AFB is served with multiple precision and non-precision instrument approaches to runways 17 and 35. The high altitude TACAN and ILS approaches begin at a minimum of 15,000 feet MSL and maneuvering keeps the aircraft within 29 nm of the airfield. Figures 3.2-16 and 3.2-17 depict the instrument approach procedures for Myrtle Beach AFB. Low altitude TACAN, VOR, and ILS approaches are initiated from 1,600 to 2,000 feet MSL and the aircraft maneuver within 25 nm of the airfield. Jacksonville ARTCC controls the aircraft when the high altitude approaches are initiated and transitions control to the Myrtle Beach RAPCON during the approach. The high altitude approaches are used primarily by fighter-type aircraft. In general, high altitude approaches (HI-TACAN, HI-ILS, etc.) are initiated from altitudes of approximately 14,000 feet MSL and higher while low altitude approaches begin at altitudes of about 5,000 feet MSL and lower.

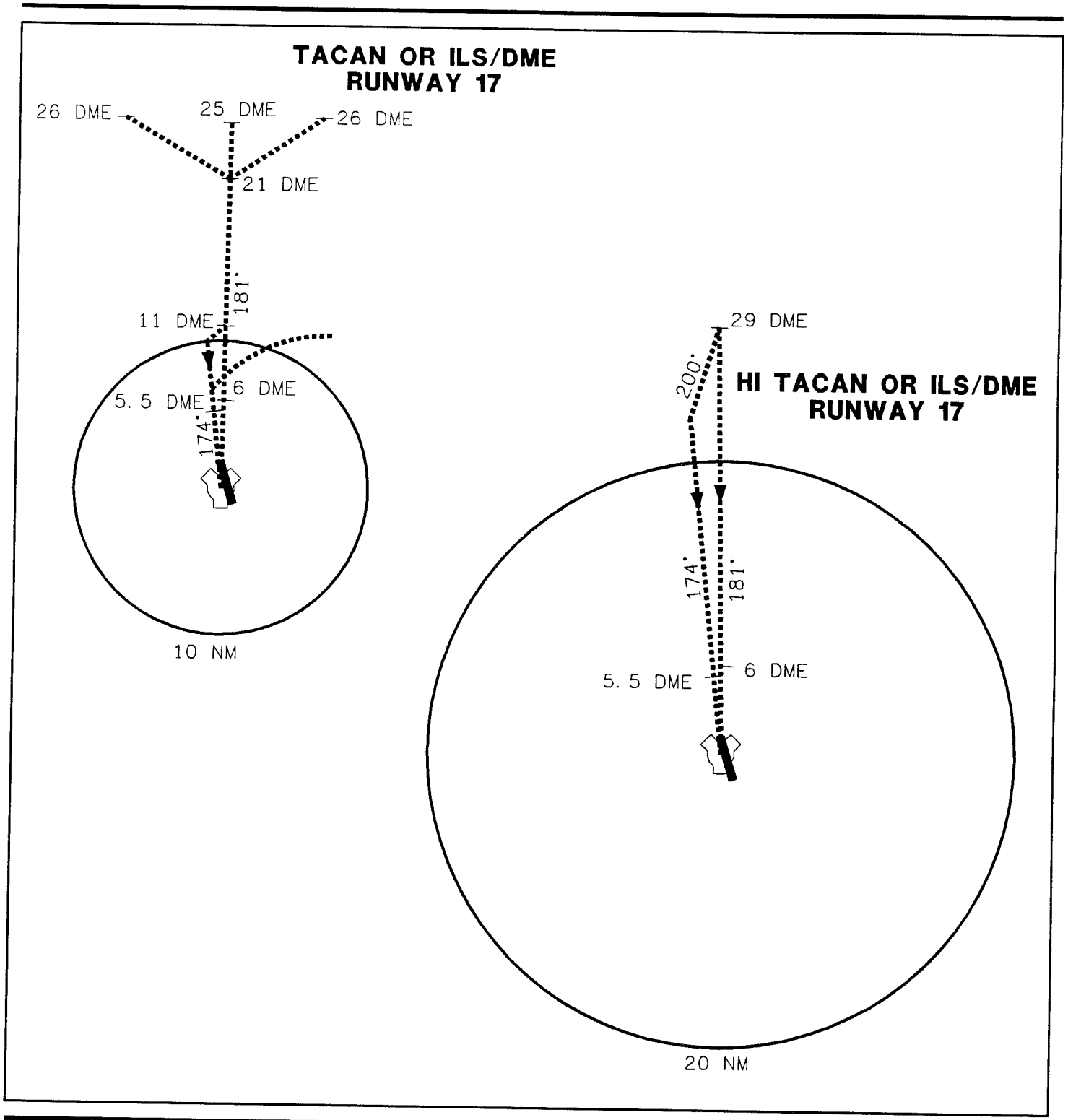
Closure Baseline. The following discussion examines conditions that will exist on the first day that the Air Force is not responsible for the base.

Responsibility for the continued operation and maintenance of the jetport airfield will transition to the local airport operator and the FAA. The airport operator will operate the airfield for aviation purposes. The FAA will assume air traffic control and airspace management functions.

The Air Force discontinued flying operations at Myrtle Beach AFB in September 1992. Between this time and base closure, activities related to the operation and maintenance of the airfield will transition to the local airport operator and the FAA. At closure, the airport operator will provide security and grounds maintenance for the entire airport complex as well as other items such as crash, rescue, and fire protection. The FAA will provide air traffic control personnel to work side-by-side with their Air Force counterparts. When the Air Force relinquishes responsibility, the FAA will assume operation of air traffic control for the airspace now controlled by the Myrtle Beach AFB RAPCON. The FAA also will take over the tower functions and maintenance of the navigational aids and communication equipment used for air traffic control.

Existing LOAs with Jacksonville and Washington ARTCCs and adjoining air traffic control agencies could remain in effect after closure and could be assumed by the FAA at Myrtle Beach. LOAs for management and operation of the special use airspace could continue, and responsibility should transfer to an Air Force unit at another base. At base closure, management and planning for the airspace controlled by the Myrtle Beach AFB RAPCON will change from joint FAA and Air Force accountability to the FAA as the agency solely responsible for airspace management. No immediate changes to the airspace dimensions for the airport traffic area and control zone should be necessary when the base is closed (see Figure 3.2-15). To minimize community disturbances, the flight corridors to and from the jetport should remain the same. Accountability for the federal airways that transit the airspace is unchanged and remains with the FAA.

Responsibility for the planning and management of the published instrument approaches will transfer to the FAA. The FAA will determine if there is a need for the precision approach radar as well as the other instrument approaches used by the Air Force. If there is not a requirement for all the approaches, some may be decommissioned. Aircraft may use some of the existing low



EXPLANATION

TACAN–TACTICAL AIR NAVIGATION
DME–DISTANCE MEASURE EQUIPMENT
ILS–INSTRUMENT LANDING SYSTEM

1 NAUTICAL MILE = 1.15 STATUTE MILES

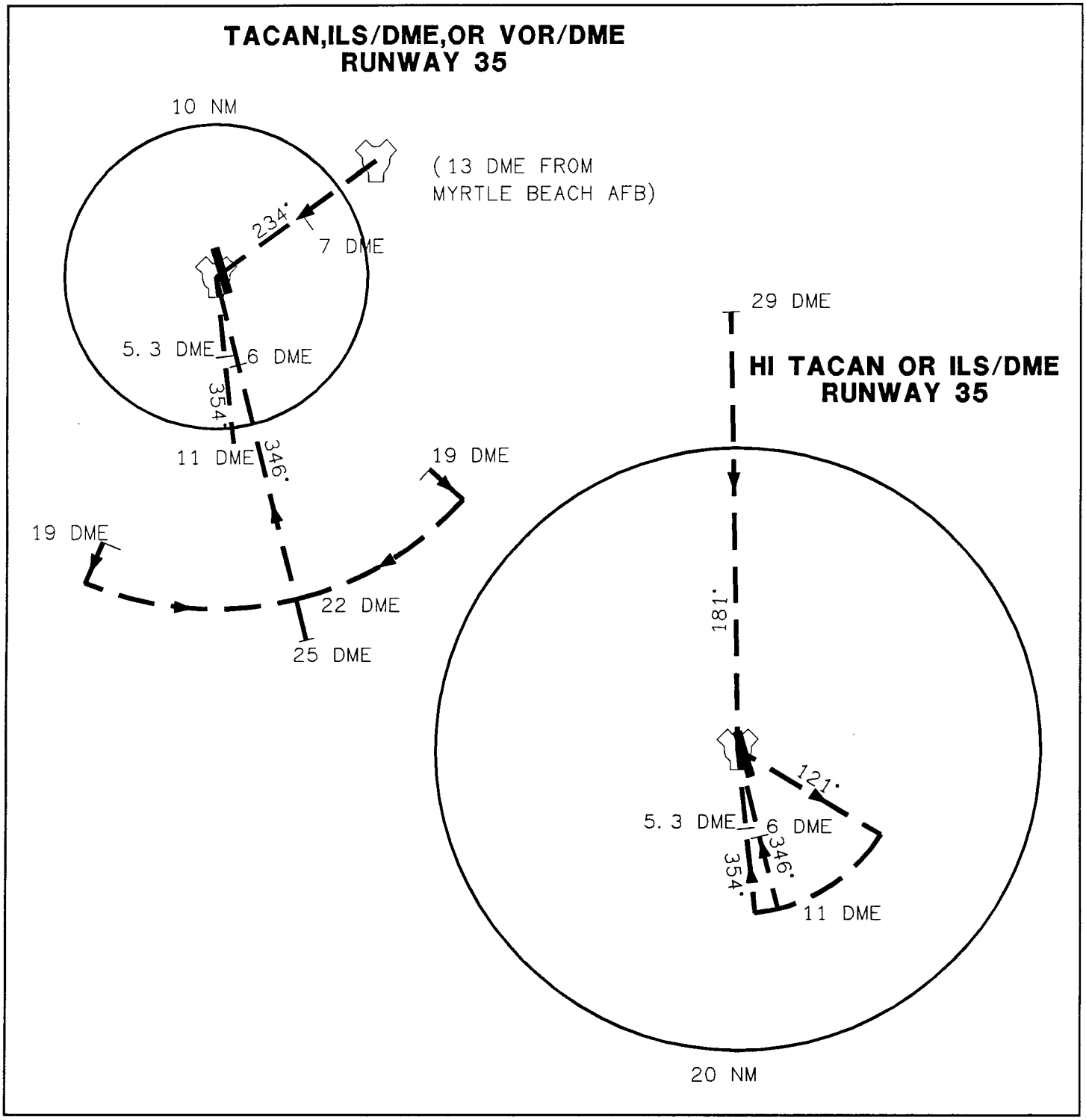
0 5 10 NAUTICAL MILES

SOURCE: DEPARTMENT OF DEFENSE, 1992 and 1992e

INSTRUMENT APPROACH RUNWAY 17

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 3.2-16



EXPLANATION

TACAN–TACTICAL AIR NAVIGATION
DME–DISTANCE MEASURE EQUIPMENT
ILS–INSTRUMENT LANDING SYSTEM
VOR–VERY HIGH FREQUENCY OMNIDIRECTIONAL RANGE

1 NAUTICAL MILE = 1.15 STATUTE MILES

0 5 10 NAUTICAL MILES

SOURCE: DEPARTMENT OF DEFENSE, 1992 and 1992e

INSTRUMENT APPROACH RUNWAY 35

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 3.2-17

altitude approaches because the performance characteristics and navigation equipment of these aircraft are compatible with the approaches. The high altitude approaches most likely will be deleted because civil aircraft use these approaches very seldom, if at all. It approaches are discontinued, reallocation of the airspace used by the canceled approaches could be accomplished by the FAA.

Det. 1, 107th Fighter Interceptor Group (NYANG) may continue using the LOA for simulated flame-out landings after the base closes. The NYANG wants to continue to use the airfield for actual flame-out landings and as an emergency recovery airport if the aircraft cannot fly to Shaw AFB, South Carolina.

Projected civilian aircraft operations at the time of base closure are shown in Table 3.2-7. Table 4.2-6 reflects forecast total operations for 1993.

Table 3.2-7. Projected Aircraft Operations, March 1993

Aircraft Category/ Aircraft Type	March 1993 Average Day Operations	Takeoff		Landing	
		Day (No.)	Night (No.)	Day (No.)	Night (No.)
Air Passenger					
727-200	4.84	2.42	0.00	2.42	0.00
737-200	3.18	1.53	0.06	1.59	0.00
737-300	0.22	0.07	0.04	0.11	0.00
737-400	0.08	0.04	0.00	0.04	0.00
757-200	1.00	0.50	0.00	0.50	0.00
F100	1.97	0.74	0.25	0.98	0.00
SAAB 340	6.66	3.33	0.00	3.33	0.00
DC-9	7.18	3.59	0.00	3.59	0.00
EMB-120	13.78	5.32	1.57	6.22	0.67
DHC-8	2.58	1.29	0.00	1.29	0.00
Subtotal	41.49	18.83	1.92	20.07	0.67
Air Cargo					
C208	1.69	0.62	0.23	0.61	0.23
C402	4.56	1.03	1.25	0.62	1.66
PA34	1.10	0.55	0.00	0.47	0.08
Subtotal	7.35	2.20	1.48	1.70	1.97
TOTAL	48.84	21.03	3.40	21.77	2.64

Note: Day and night distribution is based on July 1991 distribution.
March 93 is based on March 91 data with 8.3% annual increase.
Source: LPA Group, Inc., 1992.

3.2.3.3 Air Transportation

Air transportation includes passenger travel by commercial airline and charter flights, business and recreational travel by private (general) aviation, and priority package and freight delivery by commercial and other carriers. Four airports operate within Horry County. These airports are the Myrtle Beach

Jetport, the Conway/Horry County Airport, the Grand Strand Airport, and the Twin City Airport. Airports are shown on Figure 3.2-14.

The Myrtle Beach Jetport is currently served by Atlantic Southeast Airlines (ASA - Delta Connection), U.S. Air, and American Airlines. Total annual operations in 1989 and 1991 are shown in Table 3.2-5. No general aviation facility is available at the jetport.

In 1991, over 273,000 passengers boarded at the jetport, a reduction of 3.2 percent from the 1990 figure of boarded passengers (LPA Group, Inc., 1992). Prior to 1991, the number of passengers had grown each year, but at steadily declining rates of growth.

In 1991, the jetport handled over 1,000 metric tons of cargo. More than 2,400 "cargo only" operations occurred in 1991 (Myrtle Beach Jetport, 1992). U.S. Air transported nearly 30 percent of the total air cargo via approximately 5,400 scheduled passenger operations.

Grand Strand Airport is the largest general aviation facility in Horry County. Grand Strand Airport is located approximately 12 miles northeast of Myrtle Beach AFB near Atlantic Beach. Approximate driving time from Myrtle Beach AFB to the Grand Strand Airport is 20 minutes. The facility contains approximately 413 acres of land with a 6,000-foot paved and lighted runway. Over 95,000 operations were completed in 1991.

Conway/Horry County Airport is located approximately 15 miles northwest of Myrtle Beach AFB near the city of Conway. Approximate driving time from Myrtle Beach AFB to the Conway/Horry County Airport is 30 minutes. The North American Institute of Aviation is located at this airport making the Conway/Horry County Airport the busiest general aviation facility in South Carolina. The airport facility consists of 306 acres of land and a 4,400-foot paved and lighted runway.

Twin City Airport is a facility on 50 acres of land with a 3,700-foot paved and lighted runway. The airport is located approximately 25 miles north of Myrtle Beach AFB near the city of Loris.

Information on operations at the general aviation airports in the area is shown in Table 3.2-6.

The closure of Myrtle Beach AFB could allow the jetport to operate without the current restrictions that were placed upon civil aircraft operations. Under the JUA, the jetport is limited to 46 civilian flights per day (LPA Group, Inc., 1989). Currently, the jetport has fewer operations than the maximum allowed, generally having 25 to 27 operations per day.

3.2.3.4 Other Transportation Modes

Railroads. The railway system that serves Myrtle Beach is owned by Horry County. The line, shown in Figure 3.2-8, connects Conway and Myrtle Beach and is approximately 14 miles long. The line is operated by the Waccamaw Coastline Railroad, under contract with Horry County. The line serves approximately 10 customers on the west side of the Intracoastal Waterway.

Two of these customers are major stone distributors that account for nearly 90 percent of the cars on the track.

Currently, the railroad bridge across the Intracoastal Waterway is not operable and service is discontinued to Myrtle Beach. Three rail customers on the east side of the waterway are no longer served. The line ends near Oak Street and U.S. 501 in Myrtle Beach. The community of Myrtle Beach is working with the state to repair the bridge. This bridge is expected to be operational in several years and the rail service to Myrtle Beach will be restored. A spur previously was in operation between the main line and the base, at which time supplies were delivered to the base by rail. The spur was pulled and supplies are now delivered by truck.

No passenger rail service is provided to Myrtle Beach. The closest service is provided to Florence, South Carolina, which is approximately 75 highway miles northwest of Myrtle Beach on U.S. 501. There is a proposal to provide rail passenger service between Myrtle Beach and Conway once the bridge is repaired. The proposal is for an excursion train as opposed to commuter service.

Base closure should have no effect on the railroad.

Seaport. The nearest seaport to Myrtle Beach AFB is the Port of Georgetown. The port currently transports fuel, paper, steel, and other commodities that are traded locally. The base does not use the Port of Georgetown for shipping or receiving goods.

Myrtle Beach AFB contracts with the Myrtle Beach Pipeline Company for jet fuel delivery. The Myrtle Beach Pipeline Company owns a docking facility on the Intracoastal Waterway, the pipeline to the tanks, and the main tank on the base. Fuel is transferred to the base from a barge via the dock and pipeline. The barges obtain fuel from the Port of Charleston, South Carolina. Fuel is generally delivered once or twice a week, depending on jet activity. Figure 3.2-2 shows the locations of the docking facility and the pipeline.

When the base ceases military operation, there is no use proposed for the dock, pipeline, or tanks for civilian airport activities.

3.2.4 UTILITIES

The utility systems addressed in this analysis include the facilities and infrastructure used for:

- Potable water pumping, treatment, storage, and distribution
- Wastewater collection and treatment
- Solid waste collection and disposal
- Energy (from electricity and natural gas) generation and distribution.

The ROI for utilities includes systems serving Myrtle Beach AFB as well as those serving Horry and Georgetown Counties. The major attributes of the

utility systems in the ROI required in making a determination of adequacy of the systems to provide services for reuse of base property and related community effects are processing and distribution capacities, storage capacities, average daily consumption, peak demand, and other related factors.

Preclosure utilities analyses include potable water treatment and distribution, wastewater collection and treatment, solid waste collection and disposal, electricity distribution, and, where appropriate, natural gas service. Preclosure base utility usage is a small proportion of the service provided by utilities in the region. On-base and off-base utility demands are differentiated in the analyses, where warranted.

Electric power companies serving the region are the South Carolina Public Service Authority (Santee-Cooper), Carolina Power and Light Company, and Horry Electric Cooperative, Inc. Natural gas is provided by South Carolina Electric and Gas Company. Water and wastewater services are provided by the city of Myrtle Beach, city of Georgetown, city of Conway, city of North Myrtle Beach, town of Andrews, town of Loris, and Grand Strand Water and Sewer Authority (GSWSA). Solid waste collection services are provided by area municipalities and private contract haulers. Horry County operates a sanitary landfill for solid waste disposal.

Projections made for the base reuse are on a per capita basis with population figures for the ROI derived from the 1990 census and population projections produced for this EIS.

3.2.4.1 Water Supply

On-Base. The Myrtle Beach AFB water supply system is independent of the Myrtle Beach city system. The base has four deep, water supply wells. Each well has a pumping capacity of 400 to 450 gallons per minute and is equipped with a chlorinator. Water storage is contained in two elevated water storage tanks providing a total of 500,000 gallons of storage capacity. The on-base system is not supplemented with purchases from the Myrtle Beach municipal system. The base golf course is serviced by an irrigation system that is fed by surface waters and shallow on-base wells.

Well water is distributed to base facilities and family housing through a base distribution system that is in fair condition. Well number one is centrally located, adjacent to the transportation facilities, and serves base facilities in the outlying areas along the western edge of the runway, and those centrally located. Eight-inch lines serve these areas. Well number two also serves base facilities to the south and east of the runway. A six-inch line crosses the runway along taxiway G. The line also connects to the facilities at the jetport, but these facilities are currently served by the city of Myrtle Beach. Wells number three and five serve the base's southwestern parcels, or family housing. Six- and eight-inch lines are adequate. Well number four has been closed and capped.

Average daily demand for potable water on the base is approximately 500,000 gallons. The only problem reported on this system is the high fluoride content of the water. Recent studies indicate levels between 2.6 and 3.2 milligrams per liter (mg/L). The federal secondary maximum contaminant level for fluoride

in drinking water is 2 mg/L and the primary maximum contaminant level is 4 mg/L. The former standard is based on taste and appearance and the latter is health-based. There are two self-serve reverse osmosis water treatment machines in the family housing area. This treatment removes the fluoride from water. Residents may obtain containers of water from these units.

The recent Clean Water Act Amendments may have impact on the future operations of this system. The storage tanks may need to be modified to meet chlorine contact time requirements.

Based on monthly records for the past five fiscal years, 1987 through 1991, peak daily demand of 902,000 gallons occurred in June 1990. The base water distribution system is rated in fair condition and should not be a constraint to future base reuse. Potable water production by the base during fiscal year 1991 was 192 million gallons (MGals). Per capita daily usage was 99 gallons.

The Myrtle Beach Jetport, while located on Air Force land, is currently served by the city of Myrtle Beach for water supply.

Off-Base. Water and services in the area of the base are supplied by the city of Myrtle Beach, and GSWSA. The Myrtle Beach water supply system has a daily pumping capacity of 29.5 million gallons per day (MGD) and storage capacity of 11 MGD. The city water distribution system overall is in good condition. Water supply is provided by the surface water drawn from the Intracoastal Waterway. The water distribution system is looped, with lines from 2 to 24 inches in diameter and average line pressures between 40 and 50 pounds per square inch (psi).

GSWSA has a 21 MGD surface water treatment plant that became operational in September 1991. GSWSA provides potable water service to all incorporated areas of Georgetown and Horry Counties. It also serves, via contract, some communities that are unable to provide their own system. GSWSA does not provide water service to the base at this time.

Preclosure Reference. Historical water demand for Horry and Georgetown counties is shown in Table 3.2-8. Peak demand on the city of Myrtle Beach water system has ranged from 15.4 to 19.4 MGD over the years 1988 to 1991. On average the city of Myrtle Beach has supplied 16.8 MGD during the tourist season, and 5.4 MGD during the off-season.

Average daily water consumption for Myrtle Beach AFB is approximately 500,000 gallons. This represents about three percent of the demand for the city of Myrtle Beach, and about one percent of the demand in the ROI.

Closure Baseline. At closure, domestic demand in the ROI will be approximately 35.7 MGD during the peak month, based on projected demand for potable water in the ROI. The continued availability of supply over demand will enable future growth for the base area under reuse.

Utility demands in recent years and forecast demand for the time of closure (1993) are presented in Table 3.2-8.

Table 3.2-8. Estimated Utility Demand in the Myrtle Beach AFB ROI

(Closure)	1989	1990	1991	1992	1993
Water Consumption (MGD)	33.8	34.6	35.8	36.8	35.7
Wastewater Treatment (MGD)	28.8	29.5	30.4	31.4	30.4
Solid Waste (tons/day)	663	679	701	723	688
Electrical Consumption (MWH/day)	3,899.8	3997.4	4,125.2	4,252.9	4,138.9
Natural Gas Consumption (thousand terms/day)	211.7	217.0	223.9	230.9	223.7

3.2.4.2 Wastewater Treatment

On-Base. The government-owned, clay/tile distribution and collection system was installed in 1957. It is old and allows infiltration of storm water. Some pipe replacement has occurred, mainly in the family housing area. The collection system is looped; six-inch trunk lines collect the wastewater in the outlying areas throughout the base and merge with the base's centrally located 12-inch force main. The force main carries the supply to the government-owned pumping station on the north side, which sends the wastewater through the base's only meter to the GSWSA's interceptor that abuts the base at U.S. 17 Bypass. No wastewater treatment occurs on base; however, there is an industrial wastewater pretreatment facility at corrosion control. This system includes an oil/water separator and is used to treat the rinseate from aircraft washing. The pretreated water is discharged to GSWSA.

Off-Base. The city of Myrtle Beach maintains a wastewater treatment facility southwest of the city, adjacent to the Intracoastal Waterway. This facility has a maximum treatment capacity of 17.5 MGD. The peak wastewater flow recorded in July 1991 is 13 MGD while on the average, 10 MGD is recorded. Once processed, the effluent is discharged into the Waccamaw River.

The GSWSA provides wastewater service to the outlying areas of Horry and Georgetown counties and also to some of the communities, via contract. Currently, five wastewater treatment facilities serve Horry County with total capacities of 12.6 MGD, 2.5 MGD, 1.4 MGD, and two with capacities of 200,000 gallons per day each. During the peak season (July and August), approximately 50 percent of the total system capacity remains in excess; during the off season, as much as 70 percent of total capacity is surplus. The Schwartz Wastewater Treatment Facility (12.6 MGD) receives the wastewater from the base. The plant's peak flow is 7.5 MGD. Its effluent is discharged into the Waccamaw River.

Preclosure Reference. Average annualized daily wastewater flow in the ROI is shown in Table 3.2-8.

The average daily rate of wastewater generated by the base and discharged to GSWSA is estimated to have ranged from about 764,000 gallons in fiscal year (FY) 1987 to 564,000 gallons in FY1991. Seasonal variations are evident from a review of monthly records presented in the base utility service contract

documents. Base wastewater generation represents about seven percent of flow to GSWSA.

Closure Baseline. At closure, the domestic flows in the ROI will be 30.4 MGD based on projected population at the present rate of growth and relevant demographic assumptions (Table 3.2-8).

3.2.4.3 Solid Waste Collection and Disposal

On-Base. Solid waste collected on the base by private contractors is hauled to the Horry County landfill for disposal. Household wastes from the family housing area are collected weekly from garbage cans set out by the residents. Other base waste, including construction debris, is deposited in eight-yard or bulk bins located throughout the base. These bins are regularly emptied and a contract hauler transports the waste to the county landfill for disposal.

Off-Base. All solid waste in Horry County is hauled to the Horry County landfill, which has 15 years of life remaining, once expansion is completed. A solid waste authority has just been created to look at the long range needs of Horry County.

Preclosure Reference. The city of Myrtle Beach provides collection service to residential and commercial customers. Average per capita disposal is 6.5 pounds of refuse per day per resident. Historical waste generation rates in Horry and Georgetown Counties are shown in Table 3.2-8.

Closure Baseline. At closure, the capacity of the solid waste facilities serving the base and Horry County will be below permitted capacities. The landfill will have approximately 14 years of life remaining, provided that expansion is complete. The level of waste generation is expected to be 688 tons per day in the ROI (Table 3.2-8). The effects of reuse will not likely impact the solid waste disposal program provided beyond current growth trends.

3.2.4.4 Energy

Electricity

On-Base. Myrtle Beach AFB is provided electric power by South Carolina Public Service Authority (Santee-Cooper). The base is served by 60-megawatt (MW) power lines rated 115 kilovolt amperes (kVA). The lines enter the Myrtle Beach AFB substation. The transformer is owned by Santee-Cooper, while the distribution breakers and base distribution system are owned by the U.S. Government. Electric power supplied to the base is metered at points of entry.

Off-Base. Horry County is served by Santee-Cooper's 450-MW lines rated 230 kVA. Within Santee-Cooper's service region, 2,645,771 megawatt hours (MWH) were consumed in 1990.

Preclosure Reference. Historical rates of electricity consumption in the ROI are shown in Table 3.2-8. For Myrtle Beach AFB, electric power usage during FY 1991 totalled 50,681 MWH, for an average of 138.8 MWH/day. This represents about three percent of usage in the ROI.

Closure Baseline. There are no substantial constraints to the distribution or supply of electrical service throughout the ROI. The generation and distribution capacity for the region is adequate. The areas of the base to be reused will be served by Santee-Cooper. While no problems are foreseen in supplying of electrical power, the existing base distribution system may need to be upgraded. At closure, an estimated 4,138.9 MWH will be demanded each day in the ROI (Table 3.2-8).

Natural Gas

On-Base. The South Carolina Electric and Gas Company provides the natural gas requirement through a distribution system owned and maintained by the gas company. Gas service is supplied only to the hospital, the central heating plant, and the three hangars. Fuel oils and LP gas are available from local suppliers.

Off-Base. The gas company also supplies natural gas to residential, commercial, and industrial consumers as demanded. The company owns and maintains its distribution network.

Preclosure Reference. There has been limited growth in consumption of natural gas in the Myrtle Beach area over the last five years. Historical rates of consumption in the ROI are shown in Table 3.2-8. The existing system's usage is well below total capacity.

On Myrtle Beach AFB, natural gas usage in FY1991 totalled 430,790 therms. This represents about 0.5 percent of usage for the ROI. The existing distribution network serving base facilities was initially designed to serve most facilities with propane gas for central heating.

Closure Baseline. At closure, an estimated 223.7 thousand therms will be demanded each day. This is well within capacity of the system.

3.3 HAZARDOUS MATERIALS AND HAZARDOUS WASTE MANAGEMENT

Hazardous materials and hazardous waste management activities at Myrtle Beach AFB are governed by specific environmental regulations. For the purpose of the following analysis, the term hazardous materials or hazardous waste will mean those substances defined as hazardous by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), (42 U.S. Code [USC] Sections 9601-9675), as amended, and the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA), (42 USC Sections 6901-6992), as amended. In general, this includes substances that, because of their quantity, concentration, and physical, chemical, or infectious character, may present a substantial danger to public health, welfare, or the environment, when released into the environment.

The U.S. Environmental Protection Agency (USEPA) has granted South Carolina the authority to promulgate and enforce environmental regulations at least as stringent as federal regulations. The South Carolina Department of Health and Environmental Control (SCDHEC) has enacted environmental laws and regulations applicable to Myrtle Beach AFB. SCDHEC regulations specifically applicable to this discussion include Title 44, R.61-92 (Underground Storage

Tank Control Regulations) and South Carolina Hazardous Waste Management Regulations (SCHWMR), Title 44, R.61-79.260 and 79.261. State air quality regulations that govern asbestos also apply to Myrtle Beach AFB.

Transportation of hazardous materials and hazardous waste is covered by the federal Department of Transportation (DOT) regulations within Title 49 Parts 171-177 of the Code of Federal Regulations (CFR). Treatment and disposal of wastewater and municipal-type solid waste are discussed in Section 3.2.4, as part of infrastructure support.

The ROI encompasses all geographic areas that are exposed to the possibility of a release of hazardous materials or hazardous waste. The ROI for Installation Restoration Program (IRP) sites generally is within the existing base boundaries. Exceptions will include areas where contaminated groundwater plumes may have migrated off base. The ROI for hazardous materials is generally more restrictive than for IRP sites; however, in the event of release, the ROI is identical. The specific geographic areas affected by past and current hazardous waste operations, including remediation activities, are presented in detail in the following sections.

3.3.1 HAZARDOUS MATERIALS MANAGEMENT

Preclosure Reference. Maintenance support and specialized flight support operations currently use large quantities of hazardous materials. These materials primarily consist of aviation fuels, oils, paints and paint removers, aircraft cleaning compounds, carbon removers, lubricants, hydraulic fluids, petroleum solvents, corrosives, pesticides, and compressed gases. These hazardous materials are used and temporarily stored at locations throughout Myrtle Beach AFB, but are found primarily in the industrial and maintenance complexes. Base industrial shops maintain, fabricate, and repair aircraft components and ground support equipment.

Hazardous materials are managed in accordance with current guidance to minimize the generation of hazardous waste. This includes procedures such as inventory control and supply inspection, recycling, process changes, and solvent substitution to less hazardous materials. Base hazardous materials management practices are evaluated annually under the Environmental Compliance Assessment and Management Program (ECAMP) for compliance with applicable regulations.

The current Spill Prevention and Response Plan (U. S. Air Force, 1991h) addresses the prevention of pollutant discharges. It also includes contingency plans to address unauthorized releases. The Spill Prevention and Response Plan details the specific storage locations and amount of material located in 150 oil storage, seven fuel transfer, and 30 accumulation areas. Most sites are concentrated in the base industrial and fuels management area.

Closure Baseline. After base closure, only the Air Force Base Disposal Agency operating location (OL) and possible interim users will be using hazardous materials. All remaining parties will be responsible for managing these materials in accordance with federal, state, and local regulations. They also are responsible for managing these materials to assure protection for their employees from occupational exposure to hazardous materials and for

protecting the public health and welfare of the surrounding community. Additionally, Occupational Safety and Health Administration (OSHA) requirements such as a hazard communication program and worker training must be adhered to by occupying agencies.

At closure, facilities and operations currently storing hazardous materials will be closed. Hazardous materials from existing operations will be used elsewhere or properly disposed through the Defense Reutilization and Marketing Office (DRMO).

The OL will be responsible for safe storage and handling of all hazardous materials used in conjunction with all base maintenance operations. These include materials used in caretaker support operations such as paint and paint thinner, solvents, pesticides, as well as possible small quantities of miscellaneous wastes associated with vehicle repair, machinery maintenance, or specialized operations (boiler maintenance, etc.).

These materials will be shipped to the OL in compliance with the Hazardous Materials Transportation Act (49 USC Section 1802). Interim users of base facilities (prior to reuse and disposal) will be required to ship, store, and handle materials in accordance with applicable regulations.

3.3.2 HAZARDOUS WASTE MANAGEMENT

Preclosure Reference. Normal operations at Myrtle Beach AFB (flight support and maintenance activities) currently produce wastes defined as hazardous under RCRA regulations (40 CFR Part 261) and SCHWMR, Title 44, R.61-79.261. Under RCRA, Myrtle Beach AFB is a generator of hazardous waste and operates two interim status storage facilities along with several accumulation and satellite accumulation areas.

The Myrtle Beach AFB Hazardous Waste Management Survey (U.S. Air Force, 1991) summarizes current procedures for handling hazardous and petroleum wastes in the various shops in which they are generated. The base Hazardous Waste Management Plan (U.S. Air Force, 1991e) is a more comprehensive document detailing the regulatory requirements for managing hazardous wastes from the moment of generation through final disposal off base. The U.S. Air Force ECAMP mandates an annual review of hazardous waste management practices for compliance with all applicable regulations. The base is required to develop and implement a plan to correct any deficiencies noted during the ECAMP review.

Hazardous wastes generated at the base and their RCRA classifications primarily consist of the following:

- D001, Flammable - waste cleaner, paint thinners, naphtha, etc.
- D002, Corrosive - waste carbon remover, TURCO acids, paint stripper
- DO11, Spent photographic wastes (silver contaminants)
- F002, Spent halogenated solvents - trichloroethane

- F003, F005, Spent non-halogenated solvents - methanol, methyl ethyl ketone, toluene

Approximately 1,000 gallons of liquid hazardous waste and 50 pounds of solid hazardous waste are generated each month by activities such as spray painting, solvent degreasing, film processing, and corrosion control. These wastes are accumulated at hazardous waste accumulation points as listed in Table 3.3-1a. Up to 55 gallons of hazardous waste (or up to one quart of acutely hazardous waste) can be accumulated for an indefinite length of time at or near the point of generation. Such areas are called satellite accumulation points. Myrtle Beach AFB operates 17 satellite accumulation points. At the two accumulation points operated by the base, an indefinite quantity of hazardous waste can be accumulated; however, the time period is limited to less than 90 days.

Myrtle Beach AFB also operates two interim status hazardous waste storage facilities regulated under 40 CFR 265. These facilities can store an indefinite quantity of hazardous wastes for an indefinite length of time. Any hazardous waste storage facility intending to operate after November 8, 1992 was required to file Part B of the RCRA permit application by November 8, 1988. Myrtle Beach AFB filed its Part B permit application; however, since the base will close March 1993, base officials have elected to withdraw the permit application. As of November 8, 1992, the two hazardous waste storage facilities will begin closure. All waste will be removed from these facilities within 90 days, and testing and cleanup will begin. After November 8, 1992, all hazardous wastes generated by Myrtle Beach AFB will be shipped off base to a permitted facility within 90 days of arriving at an accumulation point. The locations of the two hazardous waste storage facilities are shown on Figure 3.3-1.

Waste petroleum products are not regulated as hazardous wastes except under special circumstances (e.g., if they become mixed with hazardous wastes). However, Myrtle Beach AFB has included waste petroleum in its Hazardous Waste Management Plan as an operational and record keeping convenience. Waste petroleum products generally have some remaining beneficial use and market value. Waste petroleum collection and storage areas are listed in Table 3.3-1b.

Storage of PCBs or PCB-contaminated items is not covered by RCRA regulations, but is regulated under the Toxic Substances Control Act (TSCA). The base ceased to operate its PCB storage area at Bldg. 208, the supply open storage area, in March 1991 when the last PCB transformer was shipped off base. The location of the PCB storage area is indicated on Figure 3.3-1.

The DRMO administers annual contracts for hazardous waste disposal services and maintains all records and shipping manifests related to disposal activities. Waste petroleum is transported to the Fuels Management Branch Waste Fuels Storage Facility (Fac. 89008) adjacent to Building 515. Waste oil generated by the base service station and the auto hobby shop is accumulated in tanks near Buildings 200 and 205. Base waste petroleum products are collected and removed from the base by a contractor in accordance with all applicable regulations.

Table 3.3-1a. Hazardous Waste Accumulation Points and Storage Areas
Page 1 of 2

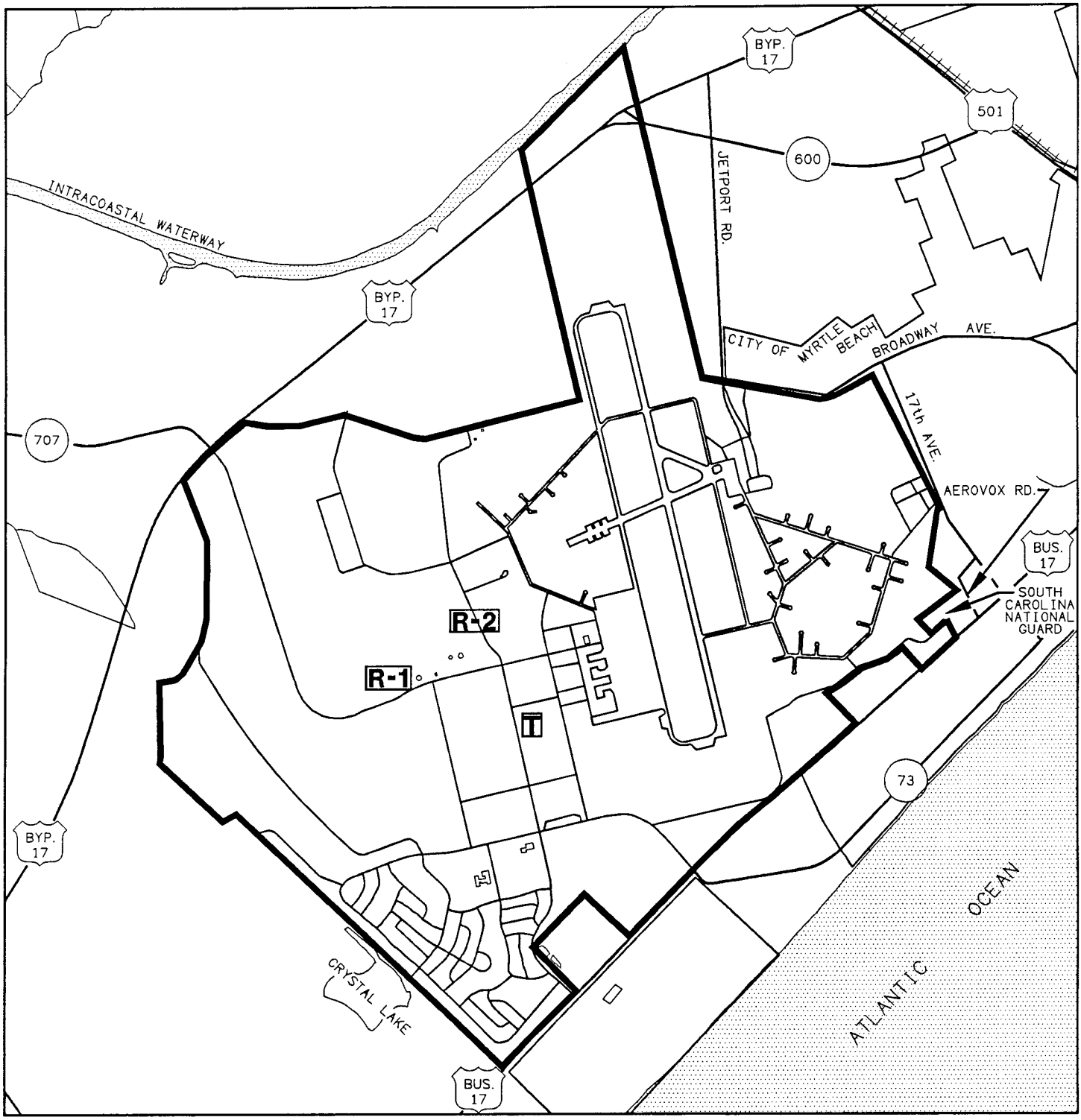
HAZARDOUS WASTE ACCUMULATION POINTS		
Facility/Bldg. No. Accumulation Type	Waste Material Generated (Handling Method)	Estimated 1990 Annual Quantity
AGE Servicing/Bldg. 320 Satellite Accum. Pt.	S-K 140 (contractor) Hydraulic fluid (tank)	660 gal. 1,000 gal.
Jet (A-10) Engine Shop/Bldg. 324 Accumulation Point	Fingerprint remover (drum) Turco acid (drum) PD-680 (drum) 1,1,1-Trichloroethane (drum) Carbon remover (drum) Aircraft soap (drum)	100 gal. 700 gal. 100 gal. 240 gal. 100 gal. 700 gal.
EMS/NDI Lab/Bldg. 352 Satellite Accum. Pt.	1,1,1-Trichloroethane (drum)	100 gal.
Wheel & Tire Shop/Bldg. 352 Satellite Accum. Pt.	S-K 140 (contractor)	1,320 gal.
EMS Corrosion Control/Bldg. 355 Accumulation Point	PD-680 (drum) Paints & thinners (drum) Wheel stripper (drum) Phenolic paint remover (drum)	100 gal. 2,000 gal. 300 gal. 450 gal.
Auto Hobby Shop/Bldg. 255 Satellite Accum. Pt.	S-K 105 (contractor)	800 gal.
CE Power Production/Bldg. 220 Satellite Accum. Pt.	S-K 105 (contractor)	60 gal.
CE Pavements & Grounds/Bldg. 220 Satellite Accum. Pt.	S-K 105 (contractor)	20 gal.
Transportation Maintenance/Bldg. 514 Satellite Accum. Pt.	Paint thinner S-K 105 (contractor)	30 gal. 1,500 gal.
Refueling Vehicles Maint./Bldg. 516 Satellite Accum. Pt.	Hydraulic fluid (drum) S-K 105 (contractor)	100 gal. 600 gal.
73rd TCF AGE Veh. Maint./Bldg. 457 Satellite Accum. Pt.	S-K 105 (contractor) Paints and thinners	40 gal. 180 gal.
Photo Lab./Bldg. 502 Satellite Accum. Pt.	Silver (recycled) Fixer	20 gal. 200 gal.
TMDE/Bldg. 519 Satellite Accum. Pt.	Mercury	10 lbs.

Table 3.3-1a. Hazardous Waste Accumulation Points and Storage Areas
Page 2 of 2

HAZARDOUS WASTE ACCUMULATION POINTS		
Facility/Bldg. No. Accumulation Type	Waste Material Generated (Handling Method)	Estimated 1990 Annual Quantity
Golf Course Maint/Bldg. 454 Satellite Accum. Pt.	S-K 105 (contractor)	200 gal.
Trailer Maint/Bldg. 327/MAECC Satellite Accum. Pt.	Brake fluid S-K 105 (contractor)	100 gal. 200 gal.
Rapid Repro/Bldg. 241 Satellite Accum. Pt.	Press cleaner Electrostatic cleaner	20 gal. 10 gal.
Munitions/Bldg. 580 Accumulation Pt.	Waste munitions	600 lbs.
Medical X-Ray/Bldg. 114 Satellite Accum. Pt.	Silver (recovered)	20 gal.
Dental X-Ray/Bldg. 334 Satellite Accum. Pt.	Silver (recovered)	20 gal.
ARP Photo Lab/Bldg. 346 Satellite Accum. Pt.	Silver (recovered)	10 gal.
TOTAL ESTIMATED 1990 ANNUAL QUANTITY		Liquid = 12,000 gal. Solid = 610 lbs.
Estimated Annual Quantity (of total above) Collected and Recycled by Contractor		5,400 gal.
HAZARDOUS WASTE STORAGE FACILITIES		
DRMO Storage Area Facility No. 45203	Drummed hazardous wastes from all accumulation points	5,500 gal.
Waste Fuels Storage Area Facility No. 89008	Hydraulic fluid (drums) Oil/water separator wastes*	1,100 gal. 1,000 gal.*

Source: U.S. Air Force, 1991e.

*Generated and stored by Waste Fuel Storage Area; not included in total estimated 1990 annual quantity.



EXPLANATION

R-1 RCRA FACILITY: DRMO STORAGE AREA. BLDG. 526

R-2 RCRA FACILITY: WASTE FUELS STORAGE AREA. FAC. #89008

T TSCA STORAGE AREA

1 RCRA- RESOURCE CONSERVATION AND RECOVERY ACT (HAZARDOUS WASTE)

2 TSCA- TOXIC SUBSTANCES CONTROL ACT (PCBs)

0 1000 3000 feet

RCRA[1] AND TSCA[2] STORAGE AREAS

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 3.3-1

Table 3.3-1b. Waste Petroleum Collection and Storage Areas

Facility/Bldg. No.		Waste Product (container)
WASTE PETROLEUM COLLECTION AREAS		
AGE Servicing Bldg. 320		Mineral oil (bowser) Synthetic oil (bowser)
Jet (A-10) Engine Shop Bldg. 324		Engine oil (bowser) Mineral oil (bowser) JP-4 (bowser)
AGE Flightline Area		JP-4 bowsers 5 @ 500 gal; 1 @ 750 gal.
Base Service Station/Bldg. 200		Engine oil (tank)
Auto Hobby Shop/Bldg. 255		Engine oil (tank)
CE Power Production Bldg. 220		Oil (drum)
CE Pavements & Grounds Bldg. 220		Oil (drum)
Transportation Maintenance Bldg. 514		Engine oil (bowser) Diesel fuel (drum) Synthetic oil (drum)
Refueling Vehicles Maint. Bldg. 516		JP-4 (drum) Oil (drum)
73rd TCF AGE Veh. Maint. Bldg. 457		Engine oil (drum) Diesel fuel (drum) JP-4 (drum)
Fuels Management/Bldg. 515		JP-4 (bowser)
Fire Dept. Maint/Bldg. 360		Oil (drum)
Golf Course Maint/Bldg. 455		Oil (drum)
Munitions/Bldg. 580		Oil (drum)
Aero Club/Bldg. 556		Oil (drum)
WASTE PETROLEUM STORAGE AREAS		Estimated 1990 Annual Quantity
Waste Fuels Storage Area Facility No. 89008	Waste oil (10,000 gal. tank) JP-4 (10,000 gal. tank) Synthetic oil (5,000 gal. tank) Mineral oil (1,000 gal. tank)	12,000 gal. 13,500 gal. 3,300 gal. 500 gal.

Source: U.S. Air Force, 1991e.

Closure Baseline. At closure, all hazardous waste generated by existing base functions will be collected from designated accumulation and satellite accumulation points and shipped off site to a permitted facility in accordance with RCRA regulations. All waste fuels and oils will be shipped off base in accordance with applicable regulations. OL caretaker support operations will generate small quantities of miscellaneous wastes associated with vehicle repair, machinery maintenance, or specialized operations (boiler maintenance, etc.). Hazardous and petroleum wastes generated by the OL will be tracked to ensure proper identification, accumulation, transportation, and disposal as well as implementation of waste minimization programs.

The RCRA hazardous waste storage facilities will be closed as required by the RCRA closure plan. The RCRA closure plan identifies specific steps to be taken when closing these RCRA storage facilities prior to base closure. The plan was prepared in accordance with RCRA (40 CFR 265) and SCHWMR (R.61-79 Part 265) regulations. Within 90 days after receiving the final volume of hazardous waste, Myrtle Beach AFB personnel will remove these wastes and proceed with the steps outlined in the closure plan in a manner protective of human health and the environment. Closure steps involve inspection, cleaning and sampling, and assessment of any further requirements.

Any items containing PCBs that are discovered during or following base closure will be stored at the DRMO storage yard in accordance with TSCA regulations until they can be shipped off base.

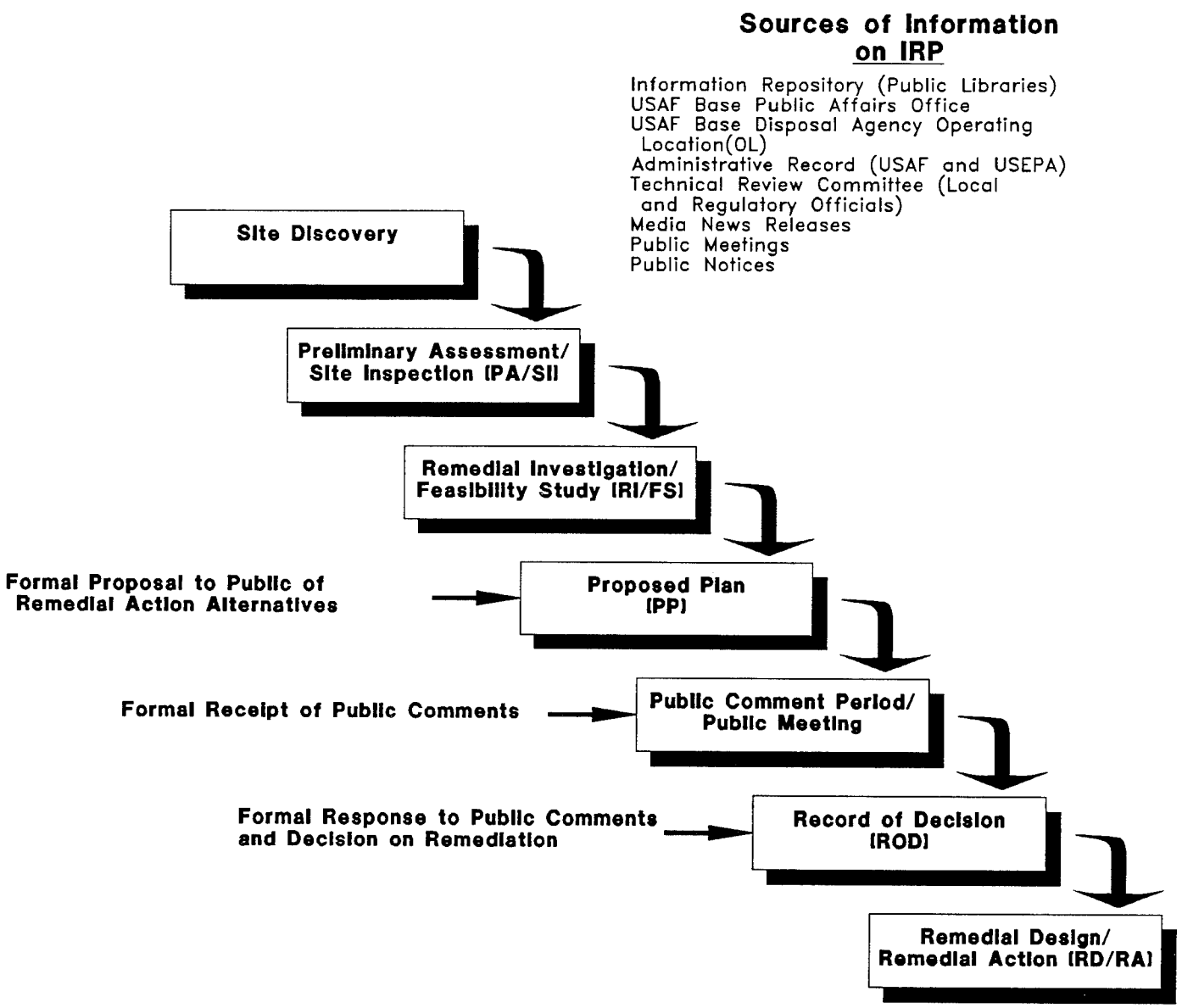
3.3.3 INSTALLATION RESTORATION PROGRAM (IRP) SITES

The IRP is an Air Force program to identify, characterize, and remediate environmental contamination on its installations. Although widely accepted at the time, procedures followed prior to the mid-1970s for managing and disposing of many typical base wastes often resulted in contamination of the environment. The program established a process to evaluate past disposal sites, control the migration of contaminants, control potential hazards to human health and the environment, and conduct environmental restoration activities, as required. Section 211 of the Superfund Amendments and Reauthorization Act (SARA), codified as the Defense Environmental Restoration Program (DERP), of which the Air Force IRP is a subset, ensures that the Department of Defense (DOD) has the authority to conduct its own environmental restoration programs in coordination with environmental regulators.

Prior to passage of SARA and the establishment of the National Contingency Plan (NCP) for hazardous waste disposal sites, Air Force procedures followed DOD policy guidelines mirroring the USEPA's Superfund program. Since SARA was passed, many federal facilities have been placed on a federal docket and the USEPA has been evaluating the facilities' waste sites for possible inclusion on the National Priorities List (NPL). The USEPA has not proposed Myrtle Beach AFB for listing on the NPL.

A representation of the IRP management process under CERCLA is shown in Figure 3.3-2. Ongoing activities at identified IRP sites may delay or limit some proposed land uses at or near those sites. Future land uses by the recipients on a site-specific level may be, to a certain extent, limited by the severity of contamination or level of remediation effort at these IRP sites. Reasonably

INSTALLATION RESTORATION PROCESS (The CERCLA Process)



Note: This figure illustrates the IRP process for installations on the National Priorities List (NPL). Myrtle Beach AFB is not on the NPL and may follow an abbreviated process.

PICTORIAL PRESENTATION OF IRP PROCESS

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 3.3-2

foreseeable land use constraints are discussed in this EIS. Regulatory review as required by the USEPA, SCDHEC, and the Air Force programs also will ensure that any site-specific land use limitations are identified and considered. The USEPA, SCDHEC, and Air Force programs will also ensure sufficient opportunity for public involvement in this decision process.

The original IRP was divided into four phases, consistent with CERCLA:

- Phase I: Problem Identification and Records Search
- Phase II: Problem Confirmation and Quantification
- Phase III: Technology Base Development
- Phase IV: Corrective Action

After SARA was passed in 1986, the IRP was realigned to incorporate the terminology used by the USEPA and to integrate the new requirements under SARA. The result was the creation of three action stages:

- Stage 1: Preliminary Assessment/Site Inspection (PA/SI)
- Stage 2: Remedial Investigation/Feasibility Study (RI/FS)
- Stage 3: Remedial Design/Remedial Action (RD/RA)

The PA portion of the first stage under the NCP is comparable to the original Phase I and consists of a records search and interviews to determine whether potential problems exist. A brief SI that may include soil and water sampling is performed to give an initial characterization or confirm the presence of contamination at a potential site.

The RI is similar to the original Phase II and consists of additional field work and evaluations in order to assess the nature and extent of contamination. It includes a risk assessment and determines the need for site remediation.

The original IRP Phase IV has been replaced by the FS in Stage 2 and the RD within the third stage. The FS documents the development, evaluation, and selection of alternatives to remediate the site. The selected alternative is then designed (RD) and implemented (RA). Long-term monitoring often is performed in association with site remediation to assure future compliance with contaminant standards or achievement of remediation goals. The Phase III portion of the IRP process is not included in the normal SARA process. Technology development under SARA is done under separate processes including the Superfund Innovative Technology Evaluation program. The Air Force has an active Technology Development program in cooperation with the USEPA to find solutions to problems common to Air Force facilities.

The closure of Myrtle Beach AFB will not affect ongoing IRP activities. These IRP activities, managed by the OL, will continue in accordance with federal, state, and local regulations to protect human health and the environment, regardless of the disposal decision.

Myrtle Beach AFB is participating in a joint management initiative with USEPA and SCDHEC for IRP activities. This initiative is designed to streamline the Air Force's environmental remediation. Under the initiative, the Air Force is maintaining its Lead Agency status as defined under CERCLA while the USEPA and the SCDHEC are providing detailed consultation and oversight through the joint development and implementation of the proposed Myrtle Beach AFB Management Action Plan, which will document schedules and procedures for accomplishing the needed environmental remediation.

Historically, the IRP focused on sites resulting from past hazardous waste management practices and the restoration of closed sites. However, the Management Action Plan will include sites such as petroleum sites and sites resulting from ongoing practices. With all sites addressed under the framework of the Management Action Plan, a consistent and thorough review of all potential hazardous substance sites will result. The interim RCRA facility assessment (RFA), providing a thorough base-wide assessment of known and potential releases, was issued in October 1991. The RFA report meets the requirements for a preliminary assessment under CERCLA. Tables 3.3-2a through 3.3-2c contain a listing of known and potential hazardous substance release sites to be evaluated in accordance with the Management Action Plan. In addition to the IRP site codes, the corresponding solid waste management units (SWMU) and areas of concern (AOC) are given.

Three categories or groups of sites have been developed. Group 1 (Table 3.3-2a) includes sites that have known or probable releases of hazardous substances and require evaluation in a manner consistent with the RI/FS requirements of CERCLA and the RCRA Facility Investigation (RFI) requirements of RCRA. Group 2 (Table 3.3-2b) contains sites that must meet the Corrective Action Plan (CAP) requirements of the South Carolina Underground Storage Tank Regulations. Group 3 (Table 3.3-2c) contains sites for which limited confirmatory sampling is needed to determine if a complete RI/FS or RFI is required.

Additionally, the RFA report recommended some sites undergo an integrity evaluation to determine if any further action is necessary. Most of these sites consist of oil/water separators or concrete floor slabs. The Air Force plans to evaluate the integrity of all 36 oil/water separators on base. The separators are listed in Table 3.3-3. Few of the separators are IRP sites, and they will not be discussed further in this EIS.

Preclosure Reference. Because the Air Force began the IRP process at Myrtle Beach AFB in 1981, prior to terminology and procedural changes, both phases and stages are contained in the IRP administrative record. The IRP Phase I was published in 1981. It identified fifteen sites as potential sources of contamination and recommended Phase II confirmation and qualification studies for nine sites.

The IRP Phase II objectives were to confirm the presence or absence of contamination and to investigate likely migratory pathways. Upon confirmation of contamination, the magnitude and extent were investigated further. The Phase II studies were conducted on the 10 sites recommended in Phase I and an additional site, the pipeline spill area #2, was included for a total of 10

Table 3.3-2a. IRP Sites - Group 1: Sites Requiring RI/FS or RFI
Page 1 of 3

IRP Site Code SWMU No.	Name	Description/Location	Status
IRP: WP01 Solid Waste Management Unit (SWMU): 7	Weathering Pit No. 2	On SE border of landfill no. 3. Facility operated from 1979 to 1981 to expose spent fuel filters and other petroleum materials to open air and sunlight. Waste oils, solvents, strippers also potentially disposed of at the site. 542 tons of contaminated soils removed in 1982.	Remedial investigation (RI) planned. Phase II (1985) detected low levels of volatile organic aromatics (VOAs), methylene chloride, and chromium.
IRP: LF05 SWMU: 3	Landfill No. 3	NE corner of base, 12-acre trench and cover landfill operated in 1964-1968. General refuse and unverified fuel and solvent wastes disposed at this site. Adjacent to weathering pit no. 2.	Final RI planned. Documented evidence of groundwater contamination. Stage 1 RI completed. Low levels of VOAs detected. Benzene and chromium above respective MCLs.
IRP: FT06 SWMU: 9	Fire Training Area No. 1	FTA No. 1 operated from 1955-1960. Located at west end of inactive E-W runway Waste petroleum and solvents burned at these sites.	RI planned. Phase II IRP found low levels of VOAs in groundwater. Lead found in soil in excess of MCL in one sample. Soils samples indicate 150 ppm of TPH.
IRP: FT07 SWMU: 10	Fire Training Area No. 2	FTA No. 2 operated from 1960-1964. Located at west end of inactive E-W runway. Waste petroleum and solvents burned at this site.	RI planned. Phase II IRP found low levels of VOAs in groundwater. Lead in excess of MCL. Soil samples indicate 150 ppm of TPH.
IRP: WP08 SWMU: 6	Weathering Pit No. 1	Operated from 1973-1978 as a shallow (2' deep) pit to evaporate fuels from filters. Oily rags, liquid wastes (thinners/strippers) also reported to have been disposed of here. Deactivated and regraded and overlain by weathering pit no. 3 (SWMU No. 8).	RI planned.
IRP: LF09 SWMU: 4	Landfill No. 4	Small trench and cover landfill (<1 acre) operated from 1968 to 1972 for general refuse. Underlies golf course, contiguous with landfill no. 1.	RI planned. Phase II investigations confirmed low levels of VOAs in shallow and deep test wells.

Note: See Appendix A for IRP site codes and acronym explanations.

Table 3.3-2a. IRP Sites - Group 1: Sites Requiring RI/FS or RFI
Page 2 of 3

IRP Site Code SWMU No.	Name	Description/Location	Status
IRP: FT11 SWMU: 11	Fire Training Area No. 3	FTA No. 3 operated from mid 1950s to early 1970s, now reforested with pines. Solvents and fuels dispersed in ground, set afire, and extinguished. Area also used as an aircraft parking apron and maintenance area in the 1940s.	RI planned. Phase II IRP found levels of VOAs higher than those at FTAs 1 and 2. Lead in excess of MCL.
IRP: LF12 SWMU: 1	Landfill No. 1	9-Acre landfill in NE portion of base, underlies current golf course. Operated from 1955 to 1960 as a trench and burn landfill. Closed in 1960. Est. 600,000 cu. yd.	RI planned. Phase II investigation confirmed VOAs and chromium in shallow wells.
IRP: LF13 SWMU: 2	Landfill No. 2	A 6-acre trench and burn landfill operated from 1960-1964. Located in NW corner of base in swampy area. It received general refuse and possibly petroleum wastes since no weathering pits were known to operate during this period.	RI planned. No sampling conducted to date due to low hazard ranking in Phase I IRP. Water samples from adjacent ditch did not find significant levels of contamination.
IRP: LF14 SWMU: 5	Landfill No. 5	A 6-acre (250,000 cu. yd.) trench and cover landfill operated from 1972-1974 for general refuse and possibly other wastes. During WWII used as the firing-in butt and may have lead-contaminated soils.	RI planned. No sampling conducted to date due to low hazard ranking in Phase I IRP.
IRP: FT16 SWMU: 12	Fire Training Area No. 4	FTA No. 4 operated in the 1960s and 1970s. Solvents and fuels dispersed in ground, set afire, and extinguished. Area also used as an aircraft parking apron and maintenance area in the 1940s.	RI planned. USEPA confirmatory sampling found indications of naphthalenes and phenols in the polishing pond sediments.
IRP: SD19 SWMU: 40	Engine Shop Vat Drainage (Bldg. 324)	Operated from 1976-1987. Solvent vats discharged to sand pit.	RI revealed 40-acre TCE plume in groundwater. Remedial design/remedial action (RD/RA) planned to begin in 1993.

Note: See Appendix A for IRP site codes and acronym explanations.

Table 3.3-2a. IRP Sites - Group 1: Sites Requiring RI/FS or RFI
Page 3 of 3

IRP Site Code SWMU No.	Name	Description/Location	Status
IRP: DP21 SWMU: 133	Drum Disposal Area No. 1	Site recently discovered consisting of 45 drums in a shallow pit. Not included in IRP Phase I or II. Located contiguous with weathering pit no. 1 30 meters SW of Bldg. 552 in low lying wooded area. May have been left behind after roofing job in the early 60s, but not confirmed.	Site Investigation (SI) consisting of confirmatory sampling planned.
IRP: SD23 SWMU: 136	CE Paint Shop Bldg. 217	Operated 1969 to 1988. Utility sink drains to underground trench drain versus sanitary sewer. Thinners and paints possibly disposed of into groundwater.	USEPA confirmatory soil sampling found several metals above background levels. One phenol and two petroleum compounds at low levels also identified. RI planned.
IRP: OT31 SWMU: 140	Firing-In Butt	Firing-in butt constructed in 1957 for aircraft to clear/fire jammed guns. Not used after 1970s.	RI planned.
IRP: OT33 SWMU: 139	Small arms firing range	Small arms range constructed in 1956 for proficiency testing for M-16 and handguns, reduced in size in the 1960s, old backstop still existing.	USEPA confirmatory sampling found elevated levels of lead in sediments and surface waters. Drains to east drainage ditch, sediments tested at 330 mg/kg total lead. Lead at 16,000 mg/kg in a single sediment sample. RI planned.

Note: See Appendix A for IRP site codes and acronym explanations.

Table 3.3-2b. IRP Sites - Group 2: SC Petroleum Sites

IRP Site Code SWMU No.	Name	Description/Location	Status
IRP: ST02 SWMU: 83	Myrtle Beach Pipeline Co. Spill No. 2	1981 spill estimated over 100,000 gal. Free product reported on groundwater table.	Pipeline Co. and its insurance company taking the lead on the investigation and cleanup. RD completed, RA underway by others (Resp. party).
IRP: SS03 SWMU: Area of Concern C	POL Bulk Storage Area	Operated from 1955 to present. Consists of two large above ground and two underground storage tanks. Between 1963 and 1967 a 10,000-gallon jet fuel spill was reported.	Phase I and II studies confirmed contamination. Contamination assessment plan (CAP) planned.
IRP: SS18 SWMU: 111	BX Service Station USTs	Operated from 1956-1988. Four 10,000-gal. USTs (2 leaded, 2 unleaded). Leaks discovered in 1988 and all tanks removed and replaced with three double walled fiberglass tanks.	CAP completed. Low level of benzene just above state action levels were detected.
IRP: SS20 SWMU: 101	Military Service Station USTs	Operated from 1956 to present. Two 5000-gal. diesel and two 5000-gal. gasoline tanks. Three tanks taken out-of-service in 1983, 1987, and 1989 as each tank was found to be leaking. One tank remains in service.	Tank removal programmed and CAP investigation planned.
IRP: ST25 SWMU: N/A	Old Well No. 2 (Bldg. 103)	Emergency power Mogas tank (150 gal.) used from 1950s to 1985.	Tank removal programmed. CAP investigation planned.
IRP: ST26 SWMU: 138	Lift Station No. 1 (Bldg. 122)	150-gal MOGAS tank fueled/lift station pump from mid-1950s until removal in 1985.	During tank removal, South Carolina soil contamination action levels exceeded. CAP planned.
IRP: ST27 SWMU: 137	Lift Station No. 3 (Bldg. 960)	150-gal MOGAS tank fueled/lift station pump No. 3 from mid-1950s until 1974. Removed in 1991.	During tank removal, South Carolina soil contamination action levels exceeded. CAP planned.

Note: See Appendix A for IRP site codes and acronym explanations.

Table 3.3-2c. IRP Sites - Group 3: Sites Requiring Confirmatory Sampling
Page 1 of 4

IRP Site Code SWMU No.	Name	Description/Location	Status
IRP: SS04 SWMU: Area of Concern B	Flightline Spill Area	During a pumping test conducted by the state of South Carolina in 1977, free product (fuel) was reportedly encountered. A review of nearby tanks failed to reveal a source. The site was investigated during the IRP Phase 1 and 2 studies; however, only trace levels of volatile organics were detected at that time.	Confirmatory sampling planned. The no-further-action alternative is anticipated.
IRP: DP22 SWMU: 134	Drum Disposal Pit No. 2	Approximately 75 drums abandoned in woods east of skeet range. Drums suspected left by roofing contractor in 1956.	Site investigation planned.
IRP: SD24 SWMU: N/A	Old Entomology Shop (Bldg. 562)	Main entomology maintenance/mixing area from 1971-1986 when building converted to equipment storage only. Effluent from sink drain/mixing area discharged to drainage ditch.	Site investigation planned.
IRP: SD28 SWMU: 15	Drainage Ditches and Storm Sewer	A system of drainage ditches and storm sewers throughout entire base. Many industrial shop floor drains and solvent vat drains led to this system prior to the 1970s when disposal protocols were established.	Site investigation planned.
IRP: SS29 SWMU: 82	Myrtle Beach Pipeline Co. Spill No. 1	A 1975 spill reported when pipeline punctured by dragline when cleaning Ordnance Road ditch. Approx. 1,500 gallons JP-4 reported released.	Site investigation planned.
IRP: WP30 SWMU: 84	Former Wastewater Treatment Plant	Sewage treatment plant operated from 1950s until closed in 1981, receiving domestic and industrial wastes/sludge.	Site investigation planned.

Note: See Appendix A for IRP site codes and acronym explanations.

Table 3.3-2c. IRP Sites - Group 3: Sites Requiring Confirmatory Sampling
Page 2 of 4

IRP Site Code SWMU No.	Name	Description/Location	Status
IRP: LF32 SWMU: N/A	MISQUE Construction Rubble Dump	Used for unofficial "landfilling" since the 1950s, recent use includes construction debris, cut trees, wood. In the 1970s reticular foam from wing fuel tanks disposed of in back of dump.	Currently a permitted construction landfill. Site investigation planned.
IRP: OT34 SWMU: N/A	EOD Proficiency Range	Explosive ordnance disposal proficiency (EOD) range, also known as Demolition and Burn Facility. Used extensively in the 1970s for training.	Site investigation planned.
IRP: SD35 SWMU: 135	Southwest Asia Fuel Bladder Maintenance Area	Constructed in 1986, housed two 10,000-gallon JP-5 storage bladders. Earthen maintenance areas direct flow to evaporating pond with overflow to ditch.	Site investigation planned.
IRP: SD36 SWMU: N/A	Old Fuel Bladder Training Area	Used until 1985. Site located in FOLTA area consisting of two 50,000-gallon JP-4 fuel bladders with earthen dike, drainage to ditch to the west. Used for fueling aircraft during training exercises.	USEPA confirmatory sampling tentatively identified 4 extractable organic compounds. Further investigation decision pending.
IRP: ST37 SWMU: N/A	WWII Bulk Fuel Storage Area A	Base records (1944 as-builts, aerials) indicate a bulk fuel storage area, possibly a 100,000 concrete UST.	Site investigation planned.
IRP: SS38 SWMU: 46	Old Engine Test Cell	Unbermed concrete pad with center drain to O/W separator used for testing engines after maintenance/repair activities.	RCRA facility assessment designated unit for confirmatory sampling due to crack in pad. Site investigation planned.

Note: See Appendix A for IRP site codes and acronym explanations.

Table 3.3-2c. IRP Sites - Group 3: Sites Requiring Confirmatory Sampling
Page 3 of 4

IRP Site Code SWMU No.	Name	Description/Location	Status
IRP: OT40 SWMU: 80	Armaments Shop Storage Area (Bldg. 505)	Unbermed concrete drum storage area operated from 1983 to present for storing waste solvents, rags, oil generated by repair and maintenance on aircraft guns.	Site investigation planned.
IRP: SS41 SWMU: 31	AGE Storage Yard	Asphalt storage pad used to store trailers, carts, fuel bowsers. Bldg. 320.	Site investigation planned.
IRP: SD42 SWMU: 32	AGE wash rack (Bldg. 320)	Washrack is partially diked concrete pad used for cleaning AGE equipment. Concrete is cracked.	Site investigation planned.
IRP: ST44 SWMU: 32	Auto Hobby Shop UST	The 1000-gallon UST was removed in 1991. Previously used to store waste oil. No testing at closure.	Site investigation planned.
IRP: SD45 SWMU: N/A	Golf Course Maintenance Area	Constructed in 1942, used for vehicle maintenance. Tenant unit (73rd TCS) conducted vehicle maintenance prior to 1984. Transferred to golf course as a maintenance area. Adjacent washrack drains to ditch.	Site investigation planned.
IRP: ST46 SWMU: N/A	WWII Ops Fuel Storage Area A	Base records (1944 as-builts and aerial photos) indicate an operational fuel dispensing area with USTs.	Site investigation planned.
IRP: ST47 SWMU: N/A	WWII Ops Fuel Storage Area B	Base records (1944 as-builts and aerial photos) indicate an operational fuel dispensing area with USTs.	Preliminary assessment planned.
IRP: ST48 SWMU: N/A	WWII Bulk Fuel Storage Area B	Base records (1944 as-builts and aerial photos) indicate a bulk fuel storage area, possibly a large concrete UST.	Site investigation planned.

Note: See Appendix A for IRP site codes and acronym explanations.

Table 3.3-2c. IRP Sites - Group 3: Sites Requiring Confirmatory Sampling
Page 4 of 4

IRP Site Code SWMU No.	Name	Description/Location	Status
IRP: ST49 SWMU: N/A	WWII Ops Fuel Storage Area C	Base records (1944 as-builts and aerial photos) indicate an operational fuel dispensing area with USTs.	Site investigation planned.
IRP: ST50 SWMU: N/A	WWII Ops Fuel Storage Area D	Base records (1944 as-builts and aerial photos) indicate an operational fuel dispensing area with USTs.	Site investigation planned.

Source: U.S. Air Force, 1991w.

Note: See Appendix A for IRP site codes and acronym explanations.

Table 3.3-3. Oil/Water Separators

Oil/Water Separator No.	Building/ Facility No.	Facility
OW-1	200	BX Service Station
OW-2	217	CE Water & Waste/Paint Shop
OW-3	220	CE Grounds Washrack
OW-4	221	CE Equipment Washrack
OW-5	229	CE Power Production Shop
OW-6	255	Auto Hobby Shop - West
OW-7	255	Auto Hobby Shop - East
OW-8	320	AGE Washrack Area
OW-9	324	Engine Shop - North
OW-10	324	Engine Shop - South
OW-11	328	Fuel Cell Maintenance Shop
OW-12	328	Fuel Cell Maintenance Shop
OW-13	355	Corrosion Control Facility
OW-14	358	Hangar 2 - North
OW-15	358	Hangar 2 - South
OW-16	359	Hangar 3 - North
OW-17	359	Hangar 3 - South
OW-18	359	Hangar 3 Washrack
OW-19	360	Fire Department
OW-20	373	Maintenance Training Hangar
OW-21	457	73rd Tactical Control Squadron (TCS) Washrack
OW-22	507	Transportation Squadron Washrack
OW-23	514	Transportation Squadron Maintenance
OW-24	515	Fuels Lab
OW-25	516	POL Maintenance
OW-26	516	POL Washrack
OW-27	538	Southwest Asia (SWA) Fuels Equipment Storage
OW-28	550	Engine Test Cell (new)
OW-29	563	Correctional Custody Facility Washrack
OW-30	11302	Engine Test Cell (original)
OW-31	11608	Power Check Pad
OW-32	17904	Fire Training Pit
OW-33	41103	POL Storage Area
OW-34	89008	Waste Fuels Storage Area - North
OW-35	89008	Waste Fuels Storage Area - South
OW-36	368	Flight Simulator

Phase II sites. Because several of these sites were contiguous, they were grouped to form eight source areas as follows:

- Fire training areas (FTA) #1 and #2
- Landfill (LF) #3/weathering pit (WP) #2
- FTA #3
- WP #1
- Petroleum, oil, and lubricants (POL) fuel spill area
- LF #1 and #4
- Flightline area (FLA)
- Myrtle Beach Pipeline Co. Spill

These initial Phase II Stage I studies were completed in 1985. A long-term monitoring remedial investigation (LTMRI) was initiated in 1987 to confirm and further assess the 1983 Phase II confirmation studies. The objective of this LTMRI study was to recommend remedial activities for these sites. The field program was conducted from 1987 to 1989 and consisted of extensive field investigations (soil-gas surveys, soil samples, tidal effects studies, etc.).

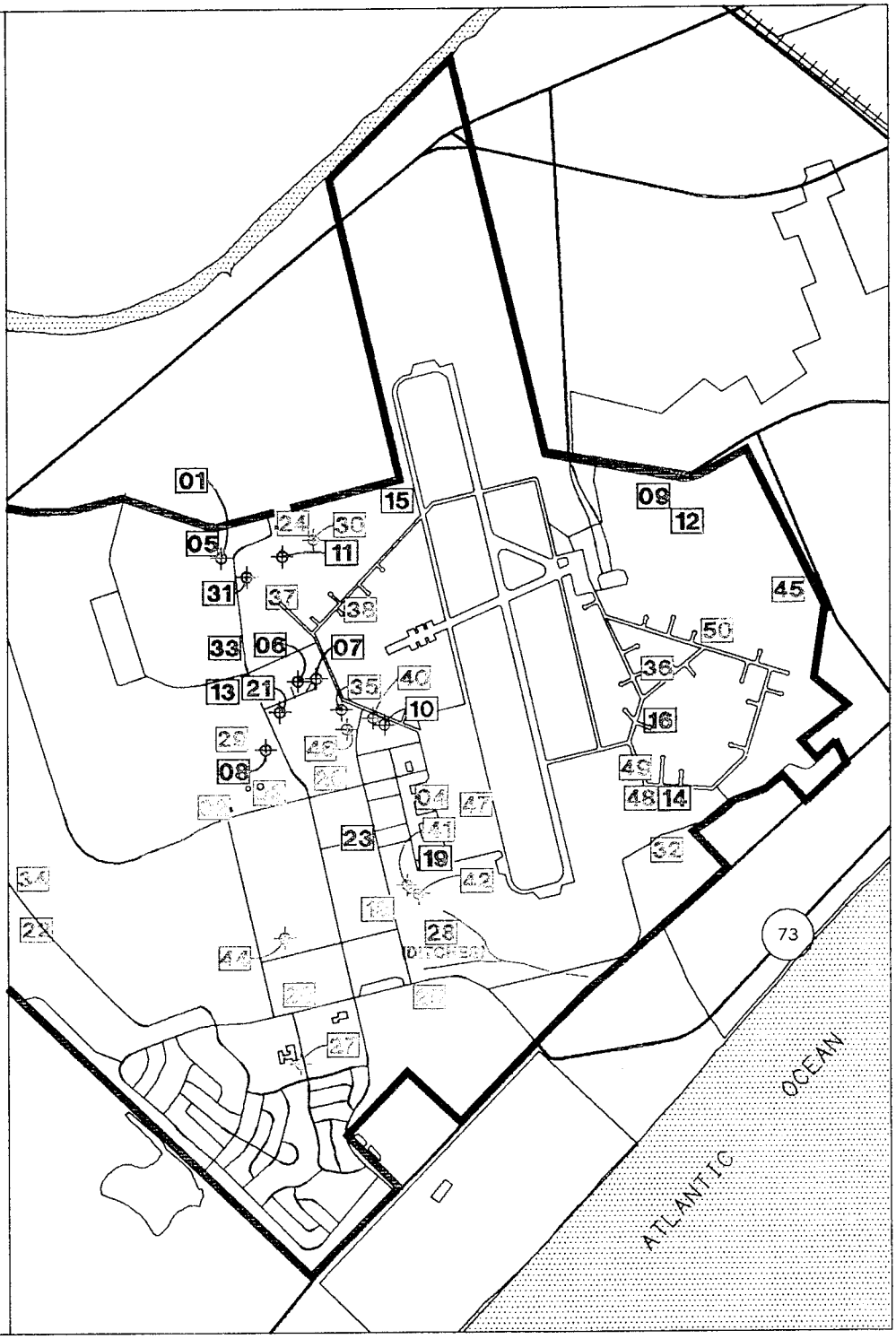
In addition to the sites identified in the Phase II study, several sites were discovered and added from 1987-1991. Due to the RFA report, 12 sites were added in 1991.

The pipeline spill area #2 was not evaluated since it was under remediation by the Myrtle Beach Pipeline Company as the responsible party. A summary of these findings and status of all existing IRP sites are presented in Tables 3.3-2a through 3.3-2c. An inventory of existing monitoring wells is presented in Table 3.3-4.

Figure 3.3-3 lists all IRP sites and shows their locations. Two of the sites shown on the figure are not discussed in Tables 3.3-2a through 3.3-2c. Site ST-10 consisted of three underground storage tanks for waste solvent storage. The tanks were removed in 1984 with SCDHEC oversight and will require no further action. Site RW-15 was a concrete vault for low-level radioactive waste such as radio tubes. The vault was apparently little used and subsequently removed. No further action will be required at this site.

Closure Baseline. The Air Force is committed to the identification, assessment, and remediation of the contamination from hazardous substances at Myrtle Beach AFB. This commitment will assure the protection of public health as well as restoration of the environment. Additionally, the Air Force will work aggressively with the regulatory community to ensure that parcel disposition or conveyance occurs at the earliest reasonable date so as not to impede the economic redevelopment of the area through reuse of Myrtle Beach AFB. Quantification of those delays based on the conceptual plans for all redevelopment alternatives and what is currently known at this stage of the IRP is not possible.

SITE NO.	FACILITY
WP-01	WEATHERING PIT 2
ST-02	MB PIPELINE CO. NO. 2
SS-03	POL BULK FUEL STORAGE
SS-04	FLIGHTLINE CONTAM AREA
LF-05	LANDFILL NO. 3
FT-06	FIRE TRAINING AREA 1
FT-07	FIRE TRAINING AREA 2
WP-08	WEATHERING PIT 1
LF-09	LANDFILL NO. 4
ST-10	WASTE CHEMICAL USTS
FT-11	FIRE TRAINING AREA 3
LF-12	LANDFILL NO. 1
LF-13	LANDFILL NO. 2
LF-14	LANDFILL NO. 5
RW-15	RADIOACTIVE VAULT
FT-16	FIRE TRAINING AREA 4
17	NOT USED
SS-18	BX SERVICE STATION
SD-19	ENGINE SHOP DRAIN
SS-20	MILITARY SERVICE STATION
DP-21	DRUM DISPOSAL PIT 1
DP-22	DRUM DISPOSAL PIT 2
SD-23	CE PAINT SHOP
SD-24	OLD ENTOMOLOGY SHOP
ST-25	OLD WELL NO 2 (BLDG 103)
ST-26	LIFT STATION 1 - BLDG 122
ST-27	LIFT STATION 3 - BLDG 960
SD-28	DRAIN DITCH/STORM SEWER
SS-29	MB PIPELINE CO. NO. 1
WP-30	SEWAGE TREATMENT PLANT
OT-31	FIRING-IN BUTT
LF-32	MISQUE CONST. RUBBLE DUMP
OT-33	SMALL ARMS RANGE
OT-34	EOD PROFICIENCY RANGE
SD-35	FUEL BLADDER MAINT. AREA
SD-36	FUEL BLAD.TRAINING AREA
ST-37	WW II BULK FUEL STO. A
SS-38	OLD ENGINE TEST CELL
39	NOT USED
OT-40	BLDG. 505 STORAGE AREA
SS-41	AGE STORAGE YARD
SD-42	AGE WASHRACK
43	NOT USED
ST-44	AUTO HOBBY UST
SD-45	GOLF COURSE MAINT. AREA
ST-46	WWII OPS FUEL STO. A
ST-47	WWII OPS FUEL STO. B
ST-48	WWII OPS FUEL STO. C
ST-49	WWII BULK FUEL STO. B
ST-50	WWII OPS FUEL STO. D



EXPLANATION

- XX GROUP 1- RI OR RFI SITES
- XX GROUP 2- SC PETROLEUM SITES
- XX GROUP 3- CONFIRMATORY SAMPLING SITES
- XX NO FUTHER ACTION

SOURCE: U. S. AIR FORCE, 1992

0 1000 3000 feet

INSTALLATION RESTORATION PROGRAM SITES

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 3.3-3

Table 3.3-4. Myrtle Beach AFB IRP Sites - Monitoring/Recovery Well Locations

Site Name	No. of Monitoring Wells	No. of Recovery Wells	Total Wells
Weathering Pit #2 and Landfill #3	12	0	12
POL Bulk Fuel Station	5	0	5
Flightline Cont. Area	2	0	2
Fire Training Areas #1 and 2	9	0	9
Weathering Pit #1	13	0	13
Landfills #1 and 4	7	0	7
Fire Training Area #4	1	0	1
BX Service Station	7	0	7
Engine Shop Drain (Bldg. 324)	28	0	28
Military Service Station	3	0	3
Myrtle Beach Pipeline Co. Spill	44	4	48

Sources: Environmental Resources Management, 1990; LAW Environmental, 1991a; ECT, 1992.

In addition to the mandates of the IRP, prior to the transfer of any property at Myrtle Beach AFB, the Air Force also must comply with the provisions of CERCLA Section 120. Section 120(h) requires that, before property can be transferred from federal ownership, the United States must provide notice of specific hazardous waste activities on the property and include in the deed a covenant warranting that "all remedial action necessary to protect human health and the environment with respect to any [hazardous] substance remaining on the property has been taken before the date of such transfer." Furthermore, the covenant must also warrant that "any additional remedial action found to be necessary after the date of such transfer shall be conducted by the United States."

The closure of Myrtle Beach AFB will not affect the ongoing IRP activity. These IRP activities will continue in accordance with USEPA, state, and local regulatory agency regulations to protect human health and the environment, regardless of the alternative chosen for reuse. The Joint Management Initiative among the U.S. Air Force, USEPA Region IV, and SCDHEC assures this joint involvement in the IRP.

IRP remedial activities will continue well past the March 1993 closure date for Myrtle Beach AFB. To help accelerate the remediation process, the IRP sites at Myrtle Beach AFB have been grouped according to the type of investigation planned. The sites associated with each group are listed in Tables 3.3-2a through 3.3-2c. The OL will oversee the coordination of the contractors and assure that USEPA and SCDHEC concerns are addressed pursuant to the Joint Management Initiative. When property is transferred to reuse recipients by either deed or lease, the Air Force will retain easements or lease restrictions, respectively, in order to perform operations and maintenance on all remediation systems and allow access by regulators.

Funding for the restoration activities at closure installations was authorized by Congress in 1991 specifically for that purpose but was not appropriated. Although serious funding delays were experienced during FY1992, it is anticipated that future appropriations acts will fund environmental restoration activities at closing installations. The schedule for future IRP activities is under development.

3.3.4 STORAGE TANKS

Regulations. Underground storage tanks (USTs) are subject to federal regulations within RCRA, 40 CFR Part 280. These regulations were mandated by the Hazardous and Solid Waste Amendments of 1984. South Carolina has adopted regulations under R.61-92, Part 280. South Carolina regulations are more stringent than the federal regulations and require all existing USTs to meet standards for release detection by December 22, 1993 and for other standards (cathodic protection, overfill protection) by 1998. The SCDHEC administers the state regulations for USTs at Myrtle Beach AFB.

Above ground storage tanks are regulated under the Uniform Fire Code and the National Fire Protection Association regulations, which are enforced by the base fire department.

Preclosure Reference. There are 38 UST systems at Myrtle Beach AFB, listed in Table 3.3-5, ranging in size from 100 to 30,000 gallons. The Myrtle Beach AFB UST Management Plan dated September 1991 and revised July 1992 describes the number, types, and status of USTs on the base. All new USTs are designed in compliance with SCDHEC and USEPA regulations. Fuel oil tanks used for on-premises heating and USTs of 110 gallons or less capacity are not included in the SCDHEC regulations. These tanks are included on Table 3.3-5 to provide a complete list.

There are 46 above ground storage tanks (Table 3.3-6) for diesel, Mogas, JP-4, and waste petroleum storage (waste oil, reclaimed JP-4, waste hydraulic fluid, mineral oil). In addition, heating fuel and LP gas at Myrtle Beach AFB are stored in 96 above ground tanks, located adjacent to the facilities they serve. The primary function of these tanks is to store fuels for testing and emergency power purposes required to support emergency lights, pumps, etc. Other uses include mobile units for mission support, cooking, fuel distribution, and waste POL storage. Bulk JP-4 fuel is provided to the base through a liquid fuel pipeline system from a barge dock on the Intracoastal Waterway. The JP-4 is then dispensed to refueling trucks and bowsers.

Prior to the removal of the hot pit refueling tanks, aircraft could be refueled quickly from the underground system. Tanker trucks also used the hot pit refueling system to take on fuel for normal fueling operations. This system is no longer in service; the tanks have been removed and the underground lines have been purged.

Table 3.3-5. Myrtle Beach AFB Underground Storage Tanks
Page 1 of 2

Facility No.	Substance Stored	Size (Gal.)	Regulated Tanks	Function	Probes	Status
103	Mogas	175	X	Old Well #2	No	Out of Service
114	Fuel Oil	20,000		Hospital	Yes	In Service
119	Fuel Oil	4,000		AAFES	Yes	In Service
124	LP	500		Officers Open Mess	No	Out of Service
200	Mogas	10,000	X	AAFES	No	New Double Wall
200	Mogas	10,000	X	AAFES	No	New Double Wall
200	Mogas	10,000	X	AAFES	No	New Double Wall
220	Mogas	550	X	CE	Yes	In Service
250	Fuel Oil	25,000		Central Heat	Yes	In Service
256	Fuel Oil	5,000		Gym	Yes	In Service
320	JP-4	2,000	X	AGE	Yes	Out of Service
320	Mogas	1,000	X	AGE	Yes	Out of Service
324	Fuel Oil	2,000		Eng Shop	Yes	Out of Service
326	LP	275		Parachute Shop	No	Out of Service
341	Fuel Oil	2,000		Field Trg	Yes	In Service
352	Fuel Oil	12,000		Hangar #1	Yes	In Service
358	Fuel Oil	10,000		Hangar #2	Yes	In Service
359	Fuel Oil	10,000		Hangar #3	Yes	In Service
364	Fuel Oil	3,000		FAA/RAPCON	Yes	In Service
368	Fuel Oil	500		Flight Sim	No	Out of Service
368	Waste Hydraulic Fluid	500		Flight Sim - Spill Recovery	No	Out of Service
368	Waste Hydraulic Fluid	500		Flight Sim - Spill Recovery	No	Out of Service
457	Fuel Oil	550		73rd TCS	Yes	In Service
513	Mogas	5,000	X	Mil Station	No	Out of Service

Table 3.3-5. Myrtle Beach AFB Underground Storage Tanks
Page 2 of 2

Facility No.	Substance Stored	Size (Gal.)	Regulated Tanks	Function	Probes	Status
513	Diesel	5,000	X	Mil Station	Yes	In Service
513	Mogas	5,000	X	Mil Station	No	Out of Service
513	Mogas	5,000	X	Mil Station	No	Out of Service
514	LP	1,000		Vehicle Maint.	No	In Service
965	Fuel Oil	2,000		School	Yes	In Service
965	Fuel Oil	2,000		School	Yes	In Service
965	Fuel Oil	3,000		School	Yes	In Service
965	Fuel Oil	1,000		School	Yes	In Service
1286	Fuel Oil	1,000		Child Care	Yes	In Service
12101	JP-4	30,000	X	Refueling	Yes	Recently Removed
12101	JP-4	30,000	X	Refueling	Yes	Recently Removed
41101	Diesel	25,000	X	Gas Storage	Yes	In Service
41101	Mogas	25,000	X	Gas Storage	Yes	In Service
41101	Waste Fuel	100		Spill Recovery	No	Empty
Heating Fuel USTs =						20
Miscellaneous (Mogas, JP-4, Diesel, etc.) USTs =						18
TOTAL NUMBER OF USTs =						38

Source: U.S. Air Force, 1991h.

Table 3.3-6. Myrtle Beach AFB Above Ground Storage Tanks

Substance Stored	Number of Tanks	Size Range (gallons)	Total Capacity (gallons)
Oil	77	200 - 10,000	128,535
Diesel	25	140 - 2,000	9,685
MOGAS	8	140 - 600	2,315
LP (for heating)	19	250 - 1,000	7,750
JP-4	3	410,000 - 1,025,000	2,460,000
Waste oils/fuels*	8	275 - 10,000	28,275

* Includes waste oil, waste hydraulic fluid, mineral oil, synthetic oil, reclaimed JP-4.
Note: Mobile units not included in this table.
Source: U.S. Air Force 1991h.

Closure Baseline. USTs that meet federal, state, and local regulations may be left in place to support reuse activities. Air Force guidance for closure bases recommends that all USTs not needed for future operations or reuse alternatives be removed. Air Force guidance further recommends that USTs not meeting current regulations be deactivated and removed. USTs remaining active and to be conveyed with the property must comply with all federal, state, and local regulations regarding system integrity, spill prevention, and liability insurance.

Unless needed for caretaker reuse service, all above ground tanks will be purged to minimize fire hazards at base closure. Adequate preservation of the system, including draining and purging flammable gases, may be necessary to minimize the risk of accidental ignition or explosion. Closure of out-of-service underground tanks will be closely coordinated with the SCDHEC per Subpart G - Section 280.70-280.74 (Out of Service UST Systems and Closure).

3.3.5 ASBESTOS

Regulations. Asbestos-containing material (ACM) remediation is regulated by USEPA and OSHA. Asbestos fiber emissions into ambient air are regulated in accordance with Section 112 of the Clean Air Act, which established the National Emissions Standards for Hazardous Air Pollutants (NESHAP). The NESHAP regulations address the demolition or renovation of buildings with ACM. The TSCA and the Asbestos Hazard Emergency Response Act (AHERA) provide the regulatory basis for handling ACM in kindergarten through 12th grade school buildings. AHERA and OSHA regulations cover worker protection for employees who work around or remediate ACM.

Renovation or demolition of buildings with ACM has a potential for releasing asbestos fibers into the air. Asbestos fibers could be released due to disturbance or damage, from various building materials, such as pipe and boiler insulation, acoustical ceilings, sprayed-on fire proofing, and other material used for sound proofing or insulation.

There are two primary categories that describe ACM. Friable ACM is defined as any material containing more than one percent asbestos (as determined using the method specified in Appendix A, Subpart F, 40 CFR Part 763, Section 1, polarized light microscopy) that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. Nonfriable ACM are those materials that contain more than one percent asbestos, but do not meet the rest of the criteria for friable ACM.

Preclosure Reference. The current Air Force practice is to manage or remove ACM in active facilities, and remove ACM, per regulatory requirements, prior to facility demolition. Removal of ACM occurs when there is a potential for asbestos fiber release that would affect the environment or human health. The Air Force policy concerning the management of asbestos for base closures can be found in Appendix G.

Base personnel have surveyed or visually inspected all buildings that were constructed prior to 1978 and were heated or air conditioned. Sixty-five of the buildings surveyed were identified as having ACM. This information is maintained in an asbestos facilities register that identifies 254 buildings included in the survey. In addition, a representative number of family housing units were inspected for asbestos and found to contain ACM in several locations. The asbestos in elbow joints on the hot water heaters is the only identified ACM capable of becoming friable. While this ACM is not in a friable condition, base personnel are in the process of replacing the joints as each house is vacated to remove the potential hazard.

Appropriate methods for minimizing the risks of exposure to asbestos are in the Myrtle Beach AFB Asbestos Management Plan (U.S. Air Force, 1991u). Decisions to remove damaged friable asbestos materials in other base facilities are based on the degree of risk to facility occupants, use of the facility, and cost-effectiveness. ACM that is not damaged or subject to potential disturbance and, therefore, not posing a potential health threat will be left in place.

A survey of asbestos is required by the Federal Property Management Regulations (FPMR) prior to property disposal. Due to base closure and impending property transfer, the Air Force will conduct a new, more comprehensive survey of every building on the base. The results of the survey will be available prior to the transfer of property.

Closure Baseline. Friable asbestos will be removed as necessary to protect human health. Beyond that, an analysis will be conducted to determine the cost-effectiveness of removing ACM versus devaluing the property prior to reuse. ACM will be removed if a building is, or is intended to be, used as a school or child-care facility. Exposed friable asbestos will be removed or encapsulated in accordance with applicable health laws, regulations, and standards, if it is determined that a health hazard exists.

The asbestos facility register will continue to be updated through closure and will be updated after closure by the OL as asbestos-related activities take place.

3.3.6 PESTICIDE USAGE

Regulations. The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) regulates the registration and use of pesticides. Pesticide management activities are subject to federal regulations contained in 40 CFR Parts 162, 165, 166, 170, and 171.

Preclosure Reference. Pesticides used at Myrtle Beach AFB are stored in Building 552 (Pest Management) and at the golf course maintenance area (Building 450). A listing by category of chemicals stored and used is presented in Table 3.3-7.

Closure Baseline. At the time of closure, pesticides will continue to be used, on an as-needed basis, for pest management and for grounds and golf course maintenance.

3.3.7 POLYCHLORINATED BIPHENYLS (PCBs)

Commercial PCBs are industrial compounds produced by chlorination of biphenyls. PCBs persist in the environment, accumulate in organisms, and concentrate in the food chain. PCBs are used in electrical equipment, primarily in capacitors and transformers, because they are electrically nonconductive and stable at high temperatures.

The disposal of these compounds is regulated under the federal TSCA, which banned the manufacture and distribution of PCBs with the exception of PCBs used in enclosed systems. By federal definition, a "PCB transformer" contains 500 parts per million (ppm) PCBs or more, whereas a "PCB-contaminated" transformer contains PCB concentrations greater than 50 ppm but less than 500 ppm. The USEPA, under TSCA, regulates the removal and disposal of all sources of PCBs containing 50 ppm or more; the regulations are more stringent for PCB transformers than for PCB-contaminated equipment.

Preclosure Reference. All base transformers have been tested for PCBs. The base conducted a survey in 1987 that found nine PCB transformers and 39 PCB-contaminated transformers on the base. By March 1991, all known PCB transformers and PCB-contaminated transformers either were removed from service and disposed of off site in accordance with TSCA or retrofilled with nonPCB oil to convert them to nonPCB status.

In the past, out-of-service PCB transformers and PCB-contaminated equipment were stored at the PCB storage facility, Building 208. Currently, no PCB items are stored there.

Closure Baseline. No regulated PCBs or PCB-contaminated equipment will be left on base at closure. Any PCB or PCB-contaminated items discovered following base closure will be stored at the DRMO storage yard until they can be shipped off base.

Table 3.3-7. Pesticide Inventory - Bldg. 552
Page 1 of 3

Pesticide	Chemical Size	Reportable Quantity	Inventory Quantity
INSECTICIDES			
Abate-YE	5 gal.	--	12
Abate-YEC	1 gal.	--	1
Bactimos Briquets	Box (100)		1
Baygon Bait	5 lb.	100 lbs.	0
Boric Acid	100 lb. bag	--	3
Boric Acid	100 lb. drum	--	25
Carbamate (1.5 EC)	1 gal.	--	35
Combat ant killer	6 package	--	1176
Combat roach control	2 package	--	420
Depest	16 oz. can	100 lbs.	216
Diazinon 4E and EC	1 gal.	1 lb.	54
Diazinon Dust (2%)	25 lb. can	1 lb.	7
Diazinon Insecticide	50 lb. bag	1 lb.	1
Dursban 4E	5 gal.	1,000 lbs.	1
Dursban L.O.	16 oz.	1,000 lbs.	42
Dursban M.E	5.4 oz.	1,000 lbs.	14
Dursban TC	1 gal.	1,000 lbs.	67
Phenothrin	12 oz.	--	384
Ficam W	1 lb.	--	16
Ficam Plus	8 oz.	--	25
Flytex	5 lb.	--	20
Gardena-75	5 lb.	--	0
Lindane Powder	2 oz.	1 lb.	9
Malathion 57%	55 gal. drum	100 lbs.	11
Malathion 96%	55 gal. drum	100 lbs.	3
Misty flea killer	14.5 oz.	100 lbs.	2

Table 3.3-7. Pesticide Inventory - Bldg. 552
Page 2 of 3

Pesticide	Chemical Size	Reportable Quantity	Inventory Quantity
Oftanol	40 lb.	--	5
Permadust PT-240	20 oz.	--	0
Precor Fogger	6 oz.	--	0
Pyrekone	1 gal.	--	4
Pyrethrin	18 oz.	--	120
Pyrethrum	1 gal.	--	0
Sevimol	2.5 gal.	--	4
Sevin	10 lb.	--	4
Sevin Dust 5%	25 lb.	--	6
Synthrin	1 gal.	--	50
Wasp Freeze	14 oz.	100 lbs.	330
AVICIDES			
Avitrol	5 lb.	1,000 lbs	4
FUNGICIDES			
Fore	4 lb. bag	--	225
Manzate 200	50 lb.	--	0
Tersan LSR	3 lb.	--	3
Tersan 75	3 lb.	--	4
Tevsan 1991	2 lb.	--	1
HERBICIDES			
2-4-D	55 gal.	100 lbs.	1
Atrazine	16 oz.	--	144
Banvrel	2.5 gal.	--	3
Betamec-4	1 and 5 gal. cans	--	4
Bromax-4L	5 gal.	--	4
Copper sulfate	50 lb.	--	7
Diquat	5 gal.	1,000 lbs.	2

Table 3.3-7. Pesticide Inventory - Bldg. 552
Page 3 of 3

Pesticide	Chemical Size	Reportable Quantity	Inventory Quantity
DSMA	50 lb. drum	--	5
MSMA plus HC	5 gal. drum	5 gal.	5
Oust	3 lb. bottle	--	0
Pramitol 5PS/25E	50 lb./1 gal.	--	54
Rodeo	2.5 gal.	--	40
Roundup	1 gal.	--	0
Roundup	2.5 gal.	--	5
Simazine 80W	5 lb. bag	--	40
Trimec	2.5 gal.	1,000 lbs.	4
RODENTICIDES			
Maki	11 lb. drum	--	3
Warfarin	5 lb. drum	100 lbs.	10

Source: U.S. Air Force, 1991h.

3.3.8 RADON

Radon is a naturally occurring colorless and odorless radioactive gas that is produced by radioactive decay of naturally occurring uranium. Uranium decays to radium, of which radon gas is a by-product. Radon is found in high concentrations in rocks containing uranium, granite, shale, phosphate, and pitchblende. Atmospheric radon is diluted to insignificant concentrations. Radon that is present in soil, however, can enter a building through small spaces and openings, accumulating in enclosed areas, such as basements. The cancer risk caused by exposure, through the inhalation of radon, is currently a topic of concern.

There are no federal or state standards regulating radon exposure at the present time. Air Force policy requires implementation of the Air Force Radon Assessment and Mitigation Program (RAMP) to determine levels of radon exposure of military personnel and their dependents. USEPA has made testing recommendations for both residential structures and schools. For residential structures, using a 2- to 7-day charcoal canister test, a level between 4 and 20 picocuries per liter (pCi/L) should lead to additional screening within a few years. For levels of 20 to 200 pCi/L, additional confirmation sampling should be accomplished within a few months. If radon is in excess of 200 pCi/L, the structure should be evacuated immediately. Schools are to use a 2-day charcoal canister test; if readings of 4 to 20 pCi/L are reached, a 9-month school year survey is required. Table 3.3-8 summarizes the recommended radon surveys and action levels.

Table 3.3-8. Recommended Radon Surveys and Mitigations

Facility	USEPA Action Level	Recommendation
Residential	4 to 20 pCi/L	Additional screening. Expose detector for 1 year. Reduce radon levels within 3 years if confirmed high readings exist.
Residential	20 to 200 pCi/L	Perform follow-up measurements. Expose detectors for no more than 6 months.
Residential	Above 200 pCi/L	Follow-up measurements. Expose detectors for no more than one week. Immediately reduce radon levels.
	Two-Day Weekend Measurement	
School	4 to 20 pCi/L	Confirmatory 9-month survey. Alpha track or ion chamber survey.
School	Greater than 20 pCi/L	Diagnostic survey or mitigation.

Note: Congress has set a national goal for indoor radon concentration of the outdoor ambient levels of from 0.2 to 0.7 pCi/L.
Source: USEPA, 1988a.

Preclosure Reference. With the implementation of the RAMP, the Air Force now is able to evaluate the concentrations of radon in family housing units and other facilities (dormitories, schools, etc.) on military installations. If high concentrations of radon are detected, gas venting is implemented according to RAMP recommendations. However, the initial radon screening survey at Myrtle Beach AFB was conducted by the Bioenvironmental Engineering Division and consisted of 35 samples taken from military family housing units and from base facilities (child care center, dormitories, school). All levels were below 4 pCi/L, thus, no further actions were deemed necessary.

Closure Baseline. Based on the survey results, no further action is necessary.

3.3.9 MEDICAL/BIOHAZARDOUS WASTE

Current federal standards do not provide for comprehensive regulation of medical wastes (40 CFR 259), but do allow for states to individually regulate medical wastes. South Carolina regulates medical wastes under the South Carolina Solid Waste Act, Title 44, R.61-74.

Preclosure Reference. The Myrtle Beach AFB hospital provides basic in- and out-patient care. All medical wastes and other contaminated materials are shipped off base for disposal in accordance with South Carolina regulations. The hospital's pathological incinerator has been taken out of service, cleaned and closed. It will no longer be used as it could not be economically upgraded to meet new air quality standards. The base hospital laboratory autoclaves all biohazardous waste prior to disposal.

Closure Baseline. At base closure the hospital will be inactive and no medical or biohazardous waste will be generated. Existing waste will be processed and removed prior to closure in accordance with appropriate federal, state, and local regulations.

3.3-10. PHOTOCHEMICAL WASTE

Preclosure Reference. A number of photographic operations exist at Myrtle Beach AFB. Table 3.3-9 lists the silver recovery units, which treat photochemical wastes prior to discharge to the sanitary sewage system.

Table 3.3-9. Silver Recovery Units

Source	Building No.
Armament Recording Laboratory	505
Base Photo Laboratory	502
Dental X-Ray Processing	334
Medical X-Ray Processing	Base Hospital
Non-Destructive Inspection, Maintenance (no longer in operation)	352

Closure Baseline. The base photographic operations will no longer be active after closure. No photochemical waste will be generated at base closure. Existing photochemical waste will be processed and removed prior to closure in accordance with appropriate federal, state, and local regulations.

3.4 NATURAL ENVIRONMENT

This section describes the affected environment for the biophysical parameters of geology and soils, water resources, air quality, noise, biological resources, and cultural resources.

3.4.1 SOILS AND GEOLOGY

The ROI for geology and soils is limited to Myrtle Beach AFB.

3.4.1.1 Soils

According to the Soil Conservation Service (SCS) (U.S. Department of Agriculture, 1986), Myrtle Beach AFB contains numerous soil types. A soils map, presented in Figure 3.4-1, shows the locations of the various soil types. Table 3.4-1 summarizes the major characteristics of the predominant soil types. According to the SCS, there are no portions of Myrtle Beach AFB that qualify as prime and unique farmland (Appendix H).

Approximately one third of the land surface (33 percent) contains the Yemassee loamy fine sand. This is a somewhat poorly drained soil composed of fine sand and clay loam. The soil is well suited for crop land use, especially tobacco, but is poorly suited to most urban uses due to wetness. The wetness limitation is difficult to reduce, and according to the SCS, alternative sites should be selected for development.

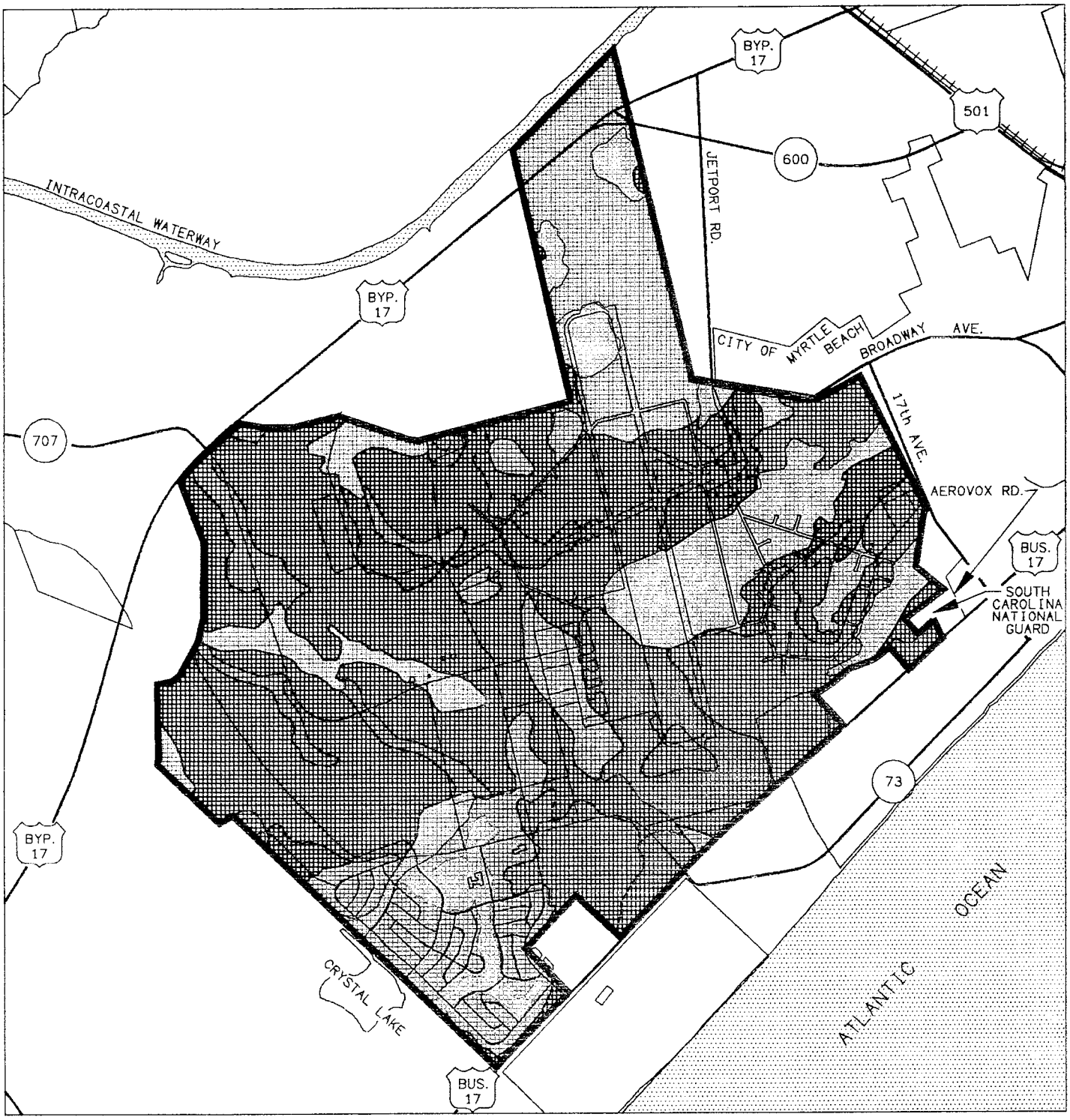
The Bladen and Wahee fine sandy loams are poorly drained soils composed of sand and clay and are present over about 20 percent of the land surface. These soils are poorly suited to most crop land or urban uses due to extreme wetness. The wetness limitations are difficult to reduce, and the SCS recommends that alternative sites be selected for development.

The Meggett loam is found in floodplain areas, and is present over approximately 13 percent of the land surface. The soil is poorly drained, and consists of clay loam and sand. This soil is poorly suited to urban uses due to flooding, low permeability, wetness, and high shrink-swell potential. These limitations are difficult to reduce, and the SCS recommends alternative sites for development be selected.

The Yauhannah fine sandy loam, found over approximately 10 percent of the land surface, is a moderately well drained soil with low organic content. This soil is well suited for crop land, but is poorly suited for urban uses due to wetness. However, the SCS suggests that the wetness limitation can be reduced by installing drains near footings and contouring the building site so that runoff is directed away from the building.

The Lakeland sand, located over about 7 percent of the land surface, is excessively drained with low organic content. Wind erosion is common unless pasture or hay crops are planted. This soil is suited to most urban uses.

The remaining 17 percent of land surface at Myrtle Beach AFB is composed of various soil types. These include the Yonges fine sandy loam, the Eulonia and Ogeechee loamy fine sand, the Kenansville and Leon fine sand, and the



EXPLANATION

- YEMASSEE LOAMY FINE SAND
- MEGGETT LOAM
- YAUHANNAH FINE SANDY LOAM
- BLADEN FINE SANDY LOAM
- WAHEE FINE SANDY LOAM
- LAKELAND SAND
- OTHERS

SOURCE: U.S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, 1986

0 1000 3000 feet

SOILS MAP

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 3.4-1

Table 3.4-1. Characteristics of the Predominant Soil Types
Myrtle Beach AFB

Soil Type	Acres	Percent of Land Surface	Permeability	Available Water Capacity	Erosion Hazard	Suitability For:			
						Septic Tank Absorption Field	Sewage Lagoon Area	Sanitary Landfill	Building Site Development
Yemassee	1,248	33%	Rapid - Upper Layer Slow-Lower Layer	Moderate to high	Slight	Low	Low	Low	Low
Bladen and Wahee	758	20%	Slow to moderate	Moderate to high	Slight	Low	Low	Low	Low
Meggett	489	13%	Slow to moderate	High	Slight	Low	Low	Low	Low
Yauhannah	394	10%	Moderately rapid	Moderate	Slight	Low	Low	Low	Low to Moderate
Lakeland	281	7%	Rapid	Low	Moderate	Moderate	Low	Low	Moderate

Source: U.S. Department of Agriculture, Soil Conservation Service, 1986.

Witherbee sand. Most of the soil types are poorly suited for urban uses due to excessive wetness.

3.4.1.2 Physiography and Geology

Myrtle Beach AFB is situated in the Atlantic Coastal Plain physiographic province. The base is located on the Grand Strand, which is a narrow strip of land running parallel to the Atlantic Coast and is characterized as a relatively flat, low lying area bordered on the east by the Atlantic Ocean, and on the west by the Intracoastal Waterway. The topography of Myrtle Beach AFB is notably flat, with surface elevations generally ranging from 15 to 30 feet above MSL.

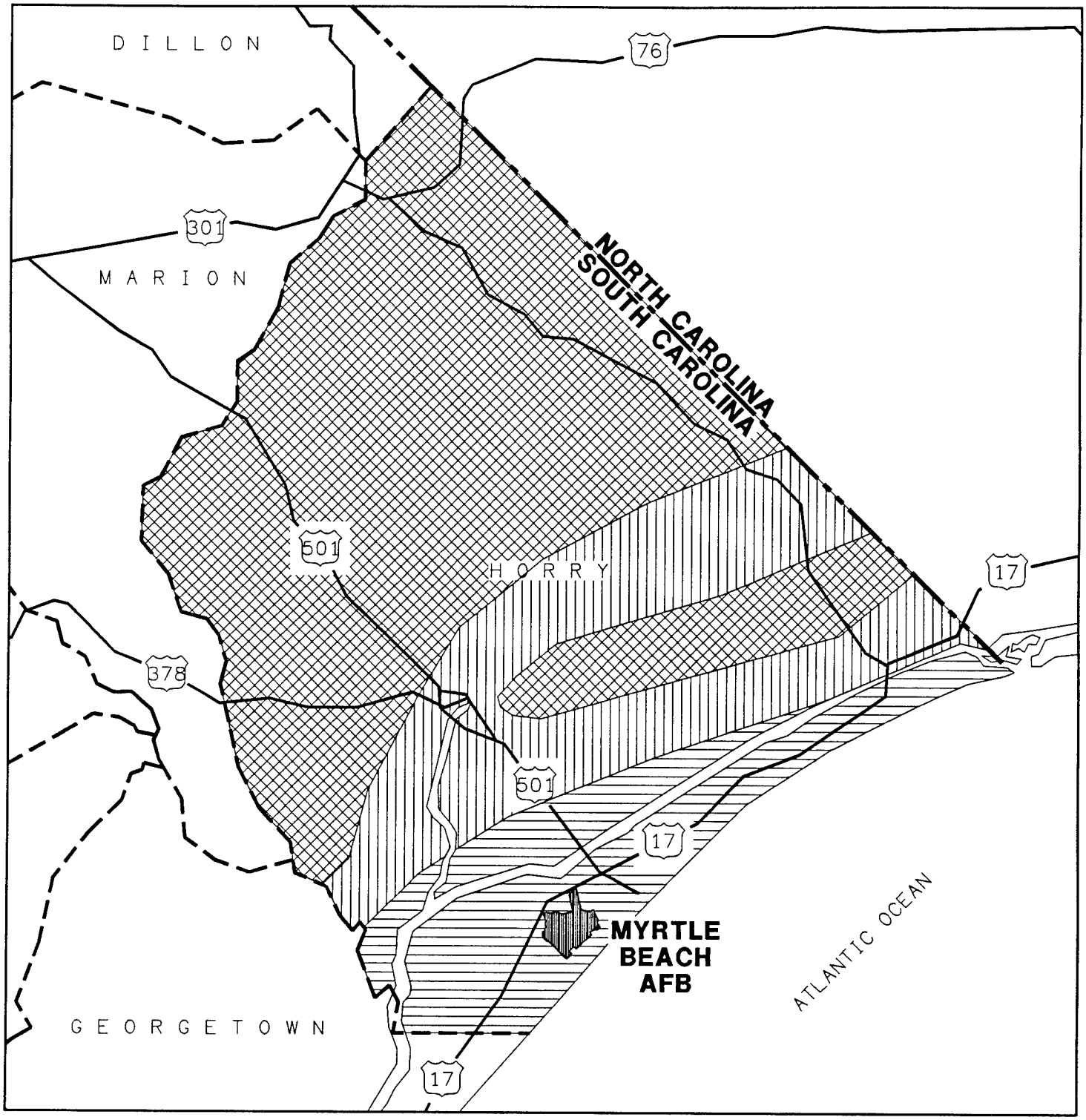
A regional geologic map is presented in Figure 3.4-2. Although the ROI is limited to the base, regional geologic features that are applicable to the base are discussed. Table 3.4-2 provides a brief description of the geologic formations encountered beneath Myrtle Beach AFB. There are four major subsurface geological units that rest unconformably on a metamorphic crystalline complex basement rock. Figure 3.4-3 illustrates a generalized stratigraphic column through Myrtle Beach AFB.

The uppermost unit is composed of Quaternary- and Tertiary-aged deposits that total approximately 60 feet in thickness at Myrtle Beach AFB. The geological formations that comprise the uppermost unit, in descending order, are the Pleistocene-aged Socastee Formation, Canepatch Formation, and Waccamaw Formation; and the Pliocene-aged Bear Bluff Formation. These formations generally are composed of sands, silts, clays, and marls. The Socastee Formation, which is generally a well sorted sand, comprises the surficial deposits throughout most of Myrtle Beach AFB; however, undifferentiated deposits of recent to Holocene age also may be present in localized areas.

The second major subsurface geologic unit is the Peedee Formation of upper Cretaceous age. The Peedee Formation lies unconformably below the Bear Bluff Formation, if present, or the Waccamaw Formation. The Peedee Formation is approximately 200 feet thick at Myrtle Beach AFB and is composed of calcareous clayey silts and fine grained sands with thin beds of calcareous sand and hard sandy limestone. Clay layers situated toward the top of the Peedee Formation act to hydraulically impede the flow of groundwater downward into the Peedee Formation from the Tertiary-aged formations above.

The third major geologic unit is the Black Creek Formation of upper Cretaceous age. The Black Creek Formation is approximately 750 feet thick at Myrtle Beach AFB and is composed of laminated clays interbedded with very fine glauconitic, phosphatic, micaceous sand. Thin layers of hard, calcareous sandstone containing the fluoride-bearing mineral fluorapatite, are abundant in the upper third of the formation.

The fourth major geologic unit is the Middendorf Formation of upper Cretaceous age. The Middendorf-Black Creek contact appears to be gradational and the Middendorf-basement rock contact is unconformable. The Middendorf Formation is approximately 500 feet thick at Myrtle Beach AFB and is composed of medium to coarse sand and thin layers of silty clay.



EXPLANATION

- SOCASTEE FORMATION OF UPPER PLEISTOCENE AGE AND UNDIFFERENTIATED DEPOSITS OF HOLOCENE AGE
- WACCAMAW FORMATION OF LOWER PLEISTOCENE AGE
- PEEDEE FORMATION OF UPPER CRETACEOUS AGE

SOURCE: MODIFIED FROM ZACK, 1977

Scale in Miles

10 5 0 10

REGIONAL GEOLOGIC MAP

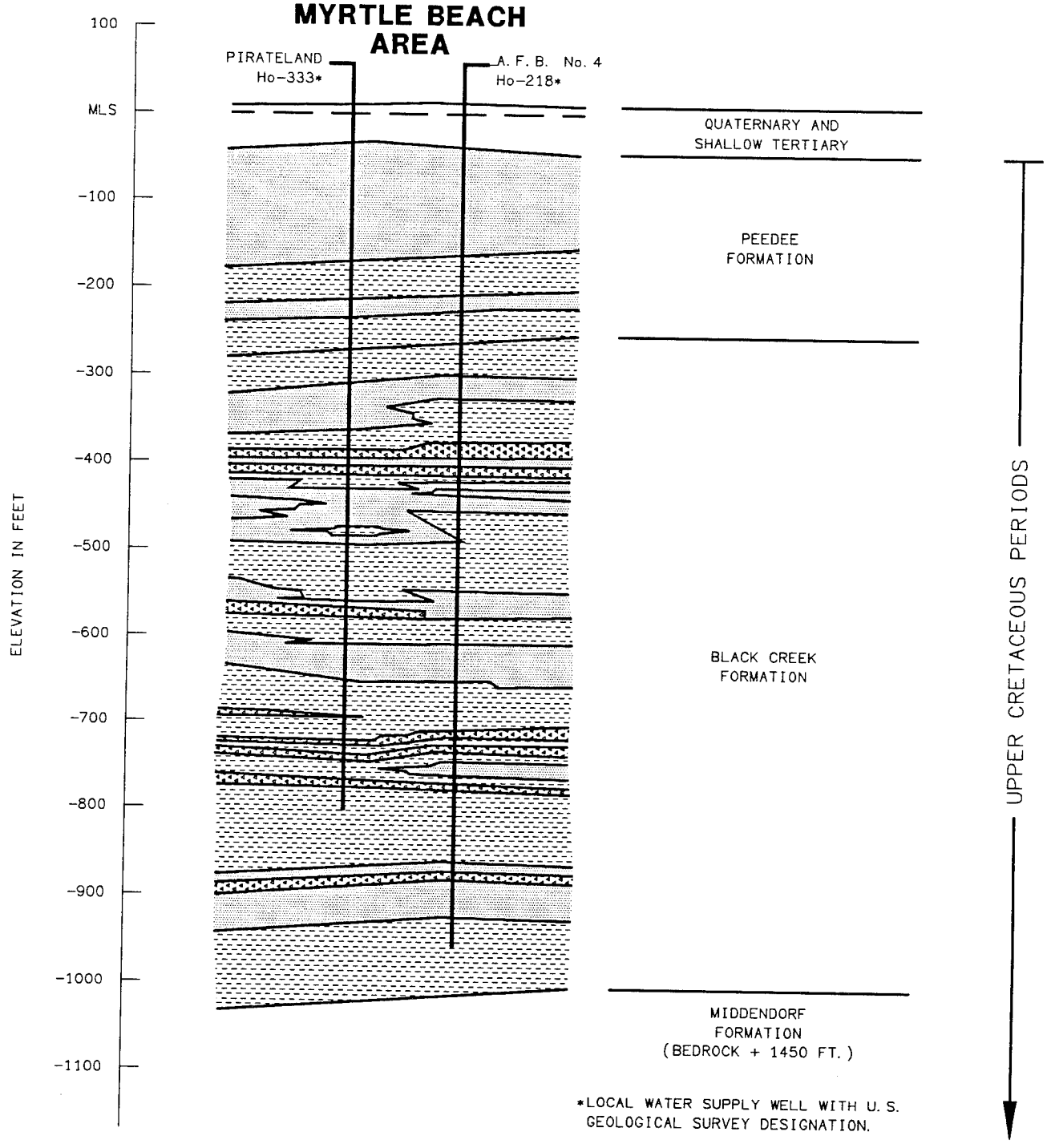
MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 3.4-2

Table 3.4-2 Lithologic Descriptions and Water-Bearing Properties of Geologic Formations Beneath the Myrtle Beach Area of South Carolina

System	Series	Geologic Formation	Description of Sediments	Associated Aquifers	Water-Bearing Properties
Quaternary	Holocene	Undifferentiated	Light gray and buff, fine to coarse sands and interbedded clays, peats and peaty sands deposited under continental and nearshore conditions.	Shallow water-table and localized artesian aquifers.	Water often hard with relatively high iron and manganese. Primarily recharged by precipitation and subject to large water level fluctuations.
	Pleistocene	Socastee	Fine to coarse sands, argillaceous and silty sands and clays; deposited under littoral, marsh, and estuarine conditions.		
		Canepatch	Clay, argillaceous and silty sands and clays; deposited under littoral, marsh, and estaurine conditions.		
		Waccamaw	Blue-gray to yellow and brown sandy marl; gray to buff fine loose quartz sand, commonly coarse at its base; fossils sparse to abundant representing brackish to open marine environments.	Water-table and shallow artesian aquifers primarily in coastal Horry County.	Water often hard, having some iron and hydrogen sulfide odor. Fair to large yields. Important in Little River-Calabash area where fresh water from other formations is unobtainable.
Tertiary	Pliocene	Bear Bluff	Calcareous silts and sands, sandy limestones, and sub-arkosic sands, with fossils common. Deposited under open marine conditions.	Water-table and artesian aquifer.	Water usually of fairly good quality; may be hard with iron and hydrogen sulfide odor.
Cretaceous	Upper Cretaceous	Peedee	Gray to greenish-black calcareous, glauconitic clayey silts and fine-grained sands with thin beds of gray calcareous sand and hard sandy limestone. Average thickness: 200 ft.	Peedee aquifer system.	Treatment for iron and sulfate removal required for municipal use. Yields are high.
		Black Creek	Gray to greenish montmorillonitic clays and thin beds of gray to white slightly glauconitic sand. Thin beds of hard, sandy limestone containing pyrite, lignite, and possibly collophane. Average thickness: 750 ft.	Black Creek aquifer system.	Principal aquifer in the two-county area. Contains saline water in northeastern Horry County. Yields as high as 1000 gallons per minute have been obtained in Horry County. Fluoride is usually high.
		Middendorf	Light-colored cross-bedded kaolinitic sands with lenses of white massive kaolin. Lignite and pyrite common. Clays are non-calcareous. Average thickness: 500 ft.	Middendorf aquifer system.	Contains salty water throughout area (possible exception along northwestern boundary of Horry County).
Pre-Cretaceous		Basement	Basement rocks (metamorphic crystalline complex).	None	None

Sources: Adapted from Zack, 1977.



EXPLANATION

SAND
CLAY
ROCK

SOURCE: MODIFIED FROM ZACK, 1977

Not to Scale

GENERALIZED STRATIGRAPHIC COLUMN

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 3.4-3

Mineral Resources. There are no known heavy mineral reserves of economic value located at Myrtle Beach AFB. The nearest heavy mineral prospect location is at Pawleys Island, which is about 19 miles southwest of Myrtle Beach in Georgetown County. Based on information gathered from the U.S. Bureau of Mines and the South Carolina Geological Survey, there are no documented clay and stone deposits of economic value located at Myrtle Beach AFB.

Geological Hazards. Earthquake history in South Carolina covers nearly three centuries and is dominated by the catastrophic earthquake of August 31, 1886, which was the largest seismic event in the southeastern United States. More than 400 earthquakes have been documented in the Charleston area, which is approximately 90 miles southwest of Myrtle Beach. A majority of the earthquakes that have occurred in South Carolina have had epicenters located in the Charleston area. There are no documented earthquake epicenters located in Horry County. However, craters with diameters ranging from 1 to 2 meters were found in the Myrtle Beach area and have been interpreted as having been earthquake induced (Obermeier et al., 1987).

Sinkholes are caused by the dissolution of limestone from downward percolating groundwater and the resulting subsidence of overlying materials. The potential for sinkhole activity at Myrtle Beach AFB is minor. The depth of unconsolidated deposits coupled with the lack of thick sequences of limestone render Myrtle Beach AFB as a low risk for sinkhole activity.

3.4.2 WATER RESOURCES

The surface water and groundwater ROI generally extends beyond the base boundary, encompassing areas that would be affected by changes in resources usage. However, the magnitude of the expected impacts outside of the base varies depending on water quantity and quality issues as well as surface and/or groundwater considerations. Additional information regarding the extent of the ROI is provided later when discussing each of the water resources-related topics.

3.4.2.1 Surface Water Hydrology

The Myrtle Beach AFB site comprises a drainage area of approximately 3,800 acres. The topography is generally flat. The United States Geological Survey (USGS) quadrangle maps show the highest ground elevation to be about 10 meters (32 feet). About 40 percent of the site has been developed for military and/or supporting services. An additional 30 percent is kept in a semi-improved state. Semi-improved areas are those adjacent to the runways and those areas between improved and unimproved land. The remaining areas are unimproved.

Surface water flows at the base are derived primarily from storm water runoff. However, treated waters from some of the oil/water separators also discharge into the storm water drainage system. The drainage system divides the area into two main basins, north and south, that discharge into water bodies outside of the base through small man-made ditches. The north basin, which encompasses about 56 percent of the total drainage area, discharges into the Intracoastal Waterway. Drainage from the south basin runs into small natural

streams that flow directly into the Atlantic Ocean. Some of these streams are seasonal. However, some of them carry flow at all times because of groundwater contributions. Figure 3.4-4 shows major basins and sub-basins in the area.

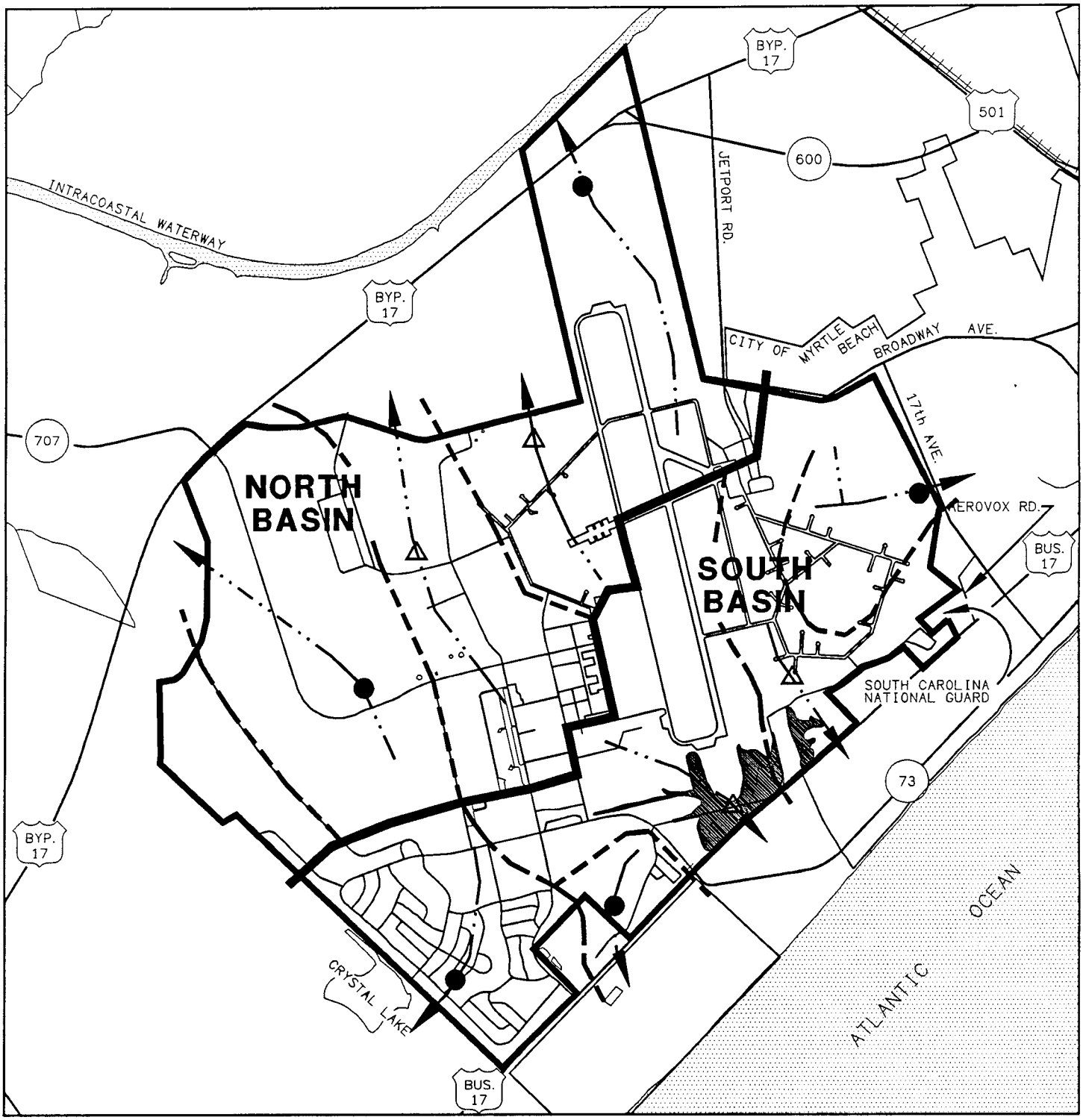
The average annual rainfall in the Myrtle Beach area is 49.5 inches. Rainfall during the four-month wet season, which extends from June through September, accounts for about 45 percent of the total annual volume of rainfall. Based on both land uses and storm characteristics, the runoff to rainfall ratio is expected to be about 20 percent. The 49.5 inches of average annual rainfall is likely to result in about 130 million cubic feet of discharged runoff. About 56 percent of the total runoff drains to the Intracoastal Waterway. The remaining 44 percent drains to the Atlantic Ocean. Table 3.4-3 shows expected annual runoff by land use category.

Table 3.4-3. Mean Annual Runoff by Land Use Category

Land Use	Area (acres)	Runoff Coefficient	Runoff (1,000 cubic feet)
Airfield	1,349	0.13	31,511
Aviation Support	122	0.80	17,537
Industrial	189	0.50	16,980
Commercial	55	0.50	4,941
Educational	5	0.62	557
Medical	13	0.80	1,869
Residential	365	0.32	20,987
Public Facilities & Recreation	327	0.13	7,638
Vacant/Open Space	1,319	0.13	30,811
Total Area (acres)	3,744		
Total Runoff (1,000 cubic feet)			132,832
Total Rainfall (1,000 cubic feet)			672,741
Runoff/Rainfall			0.20

To determine the characteristics of rainfall events, a statistical analysis of rainfall records was conducted. Historical hourly rainfall data for the area were obtained from the National Climatic Data Center (NCDC). The data, which cover the period 1952 to 1991, were fitted to a log-normal probability distribution to determine statistical parameters. The probability curves of rainfall volume and duration are shown in Figure 3.4-5. The rainfall volume curve shows the probability that during a storm event the accumulated volume is less than a specified value. Similarly, the rainfall duration curve shows the probability that a storm event lasts less than a specified time in hours.

From the statistical analysis, it was determined that the median rainfall volume accumulated during a storm event in the area is about 0.48 inches (50 percent probability). The mean statistic is about 0.76 inch. An average of 69 storm events accumulating more than 0.10 inch of rainfall occur during the year. It was estimated that a rainfall volume equal to or less than 0.10 inch would not cause any runoff.



EXPLANATION

- DRAINAGE BASIN DIVIDE
- SUB-DRAINAGE BASIN DIVIDE
- DRAINAGE ROUTE
- NPDES SAMPLING SITES
- ADDITIONAL SAMPLING SITES
- 100-YEAR FLOOD PLAIN

N W E S

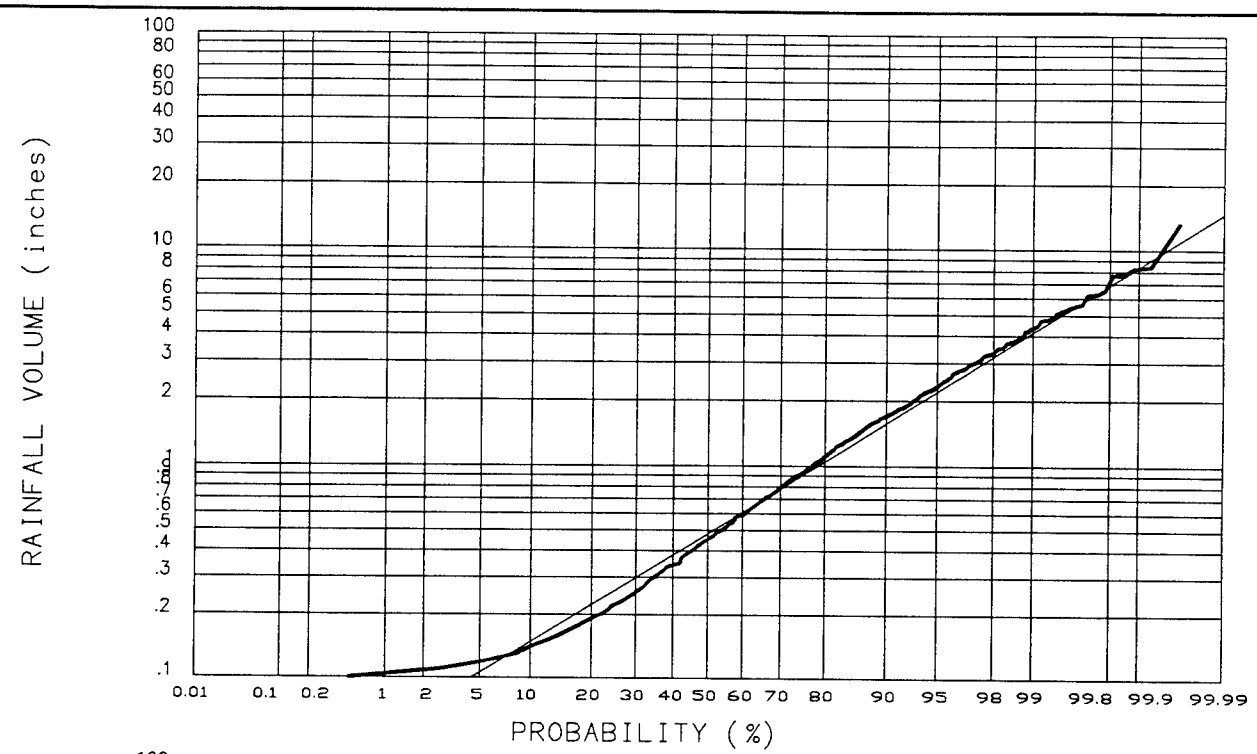
0 1000 3000 feet

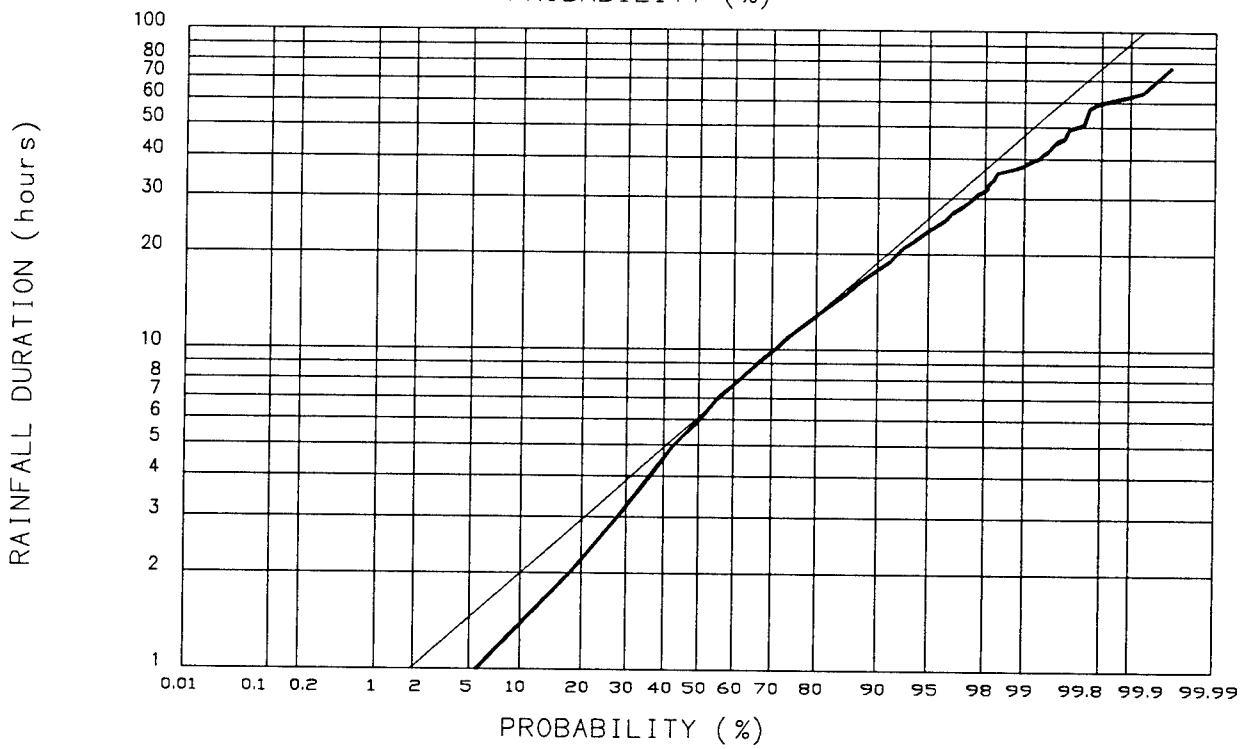
SOURCE: MODIFIED FROM LAW ENVIRONMENTAL INC., 1991a

DRAINAGE PATTERNS AND FLOOD PLAIN

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 3.4-4





PROBABILITY DISTRIBUTION OF RAINFALL VOLUMES AND DURATION

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 3.4-5

Analysis of wet-season (June through September) data showed that the median rainfall volume is 0.52 inch and the corresponding mean is about 0.86 inch. About 40 percent of the runoff-causing storms occur during the wet season.

Since the statistical analysis showed that the mean values are "pulled" significantly away from the median by a few extreme values resulting from infrequent events that discharge extremely large rainfall volumes, calculations were done using the median rather than the mean. As indicated previously, the average annual rainfall is likely to result in about 130 million cubic feet of discharged runoff.

The primary source of flooding in the area is wind-driven surges generated in the Atlantic Ocean by heavy tropical thunderstorms of short duration. Myrtle Beach is also a hurricane-prone area. The 10-year 24-hour storm in the area has a rainfall volume of about 7 inches. The 100-year 24-hour storm rainfall volume is about 11 inches.

Runoff volume calculations were conducted by the SCS method as described in Appendix I (McCuen, 1983). Assuming a land-use-weighted curve number of 73, calculations show that total runoff discharges from the 10-year 24-hour storm would amount to about 54 million cubic feet. During the 100-year 24-hour storm, the runoff volume discharged would be about 103 million cubic feet.

As shown in Figure 3.4-4, only a small portion of Myrtle Beach AFB is included within the 100-year floodplain. Due to the large capacity of the water bodies receiving storm water runoff from the base, changes in land uses within the base are not likely to impact the extent of the floodplain outside the base. Therefore, from the surface water hydrology standpoint, the ROI can be assumed limited to the area within the base.

Another issue pertaining to surface water is potable water supply. However, at baseline conditions, all supply to the base is expected to come from groundwater sources.

3.4.2.2 Surface Water Quality

The main bodies of water receiving drainage discharges from Myrtle Beach AFB are the Intracoastal Waterway and the Atlantic Ocean. Current water uses of the Intracoastal Waterway are recreation and water supply. The SCDHEC, under Regulation 68, has classified the Intracoastal Waterway segment from the confluence with the Waccamaw River to a point where chloride concentrations exceed the maximum water supply standard of 250 mg/L as a Class A fresh water body. Class A waters must be suitable for primary contact recreation. The Atlantic Ocean waters receiving runoff from the base are classified as Class SA waters. Waters classified as SA must be suitable for propagation, survival, and harvesting of shellfish for market purposes.

According to SCDHEC water quality regulations, tributaries not having individual water quality classifications must meet the classification standards of the main receiving water body. Therefore, the natural seasonal streams receiving runoff discharges from Myrtle Beach AFB must meet the Class A or SA criteria.

Water quality is maintained according to USEPA guidelines. Because some of the drainage ditches drain potentially contaminated areas, 36 oil/water separators have been installed at the base to catch runoff from areas such as equipment wash racks, hangars, and parking lots. A National Pollutant Discharge Elimination System (NPDES) permit was issued to the base on July 1, 1983. It requires four of these ditches to be monitored quarterly for flow, oil and grease, pH, and temperature. The NPDES monitoring sites are the POL storage area, engine test cell area, fire training area, and maintenance area.

To further assure water quality, the Air Force monitors five additional sites for the same parameters. The monitoring sites are shown in Figure 3.4-4. Throughout the monitoring period, oil and grease concentrations have been well below the established discharge permit limit of 15 mg/L, except for one occasion.

To comply with the recently enacted storm water permit regulations for discharges associated with industrial activity, in September 1991 the Air Force submitted to USEPA a group permit application to cover all Air Force bases. It is expected that a number of additional parameters will require monitoring for discharge permit compliance once the discharge permit is issued. However, at this point USEPA has not approved the application and the new monitoring parameters have not been established.

A commonly used measure of surface water quality conditions at a site is the estimated expected annual load of identified, presumably present, pollutants. To assess conditions at Myrtle Beach AFB, it was assumed that because practically all surface water discharges are due to storm water runoff, water quality must be dependent upon land use and amount of runoff. Land use, in turn, determines expected concentrations of discharged pollutants. Land use classifications and areal extent of each land use category are those listed in Section 3.2-2, Land Use and Aesthetics, of this EIS.

In terms of types of pollutants to be included in this analysis, USEPA's storm water regulations list a number of conventional and nonconventional parameters, toxic chemicals, and hazardous substances required to be tested if expected to be present in a discharge. As indicated previously, USEPA has not yet issued a discharge permit identifying pollutants to be monitored in discharges from Air Force bases. A list of possible pollutant parameters at the site was developed for this EIS based on literature review (USEPA, 1985b). Three criteria were applied to select those pollutants: a) potential adverse effects on human health through water contact activities, b) potential adverse biological and aesthetic effects in the receiving waters, and c) the characteristics of discharges from IRP sites and sites of industrial activity. The selected pollutants are listed in Tables 3.4-4a and 3.4-4b.

Water quality tests have not been conducted as part of this EIS to determine expected discharge concentrations of selected pollutants. These concentrations were identified based on results from other studies. It was estimated that runoff flows originated in the residential and commercial areas of the base would be typical of urban residential/commercial uses (USEPA, 1985b; Weeks, 1982). Main contaminants are likely to be suspended solids and oil and grease, as well as some heavy metals and pesticides.

Table 3.4-4a. Estimated Concentrations and Loads of Conventional Pollutants

	BOD_6[1]		Total Suspended Solids		Total Nitrogen		Oil & Grease		Total Phosphorus	
	mg/L	lbs/yr	mg/L	lbs/yr	mg/l	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr
Airfield	14	27,552	266	523,484	1.2	2,362	0.4	787	1.2	2,362
Aviation support	14	15,334	266	291,338	1.2	1,314	0.4	438	1.2	1,314
Industrial	14	14,847	99	104,986	1.4	1,485	0.4	424	1.2	1,273
Commercial	9	2,777	69	21,294	1.2	370	0.3	93	0.2	62
Educational	9	313	69	2,400	1.2	42	0.3	10	0.2	7
Medical	14	1,634	99	11,554	1.4	163	0.3	35	0.2	23
Residential	10	13,107	101	132,382	1.9	2,490	0.3	393	0.38	498
Public Facilities & Recreation	13	6,202	101	48,181	1.9	906	0.3	143	0.38	181
Total Load:										
Entire Base		81,765		1,135,620		9,133		2,324		5,720
North Basin		43,338		625,739		4,202		1,239		3,436
South Basin		38,427		509,881		4,931		1,085		2,284

[1] 5-day biological oxygen demand.

Table 3.4-4b. Estimated Concentrations of Metals and Pesticides

	Copper		Zinc		Chromium		Lead		Nickel		Pesticides	
	mg/L	lbs/yr	mg/L	lbs/yr	mg/l	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr
Airfield	0.04	79	0.66	1,299	0.58	1,141	0.98	1,929	0.67	1,319	4.4	8.7
Aviation support	0.04	44	0.66	723	0.58	635	0.98	1,073	0.67	734	4.4	4.8
Industrial	0.1	106	1.08	1,145	0.58	615	0.49	520	0.03	32	5.8	6.2
Commercial	0.029	9	0.22	68	0.04	12	0.1	31	0.03	9	3	0.9
Educational	0.029	1	0.22	8	0.04	1	0.1	3	0.03	1	3	0.1
Medical	0.029	3	0.22	26	0.04	5	0.1	12	0.03	4	3	0.4
Residential	0.033	43	0.14	184	0.02	26	0.14	184	0.03	39	3.2	4.2
Public Facilities & Recreation	0.033	16	0.14	67	0.02	10	0.14	67	0.03	14	3.2	1.5
Total load:												
Entire Base		301		3,519		2,446		3,818		2,152		27
North Basin		177		2,266		1,609		2,323		1,297		15
South Basin		124		1,253		837		1,495		855		12

The portion of the base comprising the airfield and industrial areas would be likely to discharge runoff with water quality conditions similar to those from other airport and transportation facilities (Polls, 1980). Runoff from these areas often is contaminated with oil and grease and heavy metals. Runoff from open spaces and non-developed areas was assumed to be free of man-made contaminants.

Pollutant loads were estimated by multiplying the expected runoff volume by the corresponding concentration of the identified pollutants. These estimates do not represent actual pollutant loads into the receiving water bodies because, as indicated previously, most of the runoff from the base is treated prior to discharge. They represent pollutant loads produced on site based on land use configurations.

Tables 3.4-4a and 3.4-4b also show the selected pollutants, the estimated concentration by land use category, and the calculated total annual load by drainage basin that is discharged into the receiving streams for baseline conditions.

Another parameter of concern in surface water quality evaluations is sediment discharges. Sediment is the particulate matter carried by wind and water that is eventually deposited in receiving water bodies. Land surface erosion is the major source of sediment from undeveloped areas. Sediment loads from these areas are commonly estimated based on parameters such as soil erodibility, rainfall/runoff erosivity, and surface cover. In developed areas, sediment accumulation is a complex process that depends on various factors including the potential daily accumulation of solids from the atmosphere and other sources.

Sediment loads from Myrtle Beach AFB are expected to result primarily from developed areas. The unimproved and semi-improved areas at the base have reasonably good ground covers, which are likely to keep soil erosion to a minimum. The amount of solids deposited per unit time on a unit area of land is referred to as the solids accumulation rate. A factor affecting accumulation on developed areas is the solids washoff rate, which accounts for the amount of solids that is actually transported by runoff during a storm event. Washoff is dependent on rainfall intensity and duration. Because in this study sediment loads are calculated based on annual discharges, not individual events, it was assumed that all accumulated solids would eventually enter the storm water system when rainfall conditions are adequate.

Assuming that all suspended solids in the runoff discharges have the potential to enter the receiving water body, the estimated total annual sediment load from the site, as shown in Table 3.4-4a, is about 1.1 million pounds per year. The major land use categories contributing sediment loads are the airfield and industrial areas.

From the surface water quality viewpoint, the ROI extends to the area outside of the base, including primarily the recreational areas along the coast and the residential developments along the Intracoastal Waterway. However, if it is assumed that pollution controls are applied such that receiving waters are not affected, the ROI can be maintained within the base's limits.

Upon base closure, Air Force industrial activity on the base will cease and the current Air Force NPDES requirements will no longer apply. Operation and maintenance of the storm water drainage system will need to be continued by the Air Force or any other responsible party. Follow-on industrial users will be responsible for obtaining their own NPDES permit(s).

3.4.2.3 Groundwater Hydrology

Groundwater beneath the Myrtle Beach AFB area occurs primarily in four aquifer systems. The four aquifers, in descending order, are the shallow water table and artesian system, the Peedee, the Black Creek, and the Middendorf. These four aquifer systems extend to a depth of approximately 1,450 feet below MSL.

The shallow water table and artesian aquifer is composed of several geological formations of recent to Pliocene age that are identified in Section 3.4.1.2 of this EIS. The top of this aquifer system typically occurs within a few feet of the ground surface at Myrtle Beach AFB and extends to a depth ranging from 30 to 40 feet below MSL. The base of the shallow water table and artesian aquifer is bounded unconformably by the layers situated at the top of the underlying Peedee Formation. As the name implies, this shallow aquifer system consists of several localized artesian water-bearing units in addition to the water table aquifer. The presence of shallow artesian aquifers is dependent on the lithologies of the individual stratigraphic units. Artesian aquifers typically occur below layers composed of fine grained material of low permeability that restrict the vertical movement of groundwater.

Shallow artesian aquifers (confined groundwater zones), particularly within Quaternary sediments, generally do not persist over long distances, although locally they may be developed as sources of usable groundwater. Many domestic wells throughout the Myrtle Beach area tap shallow artesian aquifers for relatively large volumes of acceptable water used for irrigation.

One of the more important factors controlling the volume of groundwater that can be pumped regularly from an aquifer and the potential for aquifer contamination is the mechanism(s) by which an aquifer is recharged. Within the shallow water-table system, recharge is believed to occur primarily from precipitation that infiltrates through the surface sediments and percolates down to the water table. Where precipitation represents the only source of replenishment, aquifers tend to be subject to large water-level fluctuations, and may be drawn down excessively by long-term pumping, particularly during relatively dry periods. In areas where pumping has lowered water levels significantly, the shallow system also may receive recharge from nearby streams and other surface water bodies (including the ocean) that are hydraulically connected to the aquifer. Because surface waters often contain dissolved and suspended compounds that are undesirable in drinking water supplies, recharge by this mechanism can result in local degradation of groundwater quality.

Shallow artesian and semiconfined aquifers included in the water-table aquifer system in the Myrtle Beach AFB area are probably recharged primarily by leakage from overlying water-bearing units (i.e., the water table aquifer).

The shallow water table and artesian aquifer system is immediately underlain by the Peedee aquifer. This predominantly artesian aquifer system occurs within the Peedee Formation of upper Cretaceous age and is approximately 200 feet thick. The bottom of the Peedee aquifer is bounded by the clay layers located within the upper portion of the Black Creek Formation. The Peedee aquifer is capable of producing large quantities of groundwater and is sometimes used in conjunction with the subjacent Black Creek system as a source of potable water. However, development of the Peedee aquifer system tends to be fairly localized due to the variability of groundwater quality.

The Peedee aquifer is recharged primarily in areas where the Peedee Formation outcrops at the ground surface. These areas are located inland, several miles west of the Grand Strand, and are shown on Figure 3.4-2 in Section 3.4.1.2 of this EIS.

Water from precipitation or influent streams infiltrates aquifer sediments at or near the land surface, and moves downgradient toward points of discharge. Aquifers recharged by this mechanism tend to have a more continuous supply of available groundwater and, barring contaminant sources within outcrop areas, are relatively well protected against degradation by extraneous substances; however, improperly abandoned wells can provide conduits for contaminant transport. Deep artesian aquifers also may receive some vertical recharge via long-term leakage through overlying confining units, or from line-source areas where confining units are characterized by increased permeabilities.

The underlying Black Creek aquifer is located within the Black Creek Formation, is approximately 750 feet thick, and extends to a depth of 1,000 feet below MSL. The Black Creek aquifer system is the most important source of groundwater in the Myrtle Beach area, and is used for municipal, industrial, and domestic water supplies. This is an artesian (confined) aquifer system, which is hydraulically separated from the subjacent Middendorf system by a sequence of continuous and relatively impervious clay layers. Clay layers situated toward the top of the Black Creek Formation create a semi-confining layer separating the Black Creek from the overlying Peedee aquifer; i.e., groundwater within the two aquifer systems does not appear to move freely across aquifer boundaries when subject to short-term pumping stresses.

Similar to the Peedee, the Black Creek aquifer is recharged principally at formation outcrops located several miles inland of Myrtle Beach. Minor recharge also is thought to occur as leakage from the overlying Peedee aquifer.

Data provided from an aquifer test conducted at Myrtle Beach AFB indicate that the transmissivity of the principal water-bearing sands of the Black Creek Formation is approximately 1,200 feet^2 per day. Storage coefficient values for all aquifers tested were similar because of the similar artesian conditions at all sites and range from $1x10^{-4}$ to $4x10^{-4}$.

The lowermost water-bearing stratigraphic unit, the Middendorf aquifer, is situated within the Middendorf Formation located immediately below the Black Creek aquifer and ranges from 300 to 500 feet in thickness and rests unconformably upon Pre-Cretaceous basement rock. The Middendorf aquifer system contains salty water (250 mg/L or more of chloride) throughout Myrtle

Beach AFB and possibly all of Horry County, and thus has not been developed as a groundwater supply.

Due to the rapid population growth in the Myrtle Beach area, overdrafting of groundwater in the Black Creek aquifer is a major regional concern. As a result of continuing increases in groundwater use, the South Carolina Water Resources Commission has designated the Myrtle Beach AFB as a portion of the Waccamaw Capacity Use Area. The entire capacity use area includes all of Horry and Georgetown Counties, and a portion of Marion County. This designation provides legislation designed to monitor and limit water use in the area by water permit allocation. The South Carolina Water Resources Commission has the authority to levy fines for overpumping of groundwater, and constantly monitors groundwater levels in the Myrtle Beach area. Studies conducted in the Waccamaw Capacity Use Area have indicated that water levels have declined as much as 9.5 feet per year in the Myrtle Beach area during the years 1975 through 1982. Drawdowns of up to 150 feet in the Black Creek aquifer have been observed within Myrtle Beach AFB. Due to these water level declines and the associated threat of saline water intrusion, the city of Myrtle Beach and the Grand Strand Water and Sewer Authority recently converted their main potable raw water sources from groundwater to surface water. Groundwater withdrawals from these public water supply systems currently occur only during emergency situations. Therefore, the groundwater declines experienced during the 1970s and 1980s are expected to rebound. Unpublished data obtained from the South Carolina Water Resources Commission indicate that water levels at Myrtle Beach AFB have rebounded by as much as 10 feet from 1982 through 1992. If groundwater withdrawals from the base were discontinued, then water levels within the Black Creek aquifer would continue to recover.

The ROI for groundwater hydrology extends beyond the base boundary, encompassing areas that would be affected by groundwater withdrawals caused by resource usage. The ROI includes the eastern portion of the Waccamaw Capacity Use Area, generally east of the Waccamaw River, north of Surfside Beach, south of North Myrtle Beach, and west of the Atlantic Ocean.

3.4.2.4 Groundwater Quality

Locally, the water table and shallow artesian aquifer occurring in Tertiary sands yields relatively high-quality water, even in areas where saltwater is a problem in other aquifers. Information concerning the occurrence of high-quality water in these sands is scarce, but it has been established that many shallow domestic wells (100 feet or less in depth) throughout the area have yielded relatively large quantities of acceptable water. The water in the shallow artesian aquifers is relatively soft, having 100 mg/L or less of hardness, with fluoride, iron, sulfate, hydrogen sulfide, and chloride occurring in very low concentrations. However, the water table aquifer may contain concentrations of iron above the maximum contaminant level in certain areas.

The water quality in the shallow artesian aquifer has a variable chemical quality where the confining clays above the aquifer are very thin or absent, causing a merger with the overlying water table aquifer. Because the water table aquifer contains concentrations of iron above the maximum contaminant level, the

shallow Tertiary aquifer should only be considered as a water supply where it is isolated from the overlying water table aquifer by confining layers, or if water treatment is available.

Because the water table aquifer in the Myrtle Beach area lies within a few feet of the land surface, shallow groundwater contamination probably occurs throughout numerous localized areas. This may occur primarily in areas where soluble or otherwise environmentally mobile substances are stored or disposed of on the land surface, and where contaminants could infiltrate to the shallow water table system. Some of the documented contaminants that have been identified in the groundwater based on the ongoing IRP program at the base include methylene chloride, volatile compounds, and various heavy metals from weathering pits and landfills; petroleum-related compounds including volatiles and semi-volatiles from leaking USTs and fire training areas; free petroleum product in the flightline area; and trichloroethylene and other solvents from an engine shop. A discussion of the hazardous materials identified in the groundwater is in Section 3.3 and a more detailed summary of hazardous materials can be found in Table 3.3-2.

Development of the Peedee aquifer system for domestic supplies tends to be localized, with more widespread use being related primarily to irrigation. This aquifer could probably supply as much water as the underlying Black Creek aquifer; however, few large capacity wells have been developed into the Peedee aquifer system because of variable groundwater quality. Although chloride, sodium, and fluoride levels within this aquifer generally are substantially lower than that of the underlying Black Creek, the Peedee aquifer commonly contains high concentrations of iron, calcium, magnesium, and hydrogen sulfide and sulfate. High levels of these constituents could necessitate water treatment for certain uses.

The Black Creek aquifer constitutes the most important source of groundwater throughout Horry County, and is used for industrial, municipal, and domestic supplies including the potable water supply for the base. With the exception of fluoride, this aquifer typically yields water of good quality requiring little or no treatment before use, although concentrations of chloride, sodium, and dissolved solids tend to be fairly high. Natural fluoride concentrations commonly exceed the established maximum contaminant level of 4 mg/L for drinking water.

Almost all of the higher capacity wells (i.e., 100,000 gallons per day or more) and many low capacity wells in the Myrtle Beach area are completed into the Black Creek aquifer. These wells are screened primarily in sand-rich zones that are situated throughout a 300- to 800-foot depth interval. Additional private domestic wells also may tap the Black Creek aquifer in the vicinity of Myrtle Beach; however, since they are not Class A public supply wells (which require groundwater use permits), their locations and depths are not well documented.

High concentrations of fluoride in groundwater supplies obtained from the Black Creek aquifer in certain areas of Horry County have been the cause of dental fluorosis (tooth mottling) among persons who have lived in the area and have ingested the water as children. Geochemical evidence and laboratory experiments demonstrate that fluorapatite in the form of fossil shark teeth is the source of fluoride in the upper portions of the Black Creek, and that the

fluoride ions are liberated to the groundwater system through anion exchange, rather than by dissolution.

The Middendorf aquifer system (within the Middendorf Formation) contains salty water (250 mg/L or more of chloride) throughout Myrtle Beach and possibly all of Horry County, and has not been developed as a groundwater supply.

The ROI for groundwater quality extends to areas downgradient of suspected groundwater contamination plumes. The main groundwater discharge areas for Myrtle Beach AFB include the Atlantic Ocean and the Intracoastal Waterway. Since the groundwater flow direction is generally to the southeast towards the Atlantic Ocean or to the northwest towards the Intracoastal Waterway, the ROI would extend beyond the base boundaries to the intersection of these discharge areas.

3.4.3 AIR QUALITY

3.4.3.1 Air Pollutants and Regulations

The conventionally accepted composition of "clean" dry atmospheric air is as shown in Table 3.4-5.

Table 3.4-5. Typical Composition of Atmospheric Air

Substance	Volume (Percent)	Concentration (ppm)
Nitrogen	78.084	780,840
Oxygen	20.946	209,460
Argon	0.934	9,340
Carbon dioxide	0.033	330
Neon	0.0018	18
Helium	0.0005	5
Other	0.0002	2

Several gases in atmospheric air may exhibit significant spatial or temporal variations in concentrations. One of the most common is water vapor, which may vary from 0 to 7 percent by volume depending on its past history and temperature of the air. A chemical species foreign to this group is termed a contaminant. When a contaminant can cause an adverse effect to a receptor and occurs in the ambient air in a concentration great enough to cause an adverse effect, it is called a pollutant.

Air quality in a given location is described as the concentration of various pollutants in the atmosphere, generally expressed in units of ppm or micrograms per cubic meter ($\mu g/m^3$). Air quality is determined by the type and amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions.

Air pollutants are classified into two categories determined by the method by which the pollutants are introduced into the atmosphere. The first category, primary pollutants, is those contaminants emitted directly from sources into the atmosphere. The most important from the standpoint of quantity emitted are

particulate matter having a diameter equal to or less than 10 micrometers (PM-10), sulfur dioxide (SO_2), carbon monoxide (CO), hydrocarbons, and nitrogen dioxide (NO_2). In most communities, the majority of particulate matter and sulfur oxides (SO_x) is emitted from power plants, incinerators, and heavy industry. The greater share of carbon monoxide, hydrocarbons, and nitrogen oxides (NO_x) is usually contributed by automobiles.

The second category, secondary pollutants, is those contaminants formed by chemical processes in the atmosphere. Under the right set of conditions, primary pollutants can undergo chemical reactions within the atmosphere and produce secondary pollutants. Some reactions, known as photochemical reactions, require the energy provided by sunlight. An example is ozone (O_3).

Man-made sources of air pollutants generally are divided into two classes or categories: stationary sources and mobile sources. Stationary sources include such items as power plants, jet engine test stands, industrial facilities, asphalt batch plants, and incinerators. Mobile sources include aircraft, automobiles, trucks, and buses.

The significance of a pollutant concentration is determined by comparing the ambient concentration of that pollutant with the appropriate federal, state, and local ambient air quality standards. Ambient air quality standards are maximum limits or concentrations of pollutants in air. Federal standards are based on estimates of maximum concentrations that, with an allowance for safety, present no hazard to human health or the environment.

The Clean Air Act (CAA) provides the basis for regulating the emission of pollutants to the atmosphere. Different provisions of the CAA apply depending on where the source is located, which pollutants are being emitted, and in what amounts. The CAA required USEPA to establish ambient ceilings for certain criteria pollutants. The ceilings were based on the latest scientific information regarding the effects a pollutant may have on public health or welfare. Subsequently, USEPA promulgated regulations that set national ambient air quality standards (NAAQS). Two classes of standards were established: primary and secondary. Primary standards define levels of air quality necessary, with an adequate margin of safety, to protect public health. Secondary standards define levels of air quality necessary to protect public welfare from any known or anticipated adverse effects of a pollutant. NAAQS have been established for the following pollutants: CO, NO_2, O_3, SO_2, lead (Pb), and PM-10. The previous NAAQS for particulate matter was based upon TSP levels; it was replaced in 1987 by an ambient standard based only on the PM-10 fraction of TSP.

The CAA gives states the authority to establish air quality rules and regulations. The rules and regulations must be equivalent to, or more stringent than, the federal program. The South Carolina air pollution program is administered by the SCDHEC through the Bureau of Air Quality Control under the statutory authority of the 1976 South Carolina Code of Laws, as amended and the 1970 Pollution Control Act of South Carolina. The SCDHEC is authorized to abate, control, and prevent pollution to maintain reasonable standards of purity of the air and water resources of the state. In addition, the governing body of any county is authorized to establish, administer, and enforce a local air pollution program, subject to the approval of the SCDHEC. County pollution control

authorities are authorized to exercise (in the geographical area involved) the authority to adopt rules, regulations,and procedures for the control of air pollution.

State standards are promulgated in SCDHEC Regulation 61-62, Air Pollution Control Regulations and Standards. South Carolina has adopted the national ambient air quality standards except for two cases: (1) the state maintains a standard for TSP as well as PM-10, and (2) the state has added an ambient air quality standard for gaseous fluorides. The state and national ambient air quality standards are presented in Table 3.4-6.

Table 3.4-6. State and National Ambient Air Quality Standards

Pollutant	Averaging Time	South Carolina Standard [b,e]	National Standards[a,b,e]	
			Primary[f]	Secondary[g]
Sulfur Dioxide	Annual	80 $\mu g/m^3$	80 $\mu g/m^3$ (0.03 ppm)	
	24-hour	365 $\mu g/m^3$[c]	365 $\mu g/m^3$ (0.14 ppm)	
	3-hour	1,300 $\mu g/m^3$[c]		1,300 $\mu g/m^3$ (0.50 ppm)
Total Suspended Particulates	Annual geometric mean	75 $\mu g/m^3$		
Particulate Matter (PM-10)	Annual	50 $\mu g/m^3$[d]	50 $\mu g/m^3$[d]	50 $\mu g/m^3$[d]
	24-hour	150 $\mu g/m^3$[d]	150 $\mu g/m^3$	150 $\mu g/m^3$
Carbon Monoxide	8-hour	10 mg/m^3	10 mg/m^3 (9 ppm)	
	1-hour	40 mg/m^3	40 mg/m^3 (35 ppm)	
Ozone	1-hour	235 $\mu g/m^3$[d]	235 $\mu g/m^3$ (0.12 ppm)	235 $\mu g/m^3$ (0.12 ppm)
Nitrogen Dioxide	Annual	100 $\mu g/m^3$	100 $\mu g/m^3$ (0.053 ppm)	100 $\mu g/m^3$ (0.053 ppm)
Lead	Quarterly	1.5 $\mu g/m^3$	1.5 $\mu g/m^3$	1.5 $\mu g/m^3$
Gaseous Fluoride	1-month	0.8 $\mu g/m^3$		
	1-week	1.6 $\mu g/m^3$		
	24-hour	2.9 $\mu g/m^3$		
	12-hour	3.7 $\mu g/m^3$		

a. National standards, other than ozone and those based on an annual average or annual arithmetic mean, are not to be exceeded more than once per year. The ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than 1.
b. All measurements of air quality are corrected to a reference temperature of 25° C and to a reference pressure of 760 millimeters of mercury. Measurement in ppm refers to parts per million of volume.
c. Not to be exceeded more than once a year.
d. Attainment determinations will be made on the criteria contained in Appendices H and K, 40 CFR 50, July 1, 1987.
e. Arithmetic average except in the case of total suspended particulate matter.
f. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health. Each state must attain the primary standards no later than 3 years after that state's implementation plan is approved by the USEPA.
g. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. Each state must attain the secondary standards within a "reasonable time" after the implementation plan is approved by the USEPA.

Since USEPA required a relatively small PM-10 monitoring network within the state, SCDHEC opted to maintain a TSP air quality standard and its TSP network. The program was maintained for two reasons: (1) there is a large data base of historical TSP data so that the state can continue to maintain a

trend analysis, and (2) the state uses the monitors to sample ambient concentrations of metals such as Pb as well as TSP.

South Carolina has had a fluoride standard since the early 1970s. The standard was promulgated to eliminate environmental impacts (corrosion, vegetation damage) associated with fluoride emissions from fertilizer plants in Charleston, and fiberglass manufacturing plants in both Akin and Anderson counties. Since adoption of the standard, all of the fertilizer plants in South Carolina have gone out of business and emissions from the fiberglass manufacturing plants are no longer causing the corrosion or vegetation damage that caused implementation of the fluoride standard. Since there are no other fluoride sources in the state and the fiberglass plants do not influence air quality in the ROI, fluoride emissions and their associated impacts are not considered in this EIS. The main pollutants considered in this EIS are O_3, CO, NO_2, SO_2, and PM-10.

Myrtle Beach AFB is located in the Georgetown Intrastate Air Quality Control Region (AQCR). This AQCR is classified attainment or unclassified for all NAAQS. A state implementation plan (SIP) is a series of rules and regulations and plans that specifies measures to maintain ambient air quality standards or bring nonattainment regions into compliance with the NAAQS. Under the SIP, a state is only interested in sources that make air quality worse, not in the closure of a facility. South Carolina's SIP has no specific provisions for the Georgetown Intrastate AQCR.

The existing air quality of the affected environment is defined by air quality data and emissions information. Air quality data are obtained by examining records from air quality monitoring stations maintained by the SCDHEC. Information on pollutant concentrations measured for short-term (24 hours or less) and long-term (quarterly, annual) averaging periods is extracted from the monitoring station data in order to characterize the existing air quality background of the area.

An emissions inventory is an effort to qualitatively and quantitatively describe the amount of emissions from a facility or within an area. Inventories are designed to locate pollution sources, define the type and size of sources, define and characterize emissions from each source, determine relative contributions to air pollution problems by classes of sources and by individual sources, and determine the adequacy of regulations. Emission inventory information for the affected environment was obtained from USEPA, SCDHEC, and Myrtle Beach AFB. Inventory data are separated by pollutant and reported in tons per year in order to describe the baseline conditions of pollutant emissions in the area.

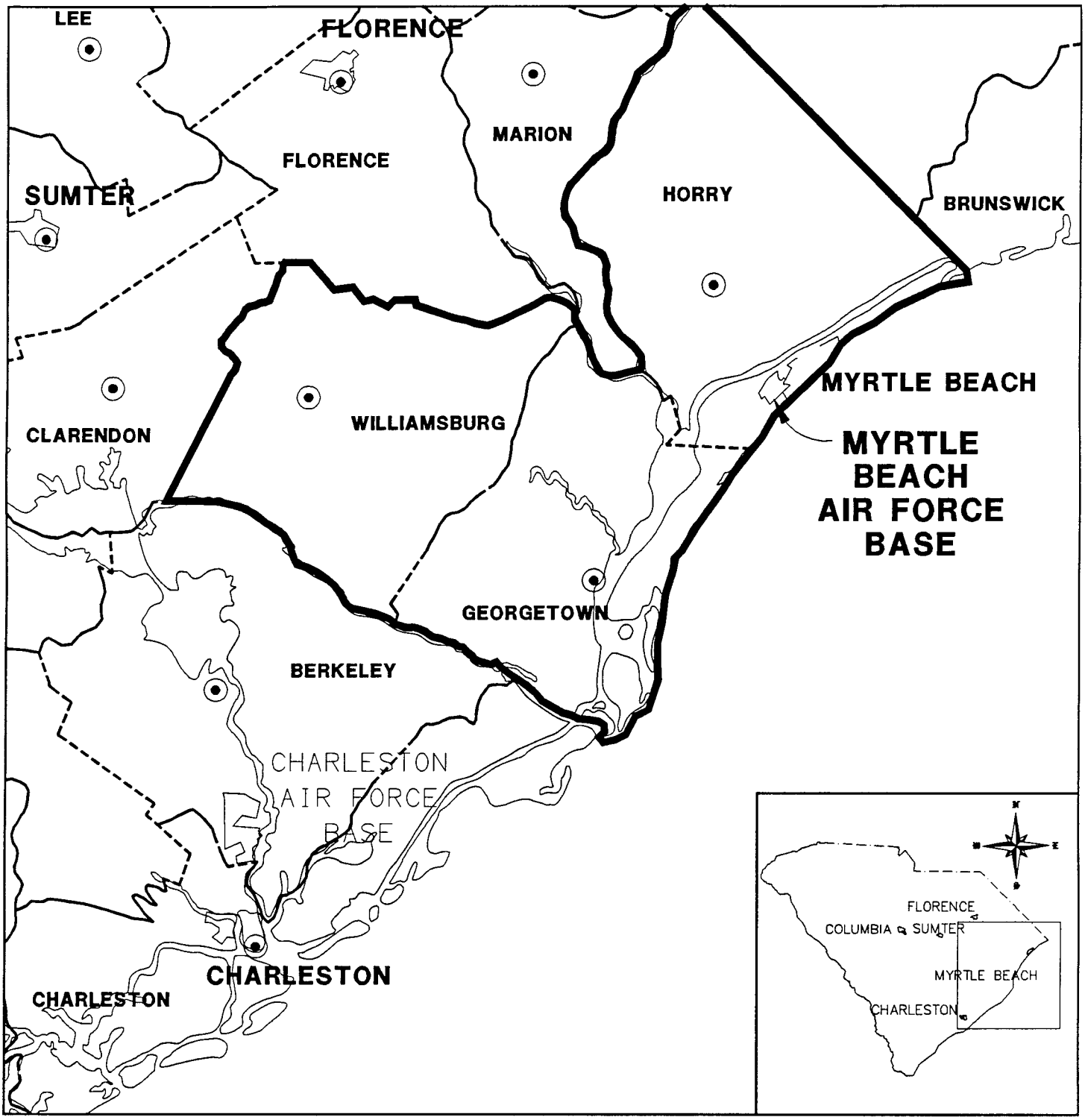
The air basin is a large region that shares a common geographical area of sources and atmospheric interaction. The boundaries of the basin are usually determined by dominant geographical features such as mountains and/or large bodies of water. Within the air basin, spatial and temporal variation in regional air quality will occur from the spatial distribution of emission sources, meteorology, and topography. Therefore, air quality must also be evaluated in the subregional and local aspects. Subregional refers to a subdivision of the basin into areas that share a uniform quality of air. Local air quality refers to the downwind area directly affected by the emission source. Identifying the ROI for an air quality assessment requires knowledge of the pollutant types,

source emissions rates and release parameters, the proximity relationships of project emission sources to other emission sources, and local and regional meteorological conditions. For inert pollutants (those that do not participate in photochemical reactions; i.e., all pollutants other than O_3 and its precursors), the ROI is generally limited to an area extending a few miles downwind from the source.

The ROI for O_3 may extend much farther downwind than the ROI for inert pollutants. As stated earlier, O_3 is a secondary pollutant formed in the atmosphere by a series of photochemical reactions involving previously emitted reactants or precursors. O_3 precursors are typically reactive organic gasses (ROGs) and NO_x. ROGs are a subset of the groups of volatile organic compounds (VOCs) which are compounds containing carbon, excluding CO, carbonic acid, metallic carbides, metallic carbonates, and ammonium carbonate. ROGs are gaseous forms of VOCs and do not include methane or other nonreactive methane and ethane derivatives. NO_x is the designation given to the groups of all oxygenated nitrogen species, including anhydride (N_2O_5), and nitrous anhydride (N_2O_3). The ROGs are sometimes termed reactive hydrocarbons, as they react with NO_x and oxygen in the atmosphere to form O_3. The maximum effect of precursor emissions on O_3 levels usually occurs several hours after they are emitted into the atmosphere and, therefore, many miles from the source depending on the meteorological conditions existing at the time. O_3 and its precursors transported from other regions also can combine with local emissions to produce high local O_3 concentrations. O_3 concentrations are generally the highest during the summer months and coincide with periods of maximum solar radiation. Maximum concentrations tend to be regionally distributed because precursor emissions are homogeneously dispersed in the atmosphere.

For the purpose of air quality analysis, the ROI for emissions of O_3 precursors from Myrtle Beach AFB's present and future operational status is defined as the existing airshed surrounding Myrtle Beach AFB. This airshed is the Georgetown Intrastate AQCR and consists of the following counties in South Carolina: Georgetown, Horry, and Williamsburg (Federal AQCR 204). Project emissions of ROGs and NO_x are, therefore, compared to emissions generated within the AQCR. The ROI for emissions of the inert pollutants that do not undergo a chemical reaction in the atmosphere (CO, SO_2, Pb, TSP, and PM-10) is limited to the more immediate area of Myrtle Beach AFB. Project-related emissions of inert pollutants are, therefore, compared to the Horry County portion of the AQCR emissions as a means of assessing potential changes in air quality. An outline of the AQCR is presented in Figure 3.4-6.

The CAA, as amended in 1977 and November 1990, dictates that project emission sources must comply with the air quality standards and regulations that have been established by federal, state, and local regulatory agencies. These standards and regulations focus on (1) the maximum allowable ambient pollutant concentrations resulting from project emissions, both separately and combined with other surrounding sources; and (2) the maximum allowable emissions from the project.



EXPLANATION

EXTENT OF REGION

0 10 20 MILES

GEORGETOWN INTRASTATE AIR QUALITY CONTROL REGION

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 3.4-6

3.4.3.2 Regional Air Quality

Myrtle Beach is located on the South Carolina coast between Georgetown, South Carolina and Little River, North Carolina. The coastline is oriented northeast-southwest, with surrounding areas that are flat, having no elevations exceeding 50 feet above sea level. The climate at Myrtle Beach AFB is temperate and is moderated by the maritime effects of the Atlantic Ocean. The Gulf Stream, a large warm water ocean current that follows the coastline of the southeastern United States, is the primary environmental feature that acts as a moderating influence on the climate of the area.

The summer season is warm and humid. The hottest months are July and August with daily maximum temperatures of 89 and 88.6 degrees Fahrenheit (F) respectively. The average mean daily maximum temperature is 72 degrees F; the average mean daily temperature is 63 degrees F, with summers averaging 79 degrees F and winters averaging 47 degrees F. The maximum temperature on record is 104 degrees F.

Winters are mild with occasional cold spells as Myrtle Beach comes under the influence of modified polar air that moves down from Canada. Freezing temperatures may accompany cold waves, but persistence of continuous freezing weather is usually limited to periods up to three days. Freezing rain and snow are not common but occasionally occur. The average annual total precipitation is 49.5 inches with maximum precipitation during a 24-hour period of 9.40 inches. Nearly 40 percent of the annual rain falls during the summer months. The rain, unless produced by occasional tropical storms or stationary low pressure systems, is generally of a shower or thunderstorm nature producing variable amounts over scattered areas. Over the 1976-1986 decade there was an average of 108 days with at least 0.01 inch of rainfall. Snow flurries occur occasionally although measurable accumulations are rare. The maximum one-day snowfall on record was more than 12 inches, although the annual average is less than 1/2 inch.

Due to the exposed location of Myrtle Beach, hurricanes can bring the most potentially dangerous and damaging weather. The intense storms that affect the area are those that form in the Atlantic Ocean. Other storms that form in the Gulf of Mexico and Caribbean area usually have degenerated into storms typical of those brought on by Pacific fronts that move from west to east across the U.S. and bring thunderstorms, wind, and precipitation.

The characteristic patterns of local air movement in the area of Myrtle Beach AFB are illustrated by the wind rose in Figure J-1 in Appendix J. The wind rose provides a graphical description of the prevailing winds giving the frequency of occurrence of the wind speed and direction. In this case, the wind rose provides frequencies averaged over the years 1982 through 1986.

According to USEPA guidelines, an area with air quality better than the NAAQS for a specific pollutant is designated as being in attainment for that pollutant. Any area not meeting the NAAQS is classified as nonattainment depending on which standard has been violated. An area may be designated as nonattainment for more than one air pollutant. A nonattainment designation is given to a region if the primary NAAQS for any criteria pollutant is exceeded at any point in the region for more than three days during a three-year period.

When there is a lack of data for the USEPA to define an area, the area is designated unclassified and is treated as an attainment area until proven otherwise.

The federal standard for PM-10 was promulgated in July 1987. Sufficient PM-10 monitoring data are not yet available to classify many areas of the country, The USEPA, therefore, designates areas according to the likelihood of violating the standard. Group I status is assigned to those areas having a 95 percent or better probability of exceeding the standard, Group II to those areas having 20 to 95 percent probability, and Group III to areas with less than 20 percent probability. The Georgetown AQCR is classified Group III for So_x, NO_2, CO, and photochemical oxidants (hydrocarbons) and Group II for particulates. These group classifications will be changed to attainment/nonattainment designations as sufficient monitoring data become available.

Preclosure Reference. Myrtle Beach AFB is located in the Georgetown Intrastate AQCR. Major new or modified stationary sources in the area of Myrtle Beach AFB are subject to Prevention of Significant Deterioration (PSD) review to ensure that these sources are constructed without significant adverse deterioration of the clean air in the area. Emissions from any new or modified source must be controlled using Best Available Control Technology. The air quality impacts in combination with other PSD sources in the area must not exceed the maximum allowable incremental increase identified in Table 3.4-7. National parks and wilderness areas are designated as Class I areas, where any appreciable deterioration in air quality is considered significant. Class II areas are those where moderate, well-controlled industrial growth could be permitted. Class III areas allow for greater industrial development. One Class I area, the Cape Romain National Wildlife Refuge, is located approximately 45 to 50 miles southwest of Myrtle Beach AFB. The refuge is situated on the coast and is near McClellanville, SC. All of the remaining surrounding area is designated by the USEPA as Class II.

Table 3.4-7. Maximum Allowable Pollutant Concentration Increases Under PSD Regulations

		Maximum Allowable Increment ($\mu g/m^3$)		
Pollutant	Average time	Class I	Class II	Class III
TSP	Annual	5	19	37
	24-hour	10	37	75
SO_2	Annual	2	20	40
	24-hour	5	91	182
	3-hour	25	512	700
NO_2	Annual	2.5	25	50

Notes: Class I areas are regions in which the air quality is intended to be kept pristine such as national parks and wilderness areas. All other lands are initially designated Class II. Individual states have the authority to redesignate Class II lands to Class III to allow for maximum industrial use.
Source: 40 CFR 51.166.

All of the counties in the Georgetown Intrastate AQCR are classified attainment or unclassified for all criteria pollutants. Federal and state attainment

designations are shown in Table 3.4-8 for the Georgetown Intrastate AQCR. Even though the PM-10 standard was promulgated in July 1987, SCDHEC continues to maintain a state TSP ambient air quality standard.

Table 3.4-8. Federal and State Attainment Designations

Georgetown Intrastate Quality Control Program	TSP	SO_2	O_3	CO	NO_2	Pb
Georgetown County	A	A	U	U	U	ND
Horry County	A	A	U	U	U	ND
Williamsburg County	A	A	U	U	U	ND

A = Better than national standards.
U = Cannot be classified or better than national standards.
ND = Not designated. No areas "designated" or identified by the state that contain USEPA-listed lead emission sources.

The existing air quality of the affected environment is defined by air quality data and emissions information. Air quality data are obtained by examining records from air quality monitoring stations maintained by the SCDHEC. This monitoring network, known as the South Carolina Air Monitoring Network, was established in accordance with the South Carolina Air Quality Implementation Plan. The monitoring network has been approved by the USEPA. Monitoring data for 1987-1990 have been used to describe the existing air quality. The Georgetown AQCR monitoring sites, year operated, and pollutants monitored are listed in Table 3.4-9. Information on pollutant concentrations measured for short-term (24 hours or less) and long-term (quarterly, annual) averaging periods is extracted from the monitoring station data in order to characterize the existing air quality background of the area. The monitoring data for 1987-1990 are presented in Table 3.4-10. During this period, no NAAQS was exceeded; however, the state annual ambient air quality standard for TSP was exceeded for 1988 and 1990 at the Georgetown continuous monitoring site.

Air quality in the AQCR is good. The main source of air pollutants in the Myrtle Beach area is vehicle activity. The largest stationary source near Myrtle Beach is the Grainger Generating Station in Conway, South Carolina. Grainger is a significant contributor for all criteria pollutants. It should be noted that Horry County has never declared any stage of an air pollution episode. A pollution episode is declared when the Commissioner of the SCDHEC determines that the accumulation of air pollutants in any place is attaining or has attained levels that could, if such levels are sustained or exceeded, lead to substantial threat to the health of persons.

Closure Baseline. It can be reasonably assumed that pollutant concentrations at base closure would be less than those measured prior to closure. Base closure would eliminate military flight operations and associated aerospace ground equipment operations, reduce vehicle traffic in the surrounding area, and eliminate certain stationary emission sources on base (small boilers, incinerators, painting operations, etc.). Emissions associated with vehicles assigned to the base, military and commuting civilian employees, retirees visiting Myrtle Beach AFB facilities, and truck traffic associated with base operations would all be eliminated, with the exception of activities associated

Table 3.4-9. South Carolina Department of Health and Environmental Control Air Monitoring Stations

Site I.D.	Year Operated	Pollutants Measured			
		SO_x	TSP	PM-10	Pb
Georgetown County Health Dept.	1990		X	X	X
Georgetown Howard High School			X	X	
Georgetown Continuous Monitoring Site		X	X		
Georgetown County Hospital			X		
Georgetown County Health Dept.	1989		X	X	X
Georgetown Howard High School			X		
Georgetown Continuous Monitoring Site		X	X		
Georgetown County Hospital			X		
Myrtle Beach			X		X
Georgetown County Health Dept.	1988		X	X	
Georgetown Howard High School			X		
Georgetown Continuous Monitoring Site		X	X		
Georgetown County Hospital			X		
Conway			X		
Georgetown County Health Dept.	1987		X	X	
Georgetown Howard High School			X		
Georgetown County Hospital			X		
Myrtle Beach			X		

with the OL. Since Horry County and the AQCR are not industrial areas, total base emissions are a large percentage of the area-wide emissions, especially when considering CO and ROG, when compared to area-wide emissions. (This is discussed in more detail in Section 3.4.3.3.) Therefore, base closure would have a positive impact on air quality in the region.

3.4.3.3 Air Pollutant Emission Sources

Preclosure Reference. Emission inventory information is presented in Table 3.4-11. Emissions are separated by pollutant and reported in tons per year in order to describe the baseline conditions of pollutant emissions from Myrtle Beach AFB, Horry County, and the Georgetown AQCR. The latest representative emission inventory for Myrtle Beach is 1989. This was the most recent inventory that represented a "normal" year since the Desert Shield and Desert Storm operations significantly altered base operations during 1990 and 1991. Normal operations were resumed in 1992 at the 1989 levels. The Horry County and Georgetown AQCR inventories also are presented in Table 3.4-11. The emissions inventories for both Horry County and the Georgetown AQCR are representative of preclosure conditions in 1991.

Table 3.4-10. Existing Air Quality in the Georgetown Intrastate Air Quality Control Region

Pollutant	Station	Averaging Period	Number of Exceedences				Maximum Concentration ($\mu g/m^3$)			
			1990	1989	1988	1987	1990	1989	1988	1987
Sulfur Dioxide	Georgetown CMS[1]	Annual	0	0	0	ND	5	5	6	ND
		24-hr	0	0	0	ND	36	37	75	ND
		3-hr	0	0	0	ND	174	127	125	ND
Total Suspended Particulates	Georgetown CHD[2]	Annual geometric mean	0	0	0	0	59	51	64	57
	Georgetown HHS[3]		0	0	0	0	65	54	65	60
	Georgetown CMS		*	0	*	ND	79	65	78	ND
	Georgetown C. Hospital[4]		0	0	0	0	42	37	44	37
	Myrtle Beach CHD[5]		ND	0	ND	0	ND	30	ND	32
	Conway		ND	ND	0	ND	ND	ND	33	ND
Particulates (PM-10)	Georgetown CHD	Annual	0	0	0	0	32	36	34	33
	Georgetown HHS		0	ND	ND	ND	36	ND	ND	ND
	Georgetown CHD	24-hr	ND	ND	ND	ND	ND	ND	ND	ND
	Georgetown HHS		ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide	No Monitoring Station									
Ozone	No Monitoring Station									
Nitrogen Dioxide	No Monitoring Station									
Lead	Georgetown CHD	Quarterly	0	0	0	0	0.07	0.10	0.08	0.05
	Myrtle Beach CHD		ND	0	ND	0	ND	0.02	ND	0.01
	Conway		ND	ND	0	ND	ND	ND	0.02	ND
Gaseous flouride	No Monitoring Station									

Notes: ND = No data available

* = Annual average state standard exceeded for the year

[1] Georgetown CMS = Georgetown Continuous Monitoring Station

[2] Georgetown CHD = Georgetown County Health Department

[3] Georgetown HHS = Georgetown Howard High School

[4] Georgetown C. Hosp. = Georgetown County Hospital

[5] Myrtle Beach CHD = Myrtle Beach County Health Department

Table 3.4-11. Preclosure Emissions Inventory

Source	Pollutant (tons/yr)				
	TSP	CO	SO_x	NO_x	VOCs
Horry County [1, 3]					
Stationary Sources	88.34	151.73	4,301.73	1,644.04	48.14
Georgetown AQCR[1, 3]					
Stationary Sources	1,756.32	9,636.77	26,095.47	30,235.57	185.33
Myrtle Beach AFB[2]					
STATIONARY SOURCES					
Incinerators Pathological Classified waste	0.17	0.13	0.02	0.04	0.01
Fire Fighting Training	1.90	8.40	0.01	0.06	4.80
Heating and Power Production	0.52	1.67	32.47	5.49	0.40
Surface Coating	--	--	--	--	9.80
Fuel Evaporative Losses Service Stations Tank farm	--	--	--	--	66.80
Stationary Sources Subtotal	2.59	10.20	32.50	5.59	81.81
MOBILE SOURCES					
Aerospace Ground Equipment	0.58	31.20	0.16	8.23	1.60
Aircraft Flying Operations	3.20	480.00	8.30	82.00	352.00
Aircraft Ground Operations Engine runups Trims/power	0.00	0.85	0.05	0.47	0.23
Motor Vehicles	1.10	0.04	0.05	6.70	7.40
Mobile Sources Subtotal	4.88	512.09	8.56	97.40	361.23
Myrtle Beach AFB Total	7.47	522.29	41.06	102.99	443.04

[1] 1991 Emissions data (USEPA Region IV).
[2] 1989 Emissions data.
[3] Mobile source emission not included in Horry County and Georgetown AQCR inventories.
Note: Emissions are based on data from Table 3.4-10 times the ratio of the year 1993 base closure population to the year 1989 base population.

The primary on-base emission sources are aircraft, motor vehicles, fire fighting training, heating and power production, and aerospace ground equipment. Also, surface coatings operations and fuel evaporation contribute a substantial amount of the total hydrocarbon emissions.

Myrtle Beach AFB has been designated as a Class A source by the SCDHEC. SCDHEC made this determination because the base meets USEPA's definition of a Class A1(p) source: any stationary source whose potential emissions (emissions after control at maximum capacity or 8,760 hours per year) would be equal to or exceed 100 tons per year of any pollutants regulated by the CAA. USEPA counts a facility as a single point source even if its potential emissions of more than one pollutant exceed 100 tons per year, or if more than one stack (or other emission points within the facility) emits over 100 tons per year. The base meets the definition of a Class A1(p) source because if all boilers on the base were operated at the maximum capacity of 8,760 hours per year, emissions of SO_x would be in excess of 100 tons per year.

There are 89 boilers on Myrtle Beach AFB that contribute to the yearly SO_x emissions presented in Table 3.4-11. These units are used to provide building heat. There are 20 boilers rated at greater than 1.5 million BTU/hr (MMBTU/hr) with the largest being rated at 10.462 MMBTU/hr. The remaining 69 boilers are rated at less than 1.5 MMBTU/hr. If all boilers were operated at maximum capacity, and using a 0.33 percent sulfur fuel (Air Force laboratory analysis), SO_x emissions would exceed 107 tons per year.

The Class A1(p) designation requires Myrtle Beach AFB to submit an emissions inventory every two years and have state inspections by SCDHEC personnel. Every even calendar year the base must update the emissions inventory for the previous calendar year and submit it to the SCDHEC by March 31. In the intervening calendar years, any change in emissions data must be recorded on an annual compliance inspection report.

Closure Baseline. The emission inventory for Myrtle Beach AFB at base closure was estimated by assuming that all emissions other than those associated with heating and power production and motor vehicles would be eliminated. Heating plants and power generators are assumed to operate at 20 percent of the preclosure capacity in order to fulfill minimum building heating and power requirements. The ratio of the preclosure base population to the base population after closure is applied to vehicle emissions to estimate closure conditions. The mobile source emission inventory for the jetport was calculated using the Emissions and Dispersion Modeling System (EDMS) and was based on 1991 flight operations. Stationary source emissions were based on jetport fueling operations. The jetport maintains two aboveground aircraft fuel storage tanks with storage capacities of 20,000 gallons and 8,000 gallons. However, the jetport does not conduct aircraft refueling except on an emergency basis. Four automobile rental agencies service the jetport. Each agency maintains an underground gasoline storage tank as part of their vehicle refueling system. Based on an estimated total yearly gasoline usage of 192,000 gallons per year, ROG emissions were calculated to be 1.92 tons per year. These emissions are reflected in the closure baseline emissions inventory presented in Table 3.4-12. At these rates, base emissions at closure would be small compared to base preclosure and area emissions levels.

Table 3.4-12. Closure Emissions Inventory

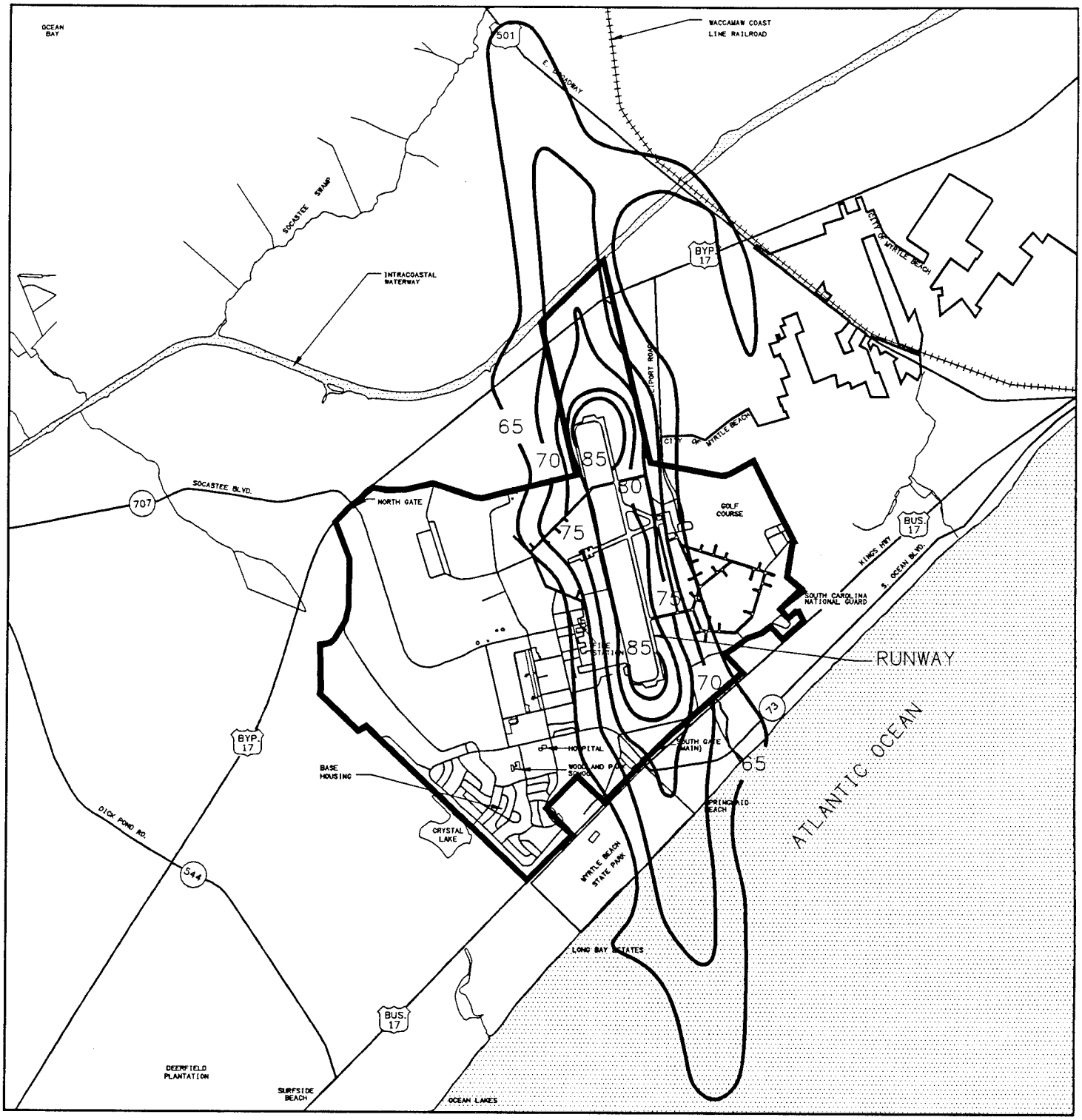
Source	Pollutant (tons/yr)				
	TSP	CO	SO_x	NO_x	VOCs
Myrtle Beach AFB					
STATIONARY SOURCES					
Incinerators					
Pathological	--	--	--	--	--
Classified waste					
Fire Fighting Training	--	--	--	--	--
Heating and Power Production	0.10	0.33	6.50	1.10	0.10
Surface Coating	--	--	--	--	--
Fuel Evaporative Losses					
Service stations	--	--	--	--	--
Tank farm					
MOBILE SOURCES					
Aerospace Ground Equipment	--	--	--	--	--
Aircraft Flying Operations	--	--	--	--	--
Aircraft Ground Operations					
Engine runups	--	--	--	--	--
Trims/power					
Motor Vehicles	0.01	0.00	0.00	0.07	0.07
Myrtle Beach AFB Subtotal	0.11	0.33	6.50	1.17	0.17
Myrtle Beach Jetport	0.42	83.20	2.60	34.70	16.00
Base & Jetport Total					
Mobile	0.43	83.20	2.60	34.77	16.07
Stationary	0.10	0.33	6.50	1.10	2.02*
TOTAL	0.53	83.53	9.10	35.87	18.09

-- = Emissions eliminated.
*Includes 1.92 tons per year fugitive emissions from automobile rental agency gasoline storage tanks and refueling operations.

3.4.4 NOISE

The ROI for noise sources at Myrtle Beach AFB is the area within the DNL contour of 65 dBA (as shown in Figure 3.4-7). Noise is most often defined as unwanted sound. Sound levels are easily measured, but the variability is subjective and physical response to sound complicates the analysis of its impact on people. People judge the relative magnitude of sound sensation by subjective terms such as "loudness" or "noisiness." Physically, sound-pressure magnitude is measured and quantified in terms of a logarithmic scale in units of decibels (dB).

The human hearing system is not equally sensitive to sound at all frequencies. Because of this variability, a frequency-dependent adjustment called A-weighting has been devised so that sound may be measured in a manner



EXPLANATION

—65— DNL NOISE CONTOURS (dBA)

SOURCE: U. S. AIR FORCE, 1990d

0 1/4 1/2 1 MILE

PRECLOSURE NOISE CONTOURS

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 3.4-7

similar to the way the human hearing system responds. The use of the A-weighted sound level is abbreviated "dBA." Figure 3.4-8 provides typical A-weighted noise levels measured for various sources and responses of people to these levels.

When sound levels are recorded at distinct intervals over a period of time, they indicate the distribution of the overall sound level in a community during the measurement period. The most common parameter derived from such measurements is the energy-equivalent sound level (L_{eq}); this is a noise descriptor that represents the average sound-energy level produced when the actual noise level varies with time.For airport noise, the FAA and the Air Force have adopted the day-night average sound level, DNL. DNL is the A-weighted L_{eq} over a 24-hour period, with a 10 dB nighttime penalty applied to noise events from 10:00 P.M. to 7:00 A.M. The penalty for nighttime noise events accounts for the increased sensitivity of most people to noise in the quiet nighttime hours. Developed by the USEPA, DNL is the "standard metric measure for determining the cumulative exposure of individuals to noise." Regulations of the U.S. Department of Housing and Urban Development (HUD) include DNL as the standard for measuring outdoor noise environments.

Another descriptor used to describe time-varying sound is the sound exposure level (SEL). The SEL value represents the A-weighted sound level integrated over the entire duration of the noise event and referenced to a duration of 1 second. When an event lasts longer than 1 second, the SEL value will be higher than the highest sound level during the event.

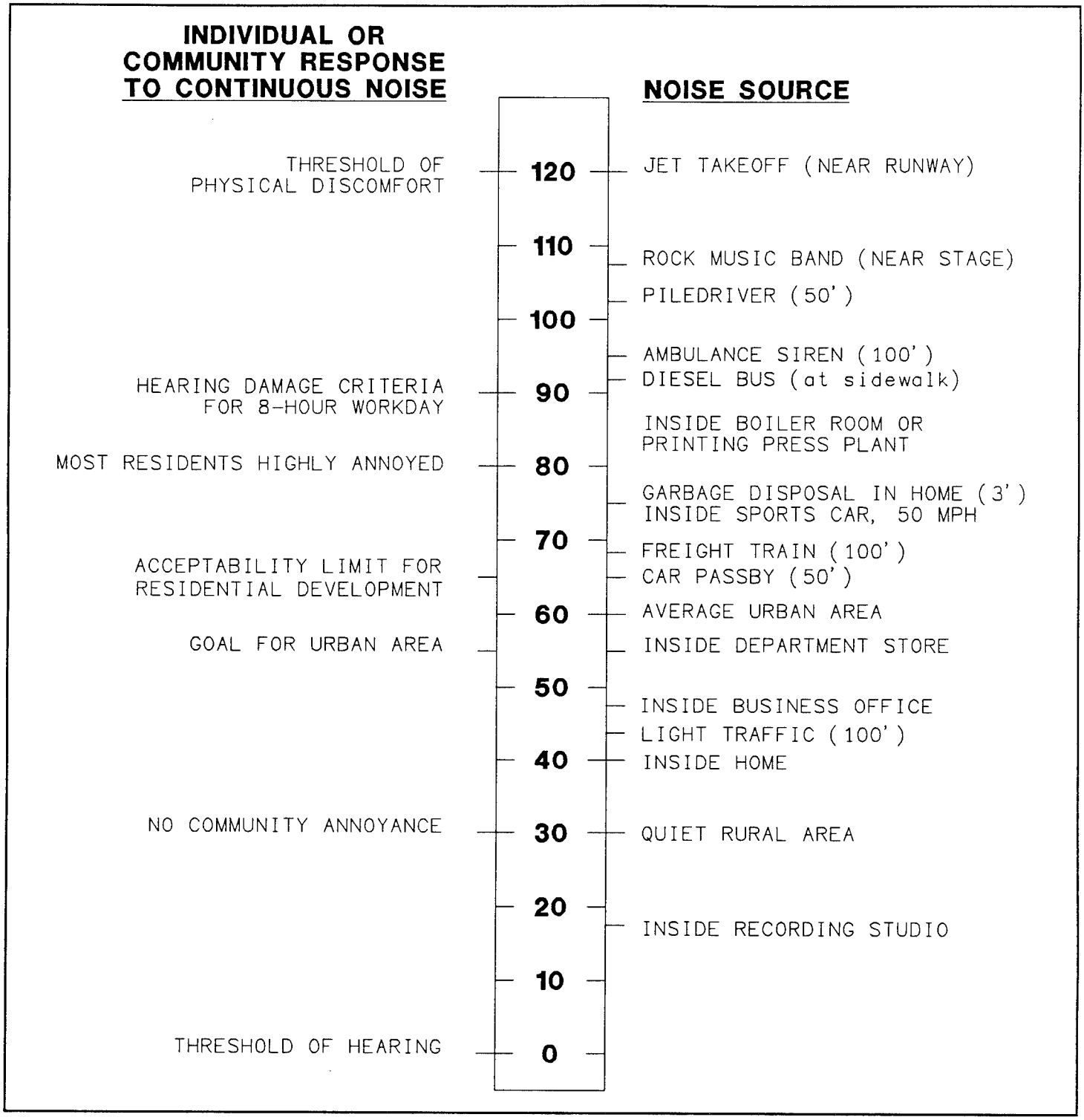
Effective perceived noise level (EPNdB) takes into account both the duration and the tonal components of the noise spectra for varying types of non-sonic boom aircraft flyover signals. This measure is used by the FAA in aircraft certification.

3.4.4.1 Effects of Noise Exposure

The primary human response to environmental noise, including aircraft noise, is annoyance. The degree of annoyance has been found to correlate well with the DNL. A comparison of DNL with the percentage of the exposed population that is "highly annoyed" in combination with the estimated population exposed to DNL levels greater than 65 dBA provides an estimate of the number of persons "highly annoyed" by aircraft noise. These levels of annoyance are based on long-term exposure. Annoyance for short term activities, such as construction noise and new flight patterns, could be influenced by many factors such as habituation and attitude toward the activity creating the noise. Nonetheless, a comparison of this type provides the best available information to predict reactions to a new noise exposure. A discussion of the effects of noise on speech, sleep, hearing loss, health, and animals is provided in Appendix K.

3.4.4.2 Noise Criteria and Regulations

According to Air Force, FAA, and HUD criteria, residential units and other noise-sensitive land uses are "clearly unacceptable" in areas where the noise exposure exceeds a DNL of 75 dBA; "normally unacceptable" in regions



EXPLANATION

TYPICAL SOUND LEVELS FROM INDOOR AND OUTDOOR NOISE SOURCES AND THEIR EFFECTS ON PEOPLE

A-WEIGHTED SOUND PRESSURE LEVEL IN DECIBELS (dB)

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 3.4-8

exposed between the DNL of 65 to 75 dBA; and "normally acceptable" in areas exposed to noise of a DNL of 65 dBA or less.

The following subsection provides a brief explanation of noise policies used by agencies having jurisdiction over this project.

Federal Regulations. The FAA regulates noise levels at airports. Federal Aviation Regulation (FAR) Part 36 (FAA, 1988) sets noise certification levels for all aircraft designed after 1970. Foreign-manufactured aircraft are subject to International Civil Aviation Organization (ICAO) Annex 16, which is essentially identical to FAR Part 36. It is expected that both ICAO and FAA will further lower noise certification limits for future aircraft designs.

The initial goal of FAR Part 36 is to reduce existing noise levels by 10 dB. An aircraft retrofit and replacement rule has been adopted by the federal government. Since 1974, all newly manufactured U.S. aircraft have been required to meet FAR Part 36 standards.

To aid the airport operator in attaining noise/land compatibility, the FAA promulgated Part 150, Airport Noise Compatibility Planning, which became effective on February 28, 1981, and was updated effective March 16, 1988 (FAA, 1989). Part 150 contains standards for airport operators who voluntarily submit noise exposure maps and airport noise compatibility planning programs to the FAA. This regulation was based on Title I of the Aviation Safety and Noise Abatement Act (ASNA Act) of 1979, which adopted modified USEPA recommendations for airport noise compatibility planning. Included in the regulation is the establishment of a single system for determining the exposure of individuals to airport noise, and a single system for measuring airport (and background) noise. The regulation also prescribes a standardized airport noise compatibility planning program, which includes: (1) the development and submission of noise exposure maps and noise compatibility programs to the FAA by airport operators; (2) standard noise methodologies and units for use in assessing airport noise; (3) the identification of land uses that are normally compatible (or incompatible) with various levels of airport noise; and (4) the procedure and criteria for FAA evaluation, and approval or disapproval, of noise compatibility programs by the FAA Administrator.

FAR Part 150 contains a table entitled Land Use Compatibility with Yearly Day-Night Average Sound Levels, identifying land uses that are "normally compatible" or "noncompatible" with various levels of noise exposure. The levels of noise exposure, in yearly DNL, correspond to the contours developed for each airport. All land uses may be considered as normally compatible with noise less than a DNL of 65 dBA.

Land use recommendations for the Air Force are similar to the FAA regulations. As a result of an AICUZ study, noise contours and accident potential zones (APZs) become the criteria for recommended land use. Recommendations for land use around an airfield are then made available by the Air Force to the civilian authorities with the purpose of promoting zoning and other types of regulations that can effectively control undesirable growth around the airfield. Thirteen compatible use districts (CUDs) are used to classify noise zones from a DNL of 65-70 dBA (CUD 13) to a DNL of 85 dBA and above (CUD 1). For example, it is recommended that no residential uses such as homes,

multi-family dwellings, hotels, and mobile home parks be located where the noise is expected to exceed a DNL of 65 dBA. Some commercial and industrial uses are considered acceptable where noise does not exceed a DNL of 75 dBA. However, in such instances a 25 to 30 dBA noise level reduction should be incorporated into the design of noise sensitive structures. Table 3.4-13 provides FAA recommended DNL ranges for various land use categories.

The Federal Highway Administration (FHWA) has established noise standards for traffic noise on federal highways (23 CFR Part 772). When these standards or "noise abatement criteria" (NAC) are approached or exceeded, noise impact occurs. The NAC for most sensitive receptors (including parks, residences, schools, churches, libraries, and hospitals) is 67 dBA at the receiver location or the receiver property line.

Local Regulations. According to the city of Myrtle Beach Code 1966 Section 21-18, it shall be unlawful for any person to create, assist in creating, permit, or continue to permit the continuance of any unreasonable loud, disturbing, or unnecessary noise in the city. The city of Myrtle Beach has noise limits for construction activities. According to the Code 1966 Section 21-23, construction activities can be conducted only between 6:00 A.M. and 11:00 P.M. every day.

3.4.4.3 Preclosure Noise Levels

Typical noise sources in and around airfields usually include aircraft, surface traffic, and other human activities. Military aircraft operations are the existing primary sources of noise in the vicinity of Myrtle Beach AFB.

Aircraft Noise. A majority of the preclosure operations conducted at the airport are military (approximately 70 percent), with civil aircraft activity limited to scheduled air carrier jet and commuter turboprop operations (approximately 30 percent). Table 3.2-5 presents the operations by major aircraft categories/types for the airfield in 1989 and 1991.

The A-10 Thunderbolt II is the dominant aircraft type at the airfield, followed by commuter turboprops, air carrier jets, transient military aircraft and helicopters, and military Aero Club aircraft (light single-engine airplanes). As the predominant user of airspace around Myrtle Beach AFB, A-10s usually will depart under VFR to the northeast, west, or southwest and reach 1,600 feet MSL altitude. Under IFR, A-10s depart on stereotyped flight plan routes to the north, west, or southwest and reach 3,000 MSL before proceeding to FL 200 (20,000 feet MSL altitude) enroute to various low-altitude training areas (U.S. Air Force, 1990d).

Noise contours depicting cumulative exposure during an average annual day are the principal analytical tool used in airport studies. Because of the long time period and large geographic area involved, the only way to obtain such contours is through computer modeling. Noise contours for an airport may be calculated by using Air Force's NOISEMAP computer or FAA's Integrated Noise Model (INM). These models incorporate comprehensive sets of computer routines for calculating noise exposure contours around airports. These programs require specific input data, consisting of runway layout, aircraft types, numbers of operations, flight tracks, and noise performance data. The

Table 3.4-13. Land Use Compatibility with Yearly Day-Night Average Sound Levels
Page 1 of 2

Land Use	Yearly Day-Night Average Sound Level (DNL) in Decibels					
	Below 65	65-70	70-75	75-80	80-85	Over 85
Residential						
Residential, other than mobile homes and transient lodgings	Y	N(a)	N(a)	N	N	N
Mobile home parks	Y	N	N	N	N	N
Transient lodgings	Y	N(a)	N(a)	N(a)	N	N
Public Use						
Schools	Y	N(a)	N(a)	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Governmental services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(b)	Y(c)	Y(d)	Y(d)
Parking	Y	Y	Y(b)	Y(c)	Y(d)	N
Commercial Use						
Offices, business, and professional	Y	Y	25	30	N	N
Wholesale and retail-building materials, hardware, and farm equipment	Y	Y	Y(b)	Y(c)	Y(d)	N
Retail trade-general	Y	Y	25	30	N	N
Utilities	Y	Y	Y(b)	Y(c)	Y(d)	N
Communication	Y	Y	25	30	N	N
Manufacturing and Production						
Manufacturing, general	Y	Y	Y(b)	Y(c)	Y(d)	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y(f)	Y(g)	Y(h)	Y(h)	Y(h)
Livestock farming and breeding	Y	Y(f)	Y(g)	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
Recreational						
Outdoor sports arenas and spectator sports	Y	Y(e)	Y(e)	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts, and camps	Y	Y	Y	N	N	N
Golf courses, riding stables, and water recreation	Y	Y	25	30	N	N

Numbers in parentheses refer to notes (see next page). The designations contained in this table do not constitute a federal determination that any use of land covered by the program is acceptable or unacceptable under federal, state, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.

Key

Y(Yes)	Land use and related structures compatible without restrictions.
N(No)	Land use and related structures are not compatible and should be prohibited.
25, 30, or 35	Land use and related structures generally compatible; measures to achieve Noise Level Reduction (NLR) of 25, 30, or 35 dB must be incorporated into design and construction of structure.

Table 3.4-13. Land Use Compatibility with Yearly Day-Night Average Sound Levels

Notes

(a) Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide an NLR of 20 dB, thus, the reduction requirements are often stated as 5, 10, or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.

(b) Measures to achieve an NLR of 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.

(c) Measures to achieve an NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office, areas, noise-sensitive areas, or where the normal noise level is low.

(d) Measures to achieve an NLR of 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office area, noise-sensitive areas,or where the normal noise level is low.

(e) Land use compatible provided special sound reinforcement systems are installed.

(f) Residential buildings require an NLR of 25.

(g) Residential buildings require an NLR of 30.

(h) Residential buildings not permitted.

Source: Derived from FAR Part 150 Airport Noise Compatibility Planning (FAA, 1989).

FAA has certified that NOISEMAP computes noise levels that are essentially identical to those provided by Version 3.9 of the FAA's own INM if the correct flight profiles and thrust settings are used for the commercial aircraft. INM was used for noise analysis of all future alternatives because there would be no military operation after 1993 (U.S. Air Force, 1992c).

The preclosure noise conditions at Myrtle Beach AFB were recently (1990) determined by the Air Force and base operations and maintenance personnel (U.S. Air Force, 1990d). Noise levels generated by aircraft activities at Myrtle Beach AFB were estimated using the NOISEMAP computer model (Version 5.2 - Since this study, the Air Force has released Version 6.1 of NOISEMAP).

The noise levels estimated by NOISEMAP for Myrtle Beach AFB and the jetport were based on 1989 aircraft noise and performance data, and aircraft operational data. In addition, aircraft noise data were obtained for typical thrust settings used on takeoff, landing, level flight, and closed patterns and low pass training operations. Aircraft performance data defined takeoff roll, rate of climb, altitude, and speeds at different distances from takeoff, etc. Aircraft operational data included runway utilization rates, typical flight track descriptions and utilization rates, level and mix of aircraft operations, and day-night split of operations (by aircraft type). Also included in the noise analysis were engine testing and maintenance procedures conducted at various stationary locations around the airfield.

Noise levels estimated for 1989 are used as the preclosure reference for this study, because due to Desert Shield and Desert Storm, the 1990 and 1991 aircraft operations at Myrtle Beach AFB were not considered "typical."

The NOISEMAP model calculates DNL values in dBA and plots a contour of the noise "footprint." Figure 3.4-7 depicts the noise environment estimated by the NOISEMAP model for the 1989 Myrtle Beach AFB and jetport aircraft operations. Noise contours are plotted with a minimum DNL value of 65 dBA since studies have determined that the percentage of persons highly annoyed increases rapidly above this level. Areas with DNL of 65 dBA or higher are 4,400 acres, areas with DNL of 70 dBA or higher are 2,050 acres, and areas with DNL of 75 dBA or higher are 940 acres. No on-base residential areas are exposed to DNL of 65 dBA, but off-base residential areas are exposed to DNL of 65 to 70 dBA (143 acres) and DNL of 70 to 75 dBA (52 acres). An estimated 300 persons reside in these two areas.

The Springmaid Beach resort area, which includes lodging facilities, Beach Park Apartments, Nash's Rooms and Apartments, and one single-family residence are located south of the base and are within the DNL of 75 dBA or greater noise contours. About 10 employees of the Springmaid Beach Resort live in the area. During the off-season there are no guests in the resort area but during the resort season there are about 440 guests in the rooms and about 500 in the campers and trailers. There are about 30 people in the Beach Park Apartments during off-season and 185 people during the resort season. There are about 15 people in the Nash's Rooms and Apartments during the off-season and 30 people during the resort season. The single-family house is a vacation home.

There are 14 hotels located west of 26th Avenue S and south of U.S. 17 Business that are exposed to a DNL of 65 dBA or greater. There are approximately 2,300 guests per day in these hotels during the resort season and about 500 guests per day during the off-resort season (calculated based on number of hotel rooms and percent of occupancy). There are no schools, churches, or hospitals with an existing noise exposure DNL of 65 dBA or higher.

Traffic Noise. Another noise source in the Myrtle Beach area is vehicular traffic. The distance of the noise contours for various DNL and the L_{eq} of 67 dBA were estimated for major roads adjacent to the base (outside the runway noise contours), using the FHWA Highway Traffic Noise Prediction Model FHWA-RD-77-108 (FHWA, 1978) and 1989 traffic volumes for these roadways.

Table 3.4-14 shows the calculated preclosure noise levels. Appendix K contains the data used in the traffic analysis. These data include AADTs, traffic mix, and speeds.

Table 3.4-14. Distance to DNL from Roadway Centerline for the Preclosure Reference

Roadway	Distance to Roadway Centerline (ft.) [1, 2]				
	DNL of 60 dBA	DNL of 65 dBA	DNL of 70 dBA	DNL of 75 dBA	Peak Hr. L_{eq} of 67 dBA[3]
U.S. 17 Bus.	327	160	82	<50	121
U.S. 17	505	248	123	65	185
SC 707	192	92	<50	<50	68
U.S. 501	421	207	103	57	155
SC 544	215	103	<50	<50	75
Jetport Rd.	56	<50	<50	<50	<50

[1] Based on soft site distance propagation of 4.5 dB per doubling of distance.
[2] Heavy truck estimates also assume flat grades (no uphill).
[3] Peak hour = 7.9% of AADT.

Railroad and Shipping Noise. There are no railroad tracks, ports, nor major dock facilities in the vicinity of the base; therefore, there are no noise levels related to these.

Noise Measurements. Noise measurements were conducted at four sites from June 31 to July 3, 1988. Cumulative noise exposure levels in the airport environs were measured for periods ranging from one day to three days. These measurements can provide the following information:

- First, by looking at time periods when airport activity is low, the measurements provide information on non-aircraft noise exposure. Therefore, they provide a basis for determining the relative contribution of aircraft noise to total noise exposure.

- The measurements also provide information on the variation in noise levels during a day, including aircraft and non-aircraft contributions.

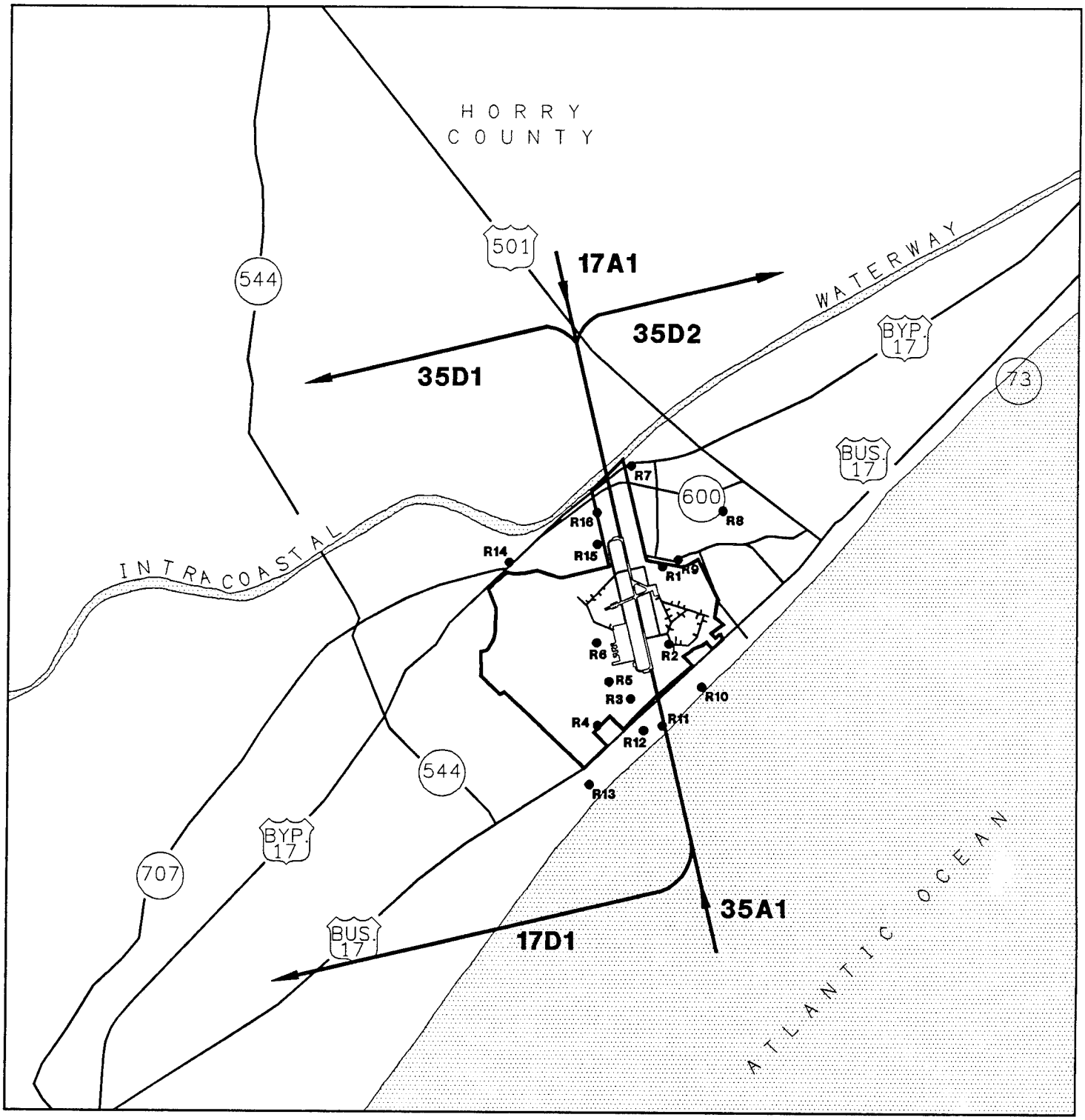
- Finally, even relatively short duration measurements provide a basis for evaluating the reasonableness of the computer-model-predicted noise exposure estimates. The noise measurement locations are identified on Table 3.4-15. The table also lists the principal types of aircraft activity monitored at the sites, the monitoring period, and range of measured noise levels.

Table 3.4-15. Noise Measurement Sites

Site	Address	Principal Activity Monitored	Monitoring Dates/Times	Measured DNL (dBA)
1.	Springmaid Beach behind administration building	Runway 17 departures	6 P.M. 5/31 to 6 P.M. 6/3	70
2.	447A Waterside Drive	Runway 17 arrivals	11 P.M. 5/31 to 11 P.M. 6/3	49
3.	Stacey Road, at far east end, adjacent to airport fence line	Runway 17 arrivals	10 A.M. 6/1 to 10 A.M. 6/2	61
4.	1212 Horne Street	Runway 17 arrivals, downwind leg	11 A.M. 6/2 to 11 A.M. 6/3	62

3.4.4.4 Baseline Noise Levels

The closure of Myrtle Beach AFB would result in the withdrawal of all Air Force A-10 aircraft and transient military flights. The jetport would continue civil aircraft operation. The baseline noise contours (for March 1993) are developed for the jetport using the INM computer model. In preparing these contours it was assumed that there would be no military operations. In addition, it was assumed that general aviation diversions from other local airports would be minimal because there are no field-based operations at the jetport to service any general aviation aircraft. However, diversions are expected in the future after base closure. During March 1993, major operators at the jetport would be air carriers and cargo operators. Appendix K presents the operations by aircraft type for the March 1993 baseline that were used for generating baseline contours. Departures and arrivals are divided between daytime (7:00 A.M. to 10:00 P.M.) and nighttime (10:00 P.M. to 7:00 A.M.) using the 1991 distribution. No major change in day and nighttime operation distribution is expected. Figure 3.4-9 outlines the flight tracks used for generating the baseline noise contours. These flight tracks are the same as the existing flight tracks. Figure 3.4-10 presents the baseline noise contours for March 1993 jetport aircraft operations. The size of the area within the DNL of 65 dBA contour would decrease to about 449 acres and size of the area within the DNL of 70 dBA contour would decrease to about 192 acres. This is a substantial



EXPLANATION

17D1 — FLIGHT TRACKS

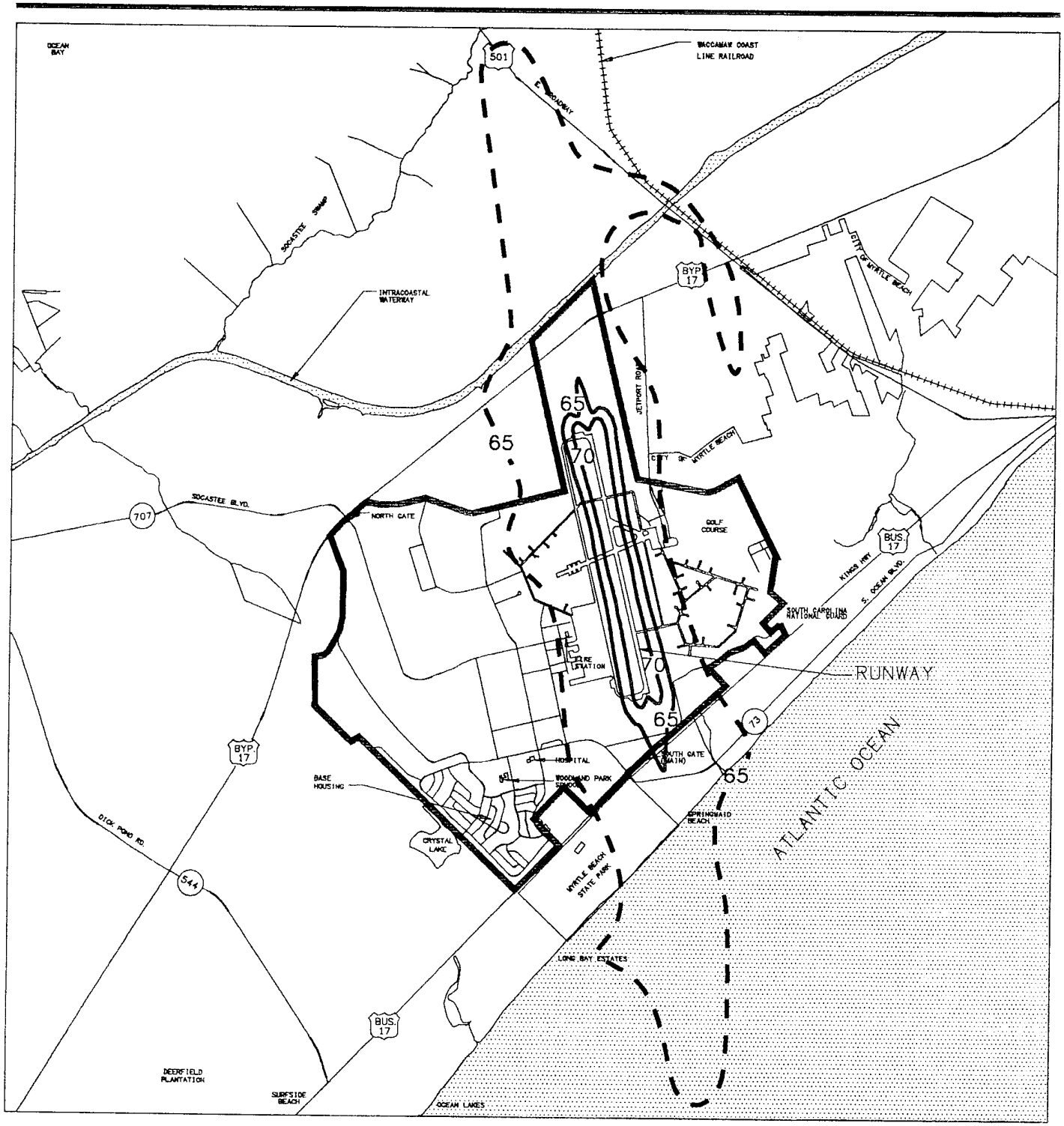
R13 — RECEPTOR LOCATIONS

0 1/2 1 2 MILES

FLIGHT TRACKS AND RECEPTOR LOCATIONS

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 3.4-9



EXPLANATION

65 — PRECLOSURE DNL NOISE CONTOURS (dBA) (1990) (SHOWN FOR COMPARISON)

65 — DNL NOISE CONTOURS (dBA) AFTER CLOSURE (1993)

0 1/4 1/2 1 MILE

BASELINE NOISE CONTOURS

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 3.4-10

decrease and off-base residential areas would no longer be exposed to a DNL of 65 dBA or higher.

SEL was calculated at 16 representative sensitive receptor locations for the noisiest and most common aircraft. Figure 3.4-9 shows locations of these sites and Table 3.4-16 presents results of this calculation. The analysis suggests that, for the baseline case, some aircraft overflight could affect the sleep of some residents, especially north of the airfield. In 1993 the noisiest plane would be the Stage 2 B727-200 aircraft. The next-noisiest planes would be the Stage 2 B737-200 and DC-9 aircraft. These three aircraft are the most common commercial jets used at the jetport.

The baseline vehicular traffic noise levels were predicted using 1993 traffic projections. Table 3.4-17 shows the predicted baseline traffic noise levels. Appendix K contains the data used in the surface traffic analysis. These data include AADT, traffic mix, and speed.

Table 3.4-17. Distance to DNL from Roadway Centerline for the Closure Baseline, March 1993

Roadway	Dist. to Roadway Centerline (ft.)[1, 2]				
	DNL of 60 dBA	DNL of 65 dBA	DNL of 70 dBA	DNL of 75 dBA	L_{eq} of 67 dBA[3]
U.S. 17 Business					
- From MBAFB toward south	402	197	99	55	147
- From MBAFB toward north	364	178	90	51	134
U.S. 17					
- From MBAFB toward north & south	605	299	147	76	223
SC 707					
- From MBAFB toward west	221	106	50	<50	78
U.S. 501					
- From U.S. 17 Bypass toward west	545	268	132	69	200
- From U.S. 17 Bypass toward east	419	205	102	56	154
SC 544					
- From U.S. 17 Business to US 17 Bypass	259	124	59	<50	91
- From U.S. 17 Bypass to SC 707	404	196	94	<50	145
Jetport Rd.					
- From jetport to SC 600	63	<50	<50	<50	<50

[1] Based on soft site distance propagation of 4.5 dB per doubling of distance.
[2] Heavy truck estimates also assume flat grades (no uphill).
[3] Peak hour = 10% of AADT.

TABLE 3.4-16. SOUND EXPOSURE LEVELS AT REPRESENTATIVE NOISE RECEPTORS - BASELINE (1993)

NO	RECEPTOR LOCATION	LAND-USE	SOUND EXPOSURE LEVEL (dB) AIRCRAFT TYPE										
					B737-300			SAAB 340					
			B727-200	B737-200	B737-400	B757	F100	EMB 120	DC-9	DHC 8	C208	C402	PA34
INSIDE THE BASE													
1	NW CORNER OF THE GOLF COURSE	RECREATIONAL	92	97	85	84	88	78	95	72	78	71	80
2	NEAR BLDG 400 EAST OF RUNWAY	VACANT	95	99	87	86	91	80	97	74	80	73	82
3	SOUTH GATE	VACANT	101	99	84	83	89	81	99	72	82	74	83
4	BLDG 610 AT ALDER STREET	VACANT	90	90	75	74	79	71	89	65	73	66	74
5	CORNER OF SHINE AND B AVENUES	VACANT	93	93	80	79	85	75	93	69	76	69	77
6	CORNER OF SHINE AND D AVENUES	VACANT	88	92	81	80	83	73	90	69	74	67	75
OUTSIDE THE BASE													
7	WEST END OF WATER SIDE DR.	RESIDENTIAL	102	98	84	82	89	80	99	76	82	69	84
8	CORNER OF STALVEY AND NAYLOR AVENUES	RESIDENTIAL	82	83	70	68	73	65	82	62	67	61	68
9	CORNER OF TAYLOR AND CLARK STREETS	RESIDENTIAL	88	92	80	79	83	73	90	68	73	66	75
10	CORNER OF 25TH AND ROSE MARY STREETS	HOTEL	94	93	79	78	84	75	93	68	76	69	77
11	SPRINGMAID BEACH RESORT	RESORT	108	102	95	94	93	88	104	92	86	85	88
12	MYRTLE BEACH STATE PARK	PARK	103	99	85	83	90	80	100	77	83	75	84
13	CORNER OF YAUPON CIR. AND DOGWOOD DR.	RESIDENTIAL	88	87	73	71	76	69	86	65	72	66	73
14	NORTH OF SOCASTEE BL AND EAST OF HWY 675	RESIDENTIAL	80	81	68	66	71	63	80	67	64	58	65
15	HWY 478 SOUTH OF ROUTE 17	RESIDENTIAL	99	98	84	84	90	80	98	73	80	73	82
16	SOUTH OF US 17 BETWEEN HWY 478 AND HWY 600	RESIDENTIAL	102	99	85	83	90	80	100	73	82	75	84

3.4.5 BIOLOGICAL RESOURCES

Biological resources at Myrtle Beach AFB include the native and introduced plants and animals in the area. For discussion purposes, these are divided into vegetation, wildlife (including aquatic biota), threatened or endangered species, and sensitive habitats. Since the establishment of Myrtle Beach AFB in the early 1940s, human activities have been the primary influence on the biological resources within the facility boundaries.

During the early 1980s, many Air Force facilities developed technical and operational guidance documents to maximize base grounds management for the improvement, maintenance, and protection of floodplains and wetlands; timber resources; cultural, historical, and archeological sites; and associated wildlife. Many of these programs are in various stages of implementation at the base.

The ROI used for discussions of the biological resources and present and potential impacts on these resources is the base. This includes the area within which potential impacts could occur and provides a basis for evaluating the level of impact.

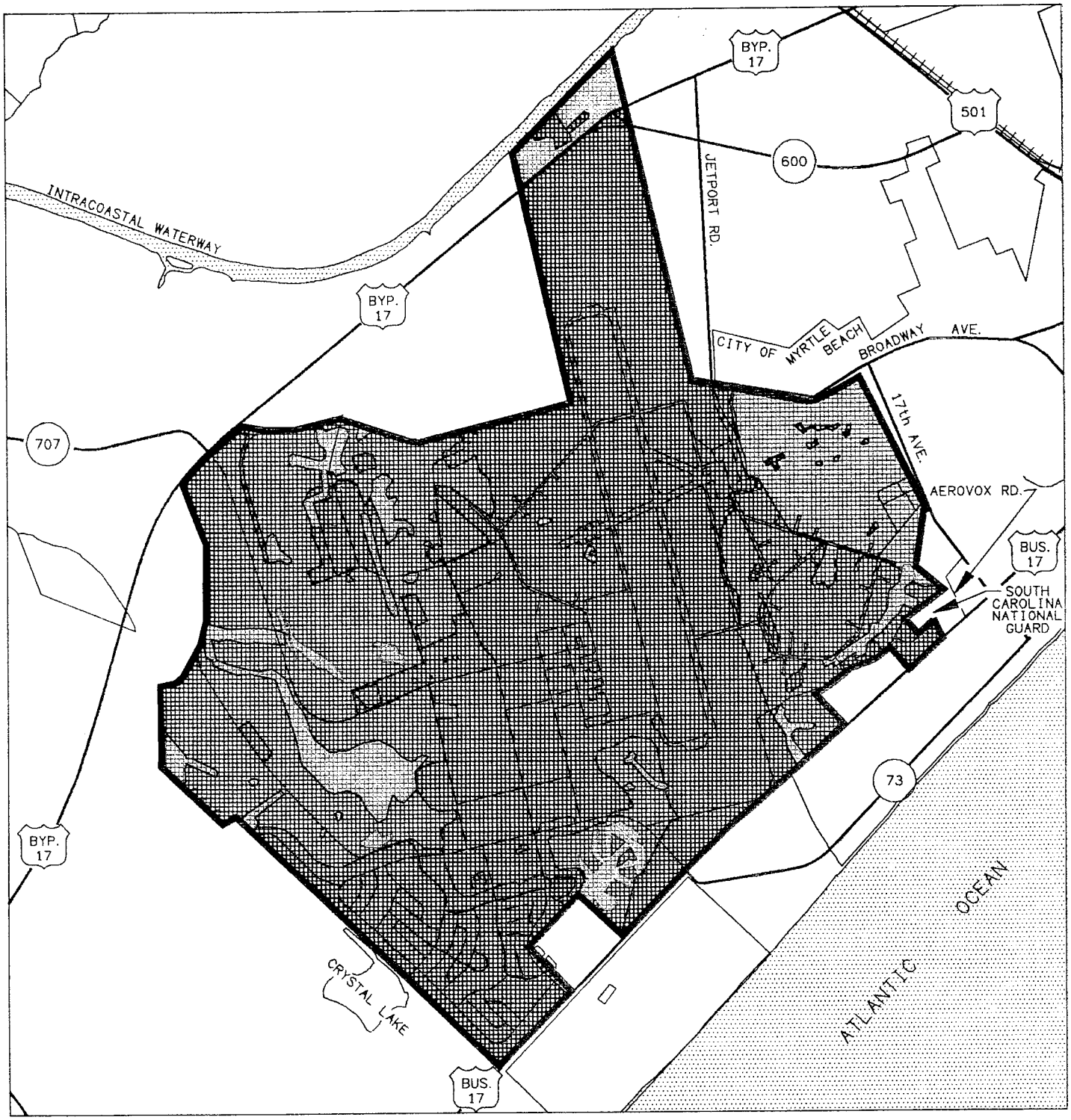
Information on the affected environment was obtained from review of Myrtle Beach AFB's Fish and Wildlife Management Plan (U.S. Air Force, 1987), Outdoor Recreation Plan (U.S. Air Force, 1990h), Land Management Plan (U.S. Air Force, 1990g), and Forest Management Plan (U.S. Air Force, 1991t). Additional data sources include National Wetland Inventory Maps, U.S. Geological Survey Topographic Quadrangle Maps, correspondence and phone contacts with various natural resource agencies, and the Final EIS for Proposed Closure of Myrtle Beach AFB (U.S. Air Force, 1990d). Data were also secured from interviews with base personnel, a field visit (February 1992), and a wetland delineation (July 1992).

3.4.5.1 Vegetation

Vegetation on Myrtle Beach AFB includes a mixture of forest systems, urban areas (e.g., on-base residential, industrial, other developed land), and a golf course. A natural resource map is presented in Figure 3.4-11. Approximate acreage in each natural resource category is presented in Table 3.4-18.

Table 3.4-18. Natural Resource Acreage

	Forest	Open Water	Other	Total
Golf Course	106	11	125	242
Urban Lands	276	5	1,925	2,206
Non-Wetland Forest	1,027	--	--	1,027
Wetland Forest	269	--	--	269
Total	1,678	16	2,050	3,744



EXPLANATION

- OPEN WATER
- GOLF COURSE
- URBAN
- NON-WETLAND FOREST
- WETLAND

0 1000 3000 feet

N W E S

NATURAL RESOURCES MAP

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 3.4-11

Native vegetation on the facility is characterized by typical lower-plain pine and mixed hardwood forest. The forest cover consists primarily of loblolly pine (*Pinus taeda*) with scattered areas of longleaf pine (*Pinus palustris*). Narrow strips of creek hardwoods occur along natural and man-made drainages. The creek hardwoods primarily include black gum or swamp tupelo (*Nyssa sylvatica*), red maple (*Acer rubrum*), and sweetgum (*Liquidambar styraciflua*).

Within the base boundaries, approximately 1,678 acres of lands, including uplands and wetlands, remain forested. The U.S. Air Force Forest Management Plan for the base has categorized this acreage into 1,296 acres of commercial forest and 382 acres of non-commercial forest. The non-commercial forest includes areas in and around the golf course and the residential housing area where aesthetics is the primary management concern.

Key factors in the forest management plan are the initiation of selective harvesting of timber, the prescribed burning of the forest community, and the development of fire lanes and drainage canals. The first management schedule to incorporate selective harvesting and controlled burning of forest areas is planned for FY1992-93 in a 39-acre plot. This activity, although planned, is dependent on available funds. The forest management activities, initiated by the base, have altered the available diversity of habitats and will enhance the native populations of flora and fauna. The dominant forest types and acreage are presented in Table 3.4-19.

Table 3.4-19. Forest Community Types and Acreage

Forest Type	Acres
Loblolly Pine	967
Loblolly Pine/Hardwood	143
Longleaf Pine	48
Longleaf Pine/Loblolly Pine	87
Loblolly Pine/Pond Pine	174
Sweetgum/Willow Oak	23
Sweetgum/Yellow Poplar	4
Water Oak/Diamondleaf (Laurel) Oak	2
Black Gum/Sweetgum/Red Maple	230
Total Area	1678

The understory species typically found in a pine-hardwood forest include seedlings and saplings of the overstory species in addition to red bay (*Persea borbonia*), sweetbay (*Magnolia virginiana*), and American holly (*Ilex opaca*). In areas with a partially open canopy and along the periphery of the mature forest stands and drainage ditches, the shrub species wax myrtle (*Myrica cerifera*) and Japanese honeysuckle (*Lonicera japonica*) are dominants. Ferns commonly associated with this forest complex are Virginia chain-fern (*Woodwardia virginica*), netted chain-fern (*W. aerolata*), and royal fern (*Osmunda regalis*). Woody vines typically are yellow jasmine (*Gelsemium sempervirens*), Virginia creeper (*Parthenocissus quinquefolia*), muscadine grape (*Vitis rotundifolia*), catbriar (*Smilax* spp.), and poison ivy (*Toxicodendron radicans*).

The remainder of the base, approximately 2,066 acres, is developed land with uses such as buildings, runways, parking lots, grassy areas adjacent to

runways, various improved and semi-improved open field areas, on-base housing, recreational facilities, and open water bodies. Vegetation in the improved and semi-improved areas is maintained at heights between three and eight inches.

The semi-improved areas in Myrtle Beach AFB contain a variety of herbaceous species such as goldenrod (*Solidago* spp.), various asters, broomsedge (*Andropogon virginicus*), giant cane (*Arundinaria gigantea*), and in moister soils, sedges (*Carex* spp., *Cyperus* spp., and *Scirpus* spp.). The controlled height restrictions on these areas have resulted in a relatively low species diversity of plants.

The grass areas adjacent to runways, athletic fields, and housing areas typically support a variety of field grasses that may include Kentucky 31 (*Poa* spp.), creeping red fescue (*Festuca rubra*), annual rye (*Lolium temulentum*), Bermuda grass (*Cynodon dactylon*), bahia grass (*Paspalum notatum*), and Manhattan rye (*Lolium* sp.). Seasonally these areas also receive fertilizers characteristically high in slow release nitrogen and other booster concentrations of various plant nutrients.

The golf course encompasses approximately 242 acres. The tees, fairways, greens, and driving range comprise approximately 125 acres. Vegetation typically includes highly maintained Bermuda grass with annual rye overseeding for winter color. These areas are heavily fertilized to maintain a high quality playing surface. The remaining golf course acreage includes several ponds and the fringe pine and hardwood forest areas. The forest species typically reflect the same composition as the larger commercial forest areas.

3.4.5.2 Wildlife Resources

Wildlife resources on Myrtle Beach AFB include aquatic as well as terrestrial resources. Terrestrial wildlife species known to occur at, or whose known geographic range includes Myrtle Beach AFB, are listed in Appendix 1 of the U.S. Air Force Fish and Wildlife Management Plan for the base.

Historical practices of indiscriminant timber harvesting and a lack of controlled burning resulted in a less than desirable habitat for wildlife. The presence of a closed canopy and relatively little understory vegetation provide marginal habitat for preferred wildlife food plants. The adoption of the forest management plan in June 1967 and its subsequent implementation has resulted in wildlife habitat improvement. The development of edge habitat from selective timber harvesting and the growth of early successional stage herbaceous vegetation in and around the drainage ditches and fire control lines are slowly improving the variety of wildlife food plants. Several acres of permanent wildlife food plots planted with bicolor bush-clover (*Lespedeza* sp.) and white clover (*Trifolium repens*) have been provided and maintained to enhance forage and habitat diversity.

Terrestrial wildlife species most likely to occur on the base are the gray squirrel (*Sciurus carolinensis*), fox squirrel (*Sciurus niger*), cottontail rabbit (*Sylvilagus floridanus*), marsh rabbit (*Sylvilagus palustris*), white-tailed deer (*Odocoileus virginianus*), raccoon (*Procyon lotor*), Virginia opossum (*Didelphis virginiana*),

house mouse (*Mus musculus*), great blue heron (*Ardea herodias*), mallard duck (*Anas platyrhynchos*), northern bobwhite quail (*Colinus virginianus*), killdeer (*Charadrius vociiferus*), mourning dove (*Zenaida macroura*), and various songbirds, turtles, frogs, and snakes.

Historical base uses of terrestrial wildlife resources included active consumption through game species hunting and nonconsumptive uses associated with picnicking and camping. Hunting of game species included regulated taking of white-tailed deer, cottontail rabbits, marsh rabbits, gray squirrels, fox squirrels, mourning doves, and bobwhite quail. Data on population sizes, hunter consumption rates, or stocking programs were not routinely maintained. However, the general habitat conditions for these species are considered to be marginal and of limited quality. Active hunting of game species at the base has not been allowed since around 1986 or 1987. The wildlife management plan prepared by the U.S. Air Force for Myrtle Beach AFB has addressed the issues of marginal habitat with the implementation of land management practices designed to improve the habitat, diversity, and population sizes of game species as well as non-game species.

The nonconsumptive uses of terrestrial wildlife resources at the base include approximately 26 acres of recreational camping area and several miles of roads and trails available for wildlife observation. Data presented in the U.S. Air Force Outdoor Recreation Plan for the base indicate that these facilities are actively used by base personnel to near maximum capacity allowed without impairing the scenic, recreational, or ecological values of these facilities.

Aquatic wildlife resources on Myrtle Beach AFB are found in approximately 16 acres of freshwater ponds. The majority of these ponds, five ponds totalling 11 acres, are located in the golf course complex. All of these ponds have been stocked in the past with largemouth bass (*Micropterus salmoides*), bluegill (*Lepomis macrochirus*), and red-ear sunfish (*Lepomis microlophus*). Past fish collecting activities by base personnel revealed relatively low species diversity in the ponds with some ponds lacking fish and others with large populations of a single species of fish. Spring season fish kills also have been reported in several of these ponds. Storm water runoff with high concentrations of nutrients from the adjacent golf course greens contribute to seasonal algae blooms. These blooms can result in low levels of dissolved oxygen. Periodic localized fish kills are a common result of this cycle in small golf course lakes. The Fish and Wildlife Management Plan identified changes that needed to be made to these systems for habitat improvement. Implementation of the plan recommendations has resulted in several of the ponds being enlarged. Several ponds also have received replacement stocks of game fish and the placement of various types of underwater fish attractors to provide cover for juvenile fish species.

Current recreational fishing activities have been restricted to the 5-acre Woodland Park pond. Past fish sampling activities at this pond revealed a large population of bluegills and no larger game fish species. Water quality parameters measured during the fish sampling program in August 1985 indicated a pH of 9.0 for the pond. The other ponds on the base had pH ranges from 7.0 to 8.2. No data were available as to the source of the higher than normal pH for Woodland Park Pond.

3.4.5.3 Endangered, Threatened, and Special Concern Species

Numerous federal- and state-listed endangered, threatened, and special concern species are known to occur either periodically or permanently within the general vicinity of Myrtle Beach AFB. In compliance with the Endangered Species Act, the Air Force has initiated the Section 7 consultation process with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service (Appendix L).

The definitions for endangered, threatened, and special concern species are:

Federally-listed endangered species. Any species that is in danger of extinction throughout all or a significant portion of its range that has been listed by the U.S. Department of the Interior or the Secretary of Commerce.

Federally-listed threatened species. Any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range that has been listed by the U.S. Department of the Interior or the Secretary of Commerce.

Candidate species. A species under review for federal listing as a threatened or endangered species. Additional data are needed to make a final determination.

State-listed endangered species. Any species that is in danger of extinction as a breeding species in a given state that has been listed by the appropriate state agency.

State-listed threatened species. Any breeding species in a given state that is likely to become a state endangered species within the foreseeable future that has been listed by the appropriate state agency.

Species of special concern. Any species designated by a given state to have a naturally restricted range or habitat, to be at a low population level, or to be in such high demand by humans that its unregulated taking would be detrimental to the conservation of its population.

Listed species potentially occurring on or near Myrtle Beach AFB are identified in Table 3.4-20. Seasonal migrants including the raptors and wood storks occasionally may pass through the base. The only federally-listed species that has been documented within installation boundaries in the past is the American alligator (*Alligator mississippiensis*). This species is an uncommon, but not a rare, resident of Horry County. Alligators are found in base ponds and ditches on a recurring basis. The shortnose sturgeon (*Acipenser brevirostrum*) has been identified by the National Marine Fisheries Service as occurring in the Intracoastal Waterway near the Myrtle Beach AFB fuel dock.

Another species historically common on South Carolina's coastal plain is the red-cockaded woodpecker (*Picoides borealis*). This species has a narrow, well defined niche and requires fairly extensive areas (200+ acres) of mature and over-mature southern pine forest. Present forest conditions at the base do not provide habitat suitable for colonization by this species. However, forest management practices implemented at the base may, in time, result in suitable habitat. Various regulatory agencies are actively pursuing expanding the

Table 3.4-20. Protected Species Potentially Occurring On or Near Myrtle Beach AFB
Page 1 of 3

Common Name	Scientific Name	Status		Comments/Habitat
		Federal[1]	State[2]	
AMPHIBIANS/REPTILES				
American alligator	*Alligator mississippiensis*	T[S/A]	T[S/A]	Observed on Myrtle Beach AFB in the past
Atlantic green sea turtle	*Chelonia mydas*	T	T	Uncommon in South Carolina's coastal waters
Kemp's Ridley sea turtle	*Lepidochelys kempii*	E	E	Uncommon in South Carolina's coastal waters
Leatherback sea turtle	*Dermochelys coriacea*	E	E	Occurs in South Carolina's coastal waters
Loggerhead sea turtle	*Caretta caretta*	T	T	Common in South Carolina's coastal waters
FISH				
Shortnose sturgeon	*Acipenser brevirostrum*	E	E	May occur in South Carolina's coastal waters
BIRDS				
Bachman's sparrow	*Aimophila aestivalis*	C2	C2	Known to occur in Horry County
Bachman's warbler	*Vermivora bachmanii*	E	E	Timbered swamps with abundant water. Unlikely in Myrtle Beach area
Bald eagle	*Haliaeetus leucocephalus*	E	E	Occurs nationwide near seacoasts, rivers, and large lakes. Does not occur in Myrtle Beach area at present
Black rail	*Laterallus jamaicensis*	C2		Known to occur in Horry County
Cooper's hawk	*Accipiter cooperii*		T	An uncommon winter resident that inhabits dense woods and adjacent edges
Golden eagle	*Aquila chrysaetos*		E	A rare fall transient and winter visitor in South Carolina
Ipswich sparrow	*Passerculus sandwichensis princeps*		E	Restricted to sand dune habitat along the Atlantic East Coast
Kirtland's warbler	*Dendroica kirtlandii*	E	E	Nest in Michigan. Rare migrant in the Carolinas

Table 3.4-20. Protected Species Potentially Occurring On or Near Myrtle Beach AFB
Page 2 of 3

Common Name	Scientific Name	Status		Comments/Habitat
		Federal[1]	State[2]	
Least tern*	*Sterna antillarum*	E	E	A common summer resident along the coast where it nests on beaches and dredge spoil islands
Loggerhead shrike	*Lanius ludocivianus*	C2		Known to occur in Horry County
Osprey*	*Pandion haliaetus*		T	Commonly breed on or near the coast, but rare in winter
Peregrine falcon	*Falco peregrinus tundris*	T	E	Very rare in eastern U.S. Arctic peregrines are occasional migrants along East Coast
Piping plover	*Charadrius melodus*	T	E	Occurs along beaches and barrier islands. Rare inland. Not expected to occur in Myrtle Beach area
Red-cockaded woodpecker*	*Picoides borealis*	E	E	Known in Horry County; nests in pine trees
Swallow-tailed kite	*Elanoides forficatus*		E	An uncommon breeding summer resident that inhabits dense woodlands, river bottoms, and cypress lagoons
Wood stork	*Mycteria americana*	E	E	Common in coastal South Carolina
MAMMALS				
Black bear*	*Ursus americanus*		E	In the coastal plain, occurs in large tracts of swamp, pocosins, and flatwoods
West Indian (Florida) manatee	*Trichechus manatus*	E	E	Documented in Myrtle Beach coastal waters
PLANTS				
Canby's dropwort	*Oxypolis canbyi*	E		
Carolina grass-of-parnassus	*Parnassia caroliniana*	2		An inhabitant of coastal plain savannahs, bogs, and flatwoods
Carolina lilaeopsis*	*Lilaeopsis carolinensis*	3C		In coastal plains, found in shallow freshwater pools, ditches, marshes, and muddy shores
Chaffseed*	*Schwalbea americana*	1		Found in moist to dry pinelands, oak woodlands, and seasonally wet pine savannahs

Table 3.4-20. Protected Species Potentially Occurring On or Near Myrtle Beach AFB
Page 3 of 3

Common Name	Scientific Name	Status		Comments/Habitat
		Federal[1]	State[2]	
Cooley's meadowrue	*Thalictrum cooleyi*	E		
Godfrey's sandwort*	*Minuartia godfreyi*	3C		Occurs in seepage areas, wet woodland clearings within flatwoods, and adjacent ditches in the coastal plain
Pickering's morning-glory	*Stylisma pickeringii* var. *pusillum*	C2		Known to occur in Horry County
Pineland plantain	*Plantago sparsiflora*	C2		Known to occur in Horry County
Pondberry	*Lindera melissaefolium*	E		
Pondspice	*Litsea aestivalis*	C2		Known to occur in Horry County
Rough-leaved loosestrife	*Lysimachia asperulaefolia*	E		
Schweinitz' sunflower*	*Helianthus schweinitzii*	2		Inhabits clearings and borders of upland woods in the coastal plain and piedmont of South Carolina
Slender-leaf dragon-head	*Physostegia leptophylla*	C2		Known to occur in Horry County
Vahl's fimbry*	*Fimbristylis perpusilla*	2		Occurs along alluvial borders of pineland ponds

* Species has been documented in Horry County, South Carolina.

Status Notes:

1 - Taxa for which the USFWS has enough substantial information on biological vulnerability and threat(s) to support proposals to list them as endangered or threatened species
2 - Taxa for which there is some evidence of vulnerability but for which there are not enough data to support listing proposals at this time
C2 - Candidate species
3C - Taxa that have proven to be more abundant or widespread than previously believed and/or those that are not subject to any identifiable threat
E - Endangered
T - Threatened
S/A - Species that are sufficiently similar in appearance to endangered or threatened species

Sources: U.S. Department of Interior, Fish and Wildlife Service, 1992; South Carolina Heritage Trust Program; Wildlife Marine Resources Department, 1992; U.S. Department of Commerce, National Marine Fisheries Service, 1992; Radford et al., 1968; Potter et al., 1980; Webster et al., 1985.

current range of this species within the coastal plain area. However, there is no record of populations of this species in the surrounding native forest community or in the forest on Myrtle Beach AFB.

South Carolina has established a heritage trust program for tracking occurrences of both federal- and state-listed species of animals and plants. Recent correspondence with state resource personnel (February 1992) did not identify any state-listed animals or state-concern plants in Myrtle Beach AFB. However, the American alligator, a state-listed species, has been documented on base on past reports.

3.4.5.4 Sensitive Habitats

Sensitive habitats normally include plant communities that display one or more of the following characteristics.

- Plant communities that are unusual in species composition or wildlife usage,
- Plant communities that have a very restricted or limited distribution, or
- Plant communities that provide important wildlife functional values, or critical seasonal usage during species migration, breeding, or crucial summer/winter periods.

In the vicinity of Myrtle Beach AFB, wetlands are the primary sensitive habitats. Wetlands are defined as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (U.S. Army Corps of Engineers, 1987). Areas that are periodically wet but do not meet all three wetland criteria (hydrophytic vegetation, hydric soils, and wetland hydrology) are not jurisdictional wetlands subject to Section 404 of the Federal Clean Water Act nor to the Swampbuster provision of the Federal Food Security Act. Areas that have been disturbed or that are classified as problem area wetlands, however, may not meet all three criteria as a result of natural or man-induced reasons, yet still may be considered wetlands.

In July 1989, the Air Force requested federal wetland jurisdictional responsibility as it pertains to wetlands on Myrtle Beach AFB. The jurisdictional wetland boundaries were approximated on a National Wetland Inventory (NWI) map dated July 11, 1989. The NWI map displays several areas that were removed from jurisdictional review by the COE. The majority of these areas were associated with the existing runways and taxiways and were classified as palustrine emergent systems that are temporarily or seasonally flooded.

In July 1992, the Air Force field delineated the wetlands on the base. All delineations were performed following methods described in the U.S. Army Corps of Engineers (COE) Wetland Delineation Manual (1987).

The jurisdictional wetland systems encompass approximately 269 acres. Three general types of wetland systems were identified within the base boundaries

(Figure 3.4-11). These include palustrine forested, palustrine emergent, and riverine systems. The palustrine forested systems are the dominant wetland community on Myrtle Beach AFB. Dominant canopy species in this complex include swamp tupelo, red maple, and sweetgum. The emergent systems normally include cattails (*Typha latifolia*), various soft rushes, and sedges. Understory species in the palustrine forest system are limited to seedlings and saplings of the canopy species. Herbaceous species are very limited mainly due to overstory canopy shading.

The riverine systems in Myrtle Beach AFB include both tidal and lower perennial systems. The lower perennial wetlands on base are constructed drainage ditches that typically contain one to two feet of water. The tidal system also is a constructed feature that shows little or no tidal influence. These two systems contain a variety of sedges, rushes, and grasses.

3.4.6 CULTURAL RESOURCES

Cultural resources are prehistoric and historic sites, structures, districts, artifacts, or any other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, religious or any other reason. Cultural resources have been divided for ease of discussion into three main categories: prehistoric resources, historic structures and resources, and traditional resources. These types of resources are defined in Appendix E, Methods. For the purposes of this analysis, paleontological remains, the fossil evidence of past plant and animal life, have been included within the cultural resources category.

The ROI for the analysis of cultural resources includes minimally, all areas within the base boundaries, whether or not certain parcels would be subject to ground disturbance. For this analysis, the ROI is synonymous with the area of potential effect (APE) as defined by regulations implementing the National Historic Preservation Act (NHPA). The potential conveyance of federal property to a private party or non-federal agency constitutes an undertaking, or a project that falls under the requirements of cultural resource legislative mandates, because any historic properties located on that property would cease to be protected by federal law. However, impacts resulting from conveyance could be reduced to a nonadverse level by placing preservation covenants on the lease or disposal document. Development within designated parcels would, therefore, fall under the requirements of Section 106 of the NHPA. The ROI also would include those areas designated for potential acquisition under certain proposals that might be disturbed as a direct or indirect result of base reuse.

Numerous laws and regulations require federal agencies to consider the effects of a proposed project on cultural resources. These laws and regulations stipulate a process for compliance, define the responsibilities of the federal agency proposing the action, and prescribe the relationship among other involved agencies (e.g., State Office of Historic Preservation, the Advisory Council on Historic Preservation). Methods used to achieve compliance with these requirements are presented in Appendix E.

Only those potential historic properties determined to be significant under cultural resource legislation are subject to protection or consideration by a

federal agency. The quality of significance, in terms of applicability to National Register of Historic Places (NRHP) criteria and of integrity, is discussed in Appendix E, Methods. Significant cultural resources, either prehistoric or historic in age, are referred to as "historic properties."

In compliance with the NHPA, the Air Force has initiated the Section 106 review process with the South Carolina State Historic Preservation Officer (SHPO). Documentation of this process is presented in Appendix M. Record and literature searches were performed at Myrtle Beach AFB, the University of South Carolina; the Historic Preservation Office in Columbia, South Carolina; in Horry County records in Conway, South Carolina; the South Carolina Institute of Archaeology and Anthropology. A field survey is being conducted by the Air Force to assess potential eligibility of undetermined sites and structures. Results are discussed under the appropriate resource category. This research was conducted in 1992.

3.4.6.1 Prehistoric Resources

Human presence in the South Carolina Coastal Plain apparently began about 12,000 years ago. Recent review of the Paleo-Indian Period in the state recorded few sites of this period in Horry County (Goodyear et al., 1989). One of the few possible sites is known as Surfside Springs (38HR26) (State archaeological site number 38HR26) where a possible site included several animal bones, charcoal fragments, and two crude stone tools. Paleo-Indian points have been encountered in the Horry County area (Michie, 1977), but no intact sites have yet been documented. A Dalton-type point was found on the base during the 1979 survey. This was identified at the time as an isolated find along a drainage ditch. No further investigation was conducted.

The Early Archaic Period (8,000 to 6,000 B.C.) corresponds to the adaptation of native groups to Holocene conditions. The environment in coastal South Carolina during this period was colder and moister than at present, and an oak-hickory forest was establishing itself on the Coastal Plain. This period is not well known in the area and is generally defined by corner- or side-notched projectile points. Sites are generally small, indicating a high degree of mobility. The trends initiated during the Early Archaic continued through the Middle Archaic and Preceramic Late Archaic Periods (6,000 to 2,000 B.C.). Environmentally, the area was still warming, and an oak-hickory forest dominated the coast until the beginning of the Preceramic Late Archaic, when pines became more prevalent. Stemmed projectile points and groundstone artifacts characterize this period, and sites increase in size and density. There is a very low density of Middle Archaic sites in the Coastal Plain (Blanton and Sassaman, 1989). The high mobility of the Early Archaic gradually decreased, and by the end of this span substantial permanent or semi-permanent sites were common.

By the end of the Late Archaic Period, two developments had occurred that changed the lifestyle on the South Carolina Coastal Plain. First, the sea level had risen to within one meter of present levels and the extensive estuaries now present were in place. These estuaries were a reliable source of shellfish, and the Ceramic Late Archaic/Early Woodland (2,000 to 500 B.C.) (Goodyear et al., 1989) saw the first emphasis on shellfish exploitation. It was also during this period that pottery appeared on the South Carolina coast. In the study area,

this pottery is the sand tempered or untempered Thomas Creek series. Coastal Thomas Creek sites without shell have only recently been examined (Trinkley, 1983).

The Early Woodland Period along the Coastal Plain is characterized by Deptford, Hanover/Deep Creek pottery and is sometimes linked with the "Northern Tradition" (Trinkley, 1989). The subsistence and settlement patterns suggest population expansion and the movement of groups into areas minimally used in earlier periods. The Early and Middle Woodland period sites are the most common on the South Carolina coast, and generally consist of shell middens near tidal marshes and ceramic and lithic scatters in a variety of other environmental zones.

The topological manifestations of the Middle and Late Woodland periods (A.D. 200 to 1000) on the South Carolina coast are somewhat unclear, although the trend seems to include the fragmentation of Early Woodland sites and seasonal rounds. The check stamped tradition of the Early Woodland Deptford series (sometimes called Deep Creek) continued through most of the Middle Woodland. Shell midden sites continue to be common during this period, although the overall site frequency appears to be lower than for the Early Woodland. Sand burial mounds and ossuaries are known from the coastal area, including Horry County (Trinkley, 1989; Rathbun, 1992).

The Mississippian Period (A.D. 1000 to 1543), characterized by an emphasis on agriculture and by the development of complex public works and ceremonial centers, apparently did not develop on the Carolina coastal plain, probably because of the limited agricultural potential, except along major drainages and coastal estuary locations.

Cultural resource surveys for archaeology have been conducted on Myrtle Beach AFB and in its immediate environs. These surveys include the following.

The site of a proposed civilian terminal building, parking lot, and access road was surveyed in 1975 (Anderson, 1975). This survey was conducted in the area of the present jetport facility. No archaeological sites were identified during the survey.

Carolina Archaeological Services (CAS) completed a cultural resources inventory in 1980, covering 3,400 acres (91 percent) of Myrtle Beach AFB. The remaining few hundred acres consist of unsurveyable land, e.g., building locations, runway and parking aprons, paved areas, concrete structures, maintenance areas, operations enclosures, and portions of the housing area, trailer park, and landfills. A total of 14 archaeological sites, as well as 17 isolated artifact finds were recorded. Twelve of the 14 archaeological sites contain the remains of prehistoric occupation, ranging from Middle Archaic to Woodland periods. None of the prehistoric sites were considered eligible for the NRHP by CAS. Four of the archaeological sites contain historic components representing mid-19th century to early-20th century homesteading activity. Only one of these (38HR114) (in conjunction with Building #172) was considered as potentially eligible for the NRHP by CAS (Drucker and Anthony, 1980). Sites 38HR103 and 38HR111 had historic components also. The nineteenth century component of site 38HR103 may be associated with the Tillman property shown on the 1825 Mills Atlas. These are summarized in

Table 3.4-21. The CAS survey also identified four military structures and one late historic complex, discussed in the next section, which were considered potentially eligible for the NRHP (Drucker and Anthony, 1980).

Table 3.4-21. Myrtle Beach AFB Archaeological Sites

Site No.	Cultural Affiliation	Status
38HR101	Woodland; 19th Century	Not eligible
38HR102	Prehistoric	Not eligible
38HR103	Woodland; 19th Century	Eligibility undetermined (SHPO, 1979)
38HR104	19th Century	Not eligible
38HR105	Middle Archaic	Not eligible
38HR106	Archaic; Woodland	Not eligible
38HR107	Archaic	Not eligible
38HR108	Archaic	Not eligible
38HR109	Woodland	Not eligible
38HR110	Woodland	Not eligible
38HR111	19th Century	Eligibility undetermined (SHPO, 1979)
38HR112	Woodland	Not eligible
38HR113	Late Archaic; Woodland	Not eligible
38HR114	Woodland; 20th Century	Eligibility undetermined (SHPO, 1979)

Source: Drucker and Anthony, 1980.

Artifacts from those archaeological investigations are currently maintained at the Institute of Archaeology and Anthropology, Columbia, South Carolina. Final disposition of these collections will be arranged in accordance with the provisions of 36 CFR 79 and the Native American Graves Protection and Repatriation Act of 1990.

3.4.6.2 Historic Structures and Resources

Pre-Base History. In 1526, Spanish colonists led by Lucas Vasquez de Ayllon made the first documented attempt to settle the northern coast of South Carolina. This settlement, believed to have been at Winyah Bay, lasted for only a brief period because of Indian attacks and mutiny by the settlers.

More permanent settlements were established during the eighteenth century. By 1700, a small settlement was located on the Waccamaw River in the vicinity of modern Conway, several miles north of the Myrtle Beach AFB property. Other settlements were located near the mouth of the Little River and along the Waccamaw Neck, east of the Waccamaw River. In 1731, the Governor of the Carolina Colony, Robert Johnson, established eleven 20,000 acre townships. The purpose of these townships was to increase settlement in inland areas and protect the land from the Indian and Spanish threat. Approximately half of present day Horry County, including the Myrtle Beach AFB land, became part of Kingston Township. Kingston was laid out on both sides of the Waccamaw River in 1734. This town became an important regional market and trans-shipment center during the second half of the nineteenth century. It was renamed Conwayborough in 1801 and Conway in 1883.

Unlike other coastal counties in South Carolina, Horry County was not dominated by the plantation system. Much of the land comprising Horry County was unsuitable for plantation agriculture because it was poorly drained and river access was limited. The settlers in this region primarily owned small farms and raised diverse subsistence crops and livestock for their own consumption. While the large scale production of cash crops was limited, the largest rice plantations in Horry County were located at Waccamaw Neck. These plantations occupied strips of land that fronted on the Waccamaw River and the Atlantic Ocean (Wilcox, 1968).

According to Census records, Horry District's population was predominantly white during the late eighteenth through the nineteenth centuries. By contrast, in districts where plantation agriculture was widespread, the slave population was greater. For example, in 1800, 27 percent of Horry County's population were black slaves. In Georgetown and Berkeley (St. Johns Upper Parish) Counties the slave to white ratio was 3:1 (Martin et al., 1987).

The plentiful bottomland timber stands located between the Waccamaw River and the coast provided the county with an additional source of revenue. Travelers observed small-scale tar kilns in the pine forests, near Kingston, as early as 1734. By the mid-eighteenth century, the northeastern section of the county, in particular, was well known for the production of tar, pitch, and turpentine. The production of timber and naval stores have remained important to the county's economy into the twentieth century (Martin et al., 1987). Some of these early tar kilns have been discovered during recent surveys.

The Mills 1825 Atlas shows the extent of development in Horry District. In the present location of the Air Force base and Myrtle Beach State Park, a structure is depicted on Tillman Swash. Drucker and Anthony (1980) surmise that the nineteenth century artifacts (component) found at site 38HR103 may be associated with the Tillman property. It is possible that there were other small landholders in the vicinity of the Air Force Base property that were not represented on the map and survive as archaeological sites.

Horry County weathered the Civil War and reconstruction years well. The extent of war activity in the area was the construction of Fort Randal at Tilghman's Point and a raid on the salt works on the beach at Singletown's Swash by federal troops (Espenshade and Mitchell, 1987). The county's

economy remained stable throughout this period because of the revenue generated from the sales of naval stores and timber. In addition, since the county had always been dominated by small independent farms, it did not experience the difficult period of transition from the large slave-holding plantations to small tenant farms that affected other areas.

Following the war, an increasing demand for tar and turpentine doubled production. The construction of the railroad in 1887 facilitated the transportation of lumber and other pine products to Wilmington. In addition, many swampy tracts were drained increasing the available agricultural lands. By 1890, tobacco replaced cotton as the small farmer's cash crop.

During the early twentieth century, Horry County's coastline was being developed into a resort area. Hotels were constructed and during the 1930s, and the Civilian Conservation Corps (CCC) built the Myrtle Beach State Park. This park is located near Myrtle Beach AFB and once included part of the base. The CCC was housed on the base and one or more of these camp buildings is still standing on the base property.

The land that eventually became part of Myrtle Beach AFB property encompasses what were the farmlands of some 19 different owners, which reflects the persistence of small diversified farms (Drucker and Anthony, 1980).

Base History. In October 1939, the Civil Aeronautics Administration (CAA) and the State Aeronautics Commission granted funding to the town of Myrtle Beach for the establishment of a municipal airport. During the spring of 1940, additional funds for construction were provided by the CAA in order that the airport could be incorporated into the national defense program. The Works Progress Administration began work on two runways soon after.

Initially, the airport was conceived of as a training facility for civilian pilots. However, in 1941, the Army Air Corps recognized that the area was also suitable for a bombing and gunnery range and subsequently, the runways were paved and extended to 5,000 feet. Apparently, the Army Air Corps had first used the airport in June 1940, when the 3rd Observation Squadron arrived to conduct firing practice along the ocean front and to map and photograph the entire area.

The War Department acquired the airport in November 1941 but did not obtain a title to the 138-acre tract until 1942. Nine tracts of land, totalling 100,000 acres, in the vicinity were purchased or acquired through the Second War Powers Act. The Myrtle Beach Tract comprised 6,710 acres of the total acquisition. This tract was designated as the Myrtle Beach General Bombing and Gunnery Range on March 24, 1942 (Office of the Staff of the Judge Advocate, 1973). At this time, officers and 188 men from the Savannah Army Air Base arrived at Myrtle Beach to establish, organize, administer, and operate the field. In May, the 79th Squadron began gunnery training.

Improvements made on the airfield over the next year included the construction of 114 buildings, a perimeter taxiway net, aircraft parking hardstands, cantonment facilities, and strengthening of the runways. All the facilities were connected by a network of access and secondary roads. In addition, most of these structures and surfaces were coated with camouflage paint by the spring

of 1943. In November 1943, the field was redesignated as the Myrtle Beach Army Airfield.

Throughout World War II, numerous units were trained at the Myrtle Beach Airfield before being sent into action overseas. Within the first 11 months of operation, the 17th, 31st, 310th, 340th, 345th, and 323rd Bombardment Groups and the 79th Fighter Squadron had trained there. In that time, a total of 552 combat teams and 1,082 replacement crew members were trained and over 4,451 firing and bombing missions completed. Also trained at the airfield were the team who flew with Lieutenant Colonel James Doolittle during the first raid on Tokyo and the "Flying Dutchmen," who performed incredible feats with B-25s.

As the war drew to a close, training at Myrtle Beach Airfield was sharply reduced and during the winter of 1945-46 the airfield's mission was primarily recruitment and support of special activities. The Civil Air Patrol, National Guard, and the U.S. Military Academy were among the organizations that used the field for encampments and other activities.

On November 1, 1947 the installation was inactivated and the airfield turned over to the city of Myrtle Beach, which operated it as a municipal airport. The city leased many of the buildings for commercial and industrial purposes.

In 1954, city officials offered to donate the Myrtle Beach Municipal Airport to the Air Force. After the offer was accepted in 1954, the Corps of Engineers made development plans for the facility. As a result, several buildings, utilities, portions of the taxiways, and hardstands were removed.

The installation's first tenant unit was the 727th Aircraft Control and Warning Squadron. Shortly thereafter, the 434th Air Base Squadron was established as the housekeeping unit. This unit was replaced by the 342nd Fighter/Day Wing in 1956. Over the next 22 years, the wing (now designated the 354th Fighter Wing, and given a fighter/bomber mission) was deployed several times from Myrtle Beach. In one instance, the wing was deployed to Korat Royal Air Force Base, Thailand, from which they returned in April 1974. More recently, in August 1990, the 354th was deployed to the Middle East in support of Operation Desert Storm (Myrtle Beach AFB Public Affairs Office, 1991).

The CAS 1980 study resulted in the identification of four standing structures and one late historic complex at Myrtle Beach AFB potentially eligible for listing in the NRHP (SHPO, 1991). These are:

- 1 CCC site in the family camp (No. 172)
- 1 Prefab metal aircraft hangar (No. 472)
- 2 Norden bomb sight vaults (Nos. 430 and 431)
- 1 World War II aircraft parking and cantonment area (FOLTA).

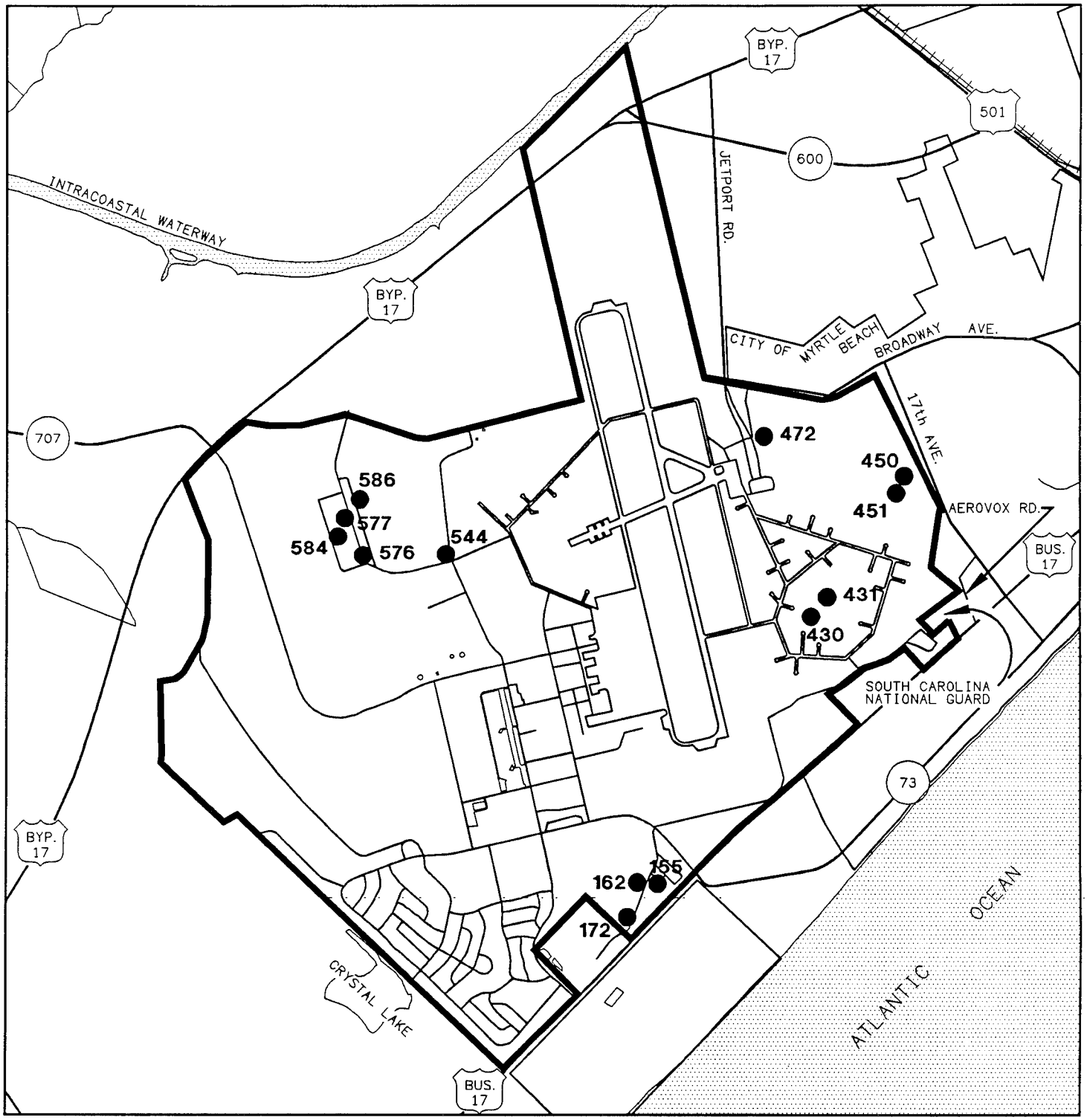
The one nonmilitary structure of the group, No. 172, is an extensively modified shed used by the CCC during the 1930s and now integrated as part of the family camping area.

The other three structures and historic complex identified in the survey are military: one prefabricated metal aircraft hangar (Butler hangar - No. 472); two concrete Norden bomb sight vaults (Nos. 430 and 431), considered as a single structural type; and the original World War II aircraft parking and cantonment area (FOLTA). Since the time of the 1980 study, the Air Force and SHPO (February 27, 1989) have determined that the Butler hangar is not eligible for the NRHP. The two Norden bomb sight vaults currently are not used and are in disrepair. The FOLTA is the remnant of the World War II aircraft parking area (revetment) and the original cantonment area of Myrtle Beach General Bombing and Gunnery Range, which comprised approximately 300 acres. Remnants of structures associated with the cantonment were identified during the 1980 study. Currently the southern leg of the revetment is the only paved access to the base golf course. Evaluations and determinations of eligibility for the NRHP for the two Norden bomb sight vaults and the FOLTA are currently under consideration by the Air Force and the SHPO.

Table 3.4-22 includes all of the structures remaining from the early use of the property during World War II, and indicates their status regarding NRHP eligibility. Those listed as being "NRHP eligibility undetermined" may require additional analysis and review. Locations of buildings constructed during and prior to 1945 are shown in Figure 3.4-12.

Table 3.4-22. Pre-1945 Structures and Facilities

Bldg. No.	Previous Function	Area (ft^2)	Year	Comment
155	Unknown	4,542	1942	NRHP eligibility undetermined
162	Unknown	5,644	1942	NRHP eligibility undetermined
172	CCC shed	1,151	1942	NRHP eligibility undetermined
430	Norden bomb sight vault	214	1942	NRHP eligibility undetermined
431	Norden bomb sight vault	214	1942	NRHP eligibility undetermined
450	Unknown	800	1942	NRHP eligibility undetermined
451	Unknown	195	1942	NRHP eligibility undetermined
472	Hangar	21,788	1942	Not eligible for NRHP
544	Unknown	3,750	1942	NRHP eligibility undetermined
576	Storage, Igloo	1,857	1942	NRHP eligibility undetermined
577	Storage, Igloo	1,262	1942	NRHP eligibility undetermined
584	Storage, Igloo	1,857	1942	NRHP eligibility undetermined
586	Unknown	100	1942	NRHP eligibility undetermined



SOURCE: MYRTLE BEACH AFB
REAL ESTATE OFFICE

BUILDINGS CONSTRUCTED 1945 AND EARLIER

N
W
E
S

0 1000 3000 feet

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 3.4-12

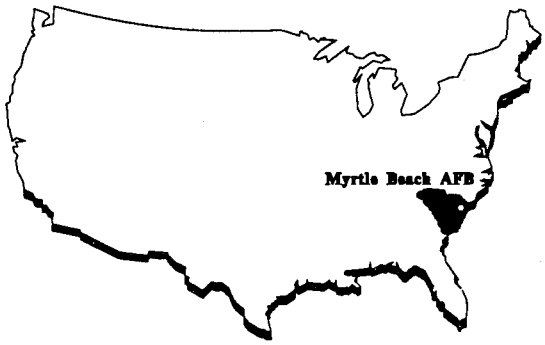
3.4.6.3 Traditional Resources

No reservations or Native American communities are known to occur on the base. Further consultation has been initiated with the South Carolina Department of Archives and History to confirm this assessment.

3.4.6.4 Paleontological Resources

This area is not considered paleontologically sensitive because paleontological formations are buried at depths of at least 50 feet.

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CHAPTER 4
ENVIRONMENTAL CONSEQUENCES

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

This chapter discusses the potential environmental consequences associated with the Proposed Action and alternatives. To provide the context in which potential environmental impacts may occur, discussions of potential changes to the local communities, including population, land use and aesthetics, transportation, and community and public utility services are included in this EIS. In addition, issues related to current and future management of hazardous materials and wastes are discussed. Impacts to the physical and natural environment are evaluated for soils and geology, water resources, air quality, noise, biological resources, and cultural resources. These impacts may occur as a direct result of disposal and reuse activities or as an indirect result caused by changes within the local communities. Possible mitigation measures to minimize or eliminate the adverse environmental impacts also are presented.

The impact analysis addresses both quantitative and qualitative aspects of changes caused by the Proposed Action and alternatives. Quantitative aspects are summarized by resource-specific evaluation criteria. A resource assessment matrix (RAM) displays and summarizes the estimated quantifiable impacts for each resource category. Evaluation criteria are arranged with the proposed reuse action and alternatives in matrix format. The Proposed Action and all alternatives are evaluated using the same set of evaluation criteria for each resource. Each alternative is quantitatively evaluated for anticipated extent of change from baseline conditions for each evaluation criterion.

Cumulative impacts result from "the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (Council on Environmental Quality, 1978). Cumulative impacts are discussed by resource in this chapter.

Means of mitigating adverse environmental impacts that may result from implementation of the Proposed Action or alternatives are discussed as required by the National Environmental Policy Act (NEPA). Most mitigation actions will be the responsibility of recipients of the property or land use and zoning authorities, rather than of the Air Force. Mitigation measures are suggested for those components likely to experience substantial and adverse changes under any or all of these alternatives. Potential mitigation measures depend on the particular resource affected. In general, however, mitigation measures are defined in Council on Environmental Quality (CEQ) regulations as actions that include:

(a) Avoiding the impact altogether by not taking a certain action or parts of an action

(b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation

(c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment

(d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action

(e) Compensating for the impact by replacing or providing substitute resources or environments.

A discussion of the effectiveness of mitigation measures is included for those resource areas where it is applicable, as in the case of air quality. Where appropriate, a discussion regarding the probability of success associated with a particular mitigation is included.

Although reuse development would be decided by recipients and local zoning authorities, probable reuse scenarios were evaluated to analyze environmental impacts.

Alternatives are defined for this analysis on the basis of (1) plans of local communities and interested individuals, (2) general land use planning considerations, and (3) Air Force generated plans to provide a broad range of reuse options. Reuse scenarios considered in this EIS must be sufficiently detailed to permit environmental analysis. Initial concepts and plans are taken as starting points for scenarios to be analyzed. Available information on any reuse alternative is then supplemented with economic, demographic, transportation, and other planning data to provide a reuse scenario for analysis. Appendix E describes this scenario development process. Approximately 20 years would be required to fully develop the base under civilian reuse.

4.2 LOCAL COMMUNITY

This section discusses potential effects on local communities as a result of disposal and reuse of Myrtle Beach AFB.

4.2.1 COMMUNITY SETTING

Socioeconomic effects will be addressed only to the extent that they are interrelated with the biophysical environment. A complete assessment of socioeconomic effects is presented in the *Socioeconomic Impact Analysis Study for the Disposal and Reuse of Myrtle Beach AFB*. Employment and population changes generated by the implementation of the Proposed Action and each alternative are discussed herein. The closure baseline projects employment levels of 60 direct and 38 secondary jobs on the base for the year 1993 to remain constant through 2013 for the No-Action Alternative in addition to jobs at the civilian jetport. Population estimates for the region of influence (ROI) for the closure baseline and postclosure are 196,200 for 1993 and 285,500 for 2013 for the No-Action Alternative. This represents an increase in population of approximately 89,300, or 46 percent.

This analysis recognizes the potential for community impacts arising from "announcement effects" stemming from information regarding the base's closure or reuse. Such announcements may impact the affected communities' perceptions and, in turn, could have important local economic effects. An

example would be the in-migration of people anticipating employment under one of the reuse options. If it were later announced that the No-Action Alternative was chosen, many of the newcomers would leave the area to seek employment elsewhere. Such an effect could, therefore, result in an initial, temporary increase in population followed by a decline in population as people leave the area.

Reuse concepts are defined for this EIS as discrete development components that comprise an alternative reuse concept plan. A reuse concept may contain a single land use or a mix of uses, and may cover a single parcel of property on the base or several parcels. The alternative reuse concept plans present a scenario for the entire Myrtle Beach AFB property with various reuse concepts identified by primary land use type. The alternative reuse concept plans also are referred to as the alternative concept plans or the alternatives.

4.2.1.1 Proposed Action (Expanded Airfield/Resort-Education)

It is estimated that the redevelopment activities at Myrtle Beach AFB under the Proposed Action could generate approximately 10,289 direct jobs (which includes 646 peak year site-related construction jobs) and 6,565 secondary jobs (which includes 384 secondary jobs supporting the site-related construction jobs) by the year 2013 if full build-out is achieved through projected absorption rates. Table 4.2-1 provides a comparison of total employment as a result of implementation of the Proposed Action and alternatives. Direct jobs would be located in Horry and Georgetown Counties upon disposition of Myrtle Beach AFB property. Indirect jobs may be created in counties surrounding the ROI as well.

Table 4.2-1. Reuse-Related Employment Effects[1]

Alternative	1993[2]	1998	2003	2013
Proposed Action	468	9,202	11,934	16,854
Expanded Airfield/Resort-Recreation	468	9,517	10,232	14,783
Expanded Airfield/Resort-Commercial-Industrial	468	11,045	13,815	17,872
Existing Airfield/Mixed Use	468	5,906	10,292	16,505
No-Action	468	652	800	922

1 Numbers represent total, both direct and secondary, employment, including construction-related jobs.

2 Numbers represent 98 direct and indirect jobs for base caretaker activities, plus direct and secondary employment related to the jetport.

Reuse-related population effects in the Myrtle Beach area under the Proposed Action are estimated to reach approximately 11,257 in 2013. The long-term population change associated with this alternative represents approximately 12 percent of overall Horry County population growth. Table 4.2-2 provides a comparison of population effects under the Proposed Action and alternatives. The majority of in-migrants are expected to locate in the immediate vicinity of Myrtle Beach. The communities likely to experience the largest increases in population are Myrtle Beach, Surfside, North Myrtle Beach, and Conway. Base

redevelopment as a result of the Proposed Action would generate positive economic benefits of increased employment and earnings in the region.

Table 4.2-2. Reuse-Related Permanent Population Effects*

Alternative	1993	1998	2003	2013
Proposed Action	37	6,107	7,973	11,257
Expanded Airfield/Resort-Recreation	37	6,316	6,840	9,872
Expanded Airfield/Resort-Commercial-Industrial	37	7,334	9,223	11,932
Existing Airfield/Mixed Use	37	3,954	6,894	11,041
No-Action	37	79	153	213

*Population effects are based on estimates of permanent population change and do not include temporary population effects related to construction.

4.2.1.2 Expanded Airfield/Resort-Recreation Alternative

It is estimated that the redevelopment activities at the base under the Expanded Airfield/Resort-Recreation Alternative could generate approximately 9,030 direct jobs (which includes 749 peak year site-related construction jobs) and 5,753 secondary jobs (which includes 445 secondary jobs supporting the site-related construction jobs) by the year 2013, if full build-out is achieved (Table 4.2-1). It is anticipated that expansion of the jetport to include a second runway for general aviation use and the allocation of a large tract of base land for a destination resort would stimulate employment and enhance the tourism sector of the Myrtle Beach ROI economic base.

Reuse-related population effects in the Myrtle Beach area under this alternative are estimated to reach approximately 9,872 in 2013. This represents approximately 11 percent of overall ROI population growth (Table 4.2-2).

4.2.1.3 Expanded Airfield/Resort-Commercial-Industrial Alternative

It is estimated that the redevelopment activities at the base under the Expanded Airfield/Resort-Commercial-Industrial Alternative could generate approximately 10,912 direct jobs (which includes 753 peak year site-related construction jobs) and 6,960 secondary jobs (which includes 448 secondary jobs supporting the site-related construction jobs) by the year 2013, if full build-out is achieved (Table 4.2-1). This alternative would have positive economic benefits.

Reuse-related population effects in the Myrtle Beach area under this alternative are estimated to reach approximately 11,932 in 2013. This represents approximately 13 percent of overall Horry County population growth (Table 4.2-2).

4.2.1.4 Existing Airfield/Mixed Use Alternative

It is estimated that the redevelopment activities at the base under the Existing Airfield/Mixed Use Alternative could generate approximately 10,063 direct jobs (which includes 174 peak year site-related construction jobs) and 6,442

secondary jobs (which includes 103 secondary jobs supporting the site-related construction jobs) by the year 2013, if full build-out is achieved (Table 4.2-1). This alternative also would have positive economic benefits. Reuse-related population effects in the Myrtle Beach area under this alternative are estimated to reach approximately 11,041 in 2013. This represents approximately 12 percent of overall Horry County population growth (Table 4.2-2).

The Restricted Second Runway Option would not have any additional impact on employment and population.

4.2.1.5 No-Action Alternative (Existing Aviation/Caretaker)

Under the No-Action Alternative, only caretaker status activities would occur at the base while the Myrtle Beach Jetport would continue to operate. It is estimated that the caretaker activities at Myrtle Beach AFB would maintain approximately 60 direct and 38 secondary jobs in Myrtle Beach and elsewhere in Horry and Georgetown counties through the year 2013. This represents no increase in base employees compared to closure conditions because the caretaker activities would require no additional jobs beyond those required at closure. Upon closure in 1993, it is estimated that there would be 468 site-related jobs, which includes 225 jobs at the jetport, the 60-person Air Force Base Disposal Agency operating location (OL) team, and 183 secondary jobs. In 1998, total site-related employment is anticipated to increase to 652 jobs, which includes 315 jetport employees, the 60-person OL team, 240 secondary jobs, and 37 construction-related jobs. By 2013, total site-related employment would have increased to 922, which includes 470 jobs at the jetport, the 60-person OL team, 340 secondary jobs, and 52 construction-related jobs. A small increase in population of 213 people is anticipated to result from the No-Action Alternative by the year 2013. This is less than one percent of overall Horry County population growth.

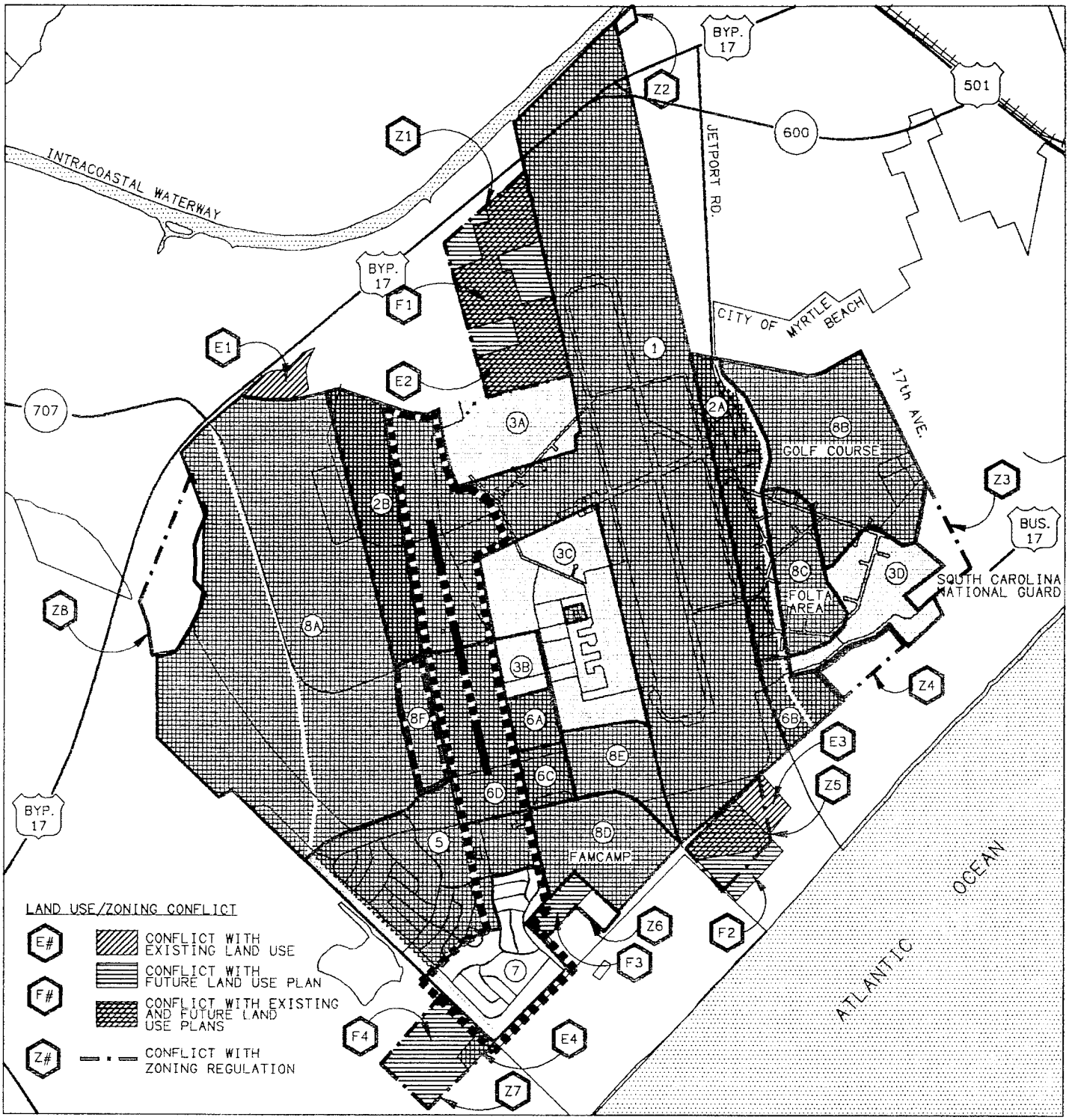
4.2.2 LAND USE AND AESTHETICS

This section discusses the Proposed Action and alternatives relative to land use and zoning to determine potential impacts in terms of land use and aesthetics. Quantitative impacts are summarized in the RAM presented in Table 4.2-3. Land use compatibility with aircraft noise is discussed in Section 4.4.4.

4.2.2.1 Proposed Action (Expanded Airfield/Resort-Education)

The Proposed Action would result in a reuse of the entire Myrtle Beach AFB by agencies of federal, state, and local governments, and by the private sector. Predominant land uses include the Myrtle Beach Jetport (commercial and general aviation runways and support facilities), a destination resort (theme park, convention center, hotel, golf resort community, and related commercial uses), and an educational complex. Figure 4.2-1 depicts land use and zoning conflicts.

Land Use. Implementation of the Proposed Action would result in changes to land use on the base. Air Force structures would be demolished except for those deemed suitable for temporary or permanent adaptive reuse. As the second runway would not be under construction until after the year 2010, short-term land uses are proposed for that portion of the base.



EXPLANATION

1 AIRFIELD
2 AVIATION SUPPORT
3 INDUSTRIAL
4 INSTITUTIONAL* (MEDICAL)
5 INSTITUTIONAL (EDUCATIONAL)
6 COMMERCIAL
7 RESIDENTIAL
8 PUBLIC FACILITIES & RECREATION
9 AGRICULTURE*
10 VACANT LAND*

* NOT APPLICABLE

ROAD REALIGNMENT
AIRFIELD EXPANSION
AVIATION SUPPORT EXPANSION
PROPOSED RUNWAY

0 1000 3000 feet

N W E S

LAND USE IMPACT ANALYSIS PROPOSED ACTION

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.2-1

Table 4.2-3. Resource Assessment Matrix - Land Use and Aesthetics, 2013

Evaluation Criteria	Unit of Measurement	Proposed Action	Alternative[1] 1	2	3	No-Action
Incompatibility with existing land use	Acres	191/0[(2)]	295/0	295/0	235/0	169
Incompatibility with existing zoning	Acres	465/0	534/0	534/0	554/0	775
Incompatibility with future land use plans	Acres	316/0	371/0	377/0	353/0	253
RPZ (runway protection zone) incompatibility	Acres	26	26	26	22	22
Property acquisition	Acres	0	0	0	10	0
Viewsheds impacted	Number	1/0	2/0	2/0	0/0	0
Scenic resources impacted	Number	1/0	1/0	1/0	0/0	0
Architectural form impacted	Number	0/0	0/0	0/0	0/0	0

[1] Alternatives 1, 2, 3 are the Expanded Airfield/Resort-Recreation, Expanded Airfield/Resort-Commercial-Industrial, and Existing Airfield/Mixed Use Alternatives, respectively.

[2] Numbers refer to before/after mitigation.

The land uses proposed in this alternative would, with few exceptions, be generally compatible with adjacent off-base land uses within the city of Myrtle Beach and Horry County. Four areas of off-base incompatibility would occur should this alternative be implemented.

Two areas of land use incompatibilities would be directly adjacent to the northern base boundary, west of the existing airfield. The destination resort would be in conflict with residential land use adjacent to the base, just south of U.S. 17 Bypass (designated E1 on Figure 4.2-1). Reuse as aviation-related industry consisting of such uses as vehicle maintenance, storage and processing facilities, and light manufacturing of avionic components would not be compatible with the adjacent single family residential units and mobile homes because of the industrial classification (E2).

An additional instance of incompatible land use would occur adjacent to the south portion of the existing runway (E3). The existing runway protection zone (RPZ) would extend above land located immediately adjacent to the northeast of Myrtle Beach State Park on the south side of U.S. 17 Business. This property is located within the city of Myrtle Beach and is presently in commercial amusement use.

Proposed housing at the southwestern corner of the base would be in conflict with the adjacent commercial development on the north side of U.S. 17 Business (E4).

Zoning. Myrtle Beach AFB is within the zoning jurisdiction of the city of Myrtle Beach. The entire base is zoned C-10 to accommodate military and transportation-related uses. With the exception of airport and transportation-

related land uses, the Proposed Action is incompatible with provisions of the C-10 zoning district. In order to implement the majority of development concepts included in this alternative, rezonings of base property would be required. (See chapter 3 for zoning map and categories.)

Eight instances of zoning incompatibility would result from implementation of the Proposed Action. The land adjacent to the north boundary of the base, south of the Intracoastal Waterway and west of the existing airfield, is zoned for a mobile home park (designated as Z1 on Figure 4.2-1). This would be incompatible with proposed reuse of adjacent base property for aviation-related industry. A small parcel adjacent to the northeast tip of the airfield (Z2) is zoned for single-family residential use, which would be in conflict with airfield and runway use.

AVX Corporation (Z3), a non-conforming use under the existing zoning, and adjacent commercial property to the immediate south zoned commercial, are not compatible with the industrial zoning that would be required for on-base industrial development.

Along the southern border of the base, three zoning conflicts would occur. Memorial Park Cemetery (Z4) is zoned one-family residential, which would be incompatible with industrial development proposed on the base. Commercially zoned amusements opposite the south runway threshold would be incompatible with the existing RPZ (Z5). The small parcel on the north side of U.S. 17 Business (Z6) across from Myrtle Beach State Park is zoned for commercial planned unit development and single-family residences, which would be in conflict with the RPZ associated with the proposed second runway.

The proposed housing and adjacent off-base properties, presently zoned commercial (Z7), would conflict. The final zoning conflict would occur at the northwest corner of the base where the destination resort would be contiguous with off-base land zoned for residential use (Z8).

General Plan. Land adjacent to Myrtle Beach AFB is under the jurisdiction of the Comprehensive Plan for the city of Myrtle Beach (1979), and the Horry County Land Use Plan (1983). Land use adjacent to the eastern base boundary is governed by the city of Myrtle Beach, while remaining contiguous properties come under the jurisdiction of Horry County. With four exceptions, the Proposed Action would be compatible with the Comprehensive Plan for the city of Myrtle Beach and the Horry County Land Use Plan.

Proposed airfield uses at the north of the base would be in conflict with proposed institutional/public facilities use just west of the existing airfield (designated F1 on Figure 4.2-1). Just south of the existing airfield, future commercial land uses would not be compatible with the commercial RPZ (F2).

The parcel of land adjacent to U.S. 17 Business across (north) from Myrtle Beach State Park incorporates commercial and single-family residential land uses. The northeastern half of this parcel (shopping center) is within the corporate limits of the city of Myrtle Beach, while the remainder of the property (single-family and commercial) is part of Horry County. A portion of the shopping center would be incompatible with the development of the second

runway as the RPZ would extend beyond the present base boundary to overlay a portion of this property (F3).

The proposed airfield expansion produces the final future land use conflict with the commercial development along U.S. 17 Business (F4) at the south end of the base.

Aesthetics. The proposed destination resort could incorporate wetland areas having visual sensitivity into the design concept of the theme park and golf/resort community development. The existing base golf course would expand, with possible landscape improvements that would enhance visual perception.

Off-base aesthetic impacts would occur on one side of the base. The eastern corner, adjacent to Ocean Woods Memorial Park Cemetery, would be affected by the commercial and industrial land uses proposed around the cemetery.

Cumulative Impacts. There would be no cumulative impacts to land use or aesthetics resulting from implementation of the Proposed Action.

Mitigation Measures. Several mitigation measures could be implemented to minimize adverse land use and aesthetic impacts resulting from implementation of the Proposed Action. The base is currently under the zoning jurisdiction of the city of Myrtle Beach and rezonings would be necessary to accommodate this reuse alternative. It would be prudent to incorporate buffer provisions as a condition of any rezoning. Planted buffers required to attain a minimum height, depth, and density could be required in the areas where land use incompatibilities were noted. Where undeveloped land adjoins base property, city and/or county land use plans could depict transitional land uses between base property and off-base property. Horry County is presently updating the 1983 plan and could adopt the Proposed Action or an alternative as part of the plan. This resulting gradual change in land use and development intensities would be an effective mitigative measure.

In those off-base areas subject to Federal Aviation Administration (FAA) obstruction criteria (building height restrictions per Federal Aviation Regulation Part 77), the city and county should enact zoning amendments to reflect FAA safety and land use compatibility requirements.

Adverse aesthetic impacts could be mitigated, and overall area aesthetic quality enhanced by incorporating design review and landscaping provisions into local ordinances. The establishment of a local design review committee(s) backed by regulatory measures would result in development plan review, consistent architectural styles, color schemes, and landscape considerations that together would preclude future aesthetic incompatibilities.

4.2.2.2 Expanded Airfield/Resort-Recreation Alternative

The Expanded Airfield/Resort-Recreation Alternative would result in a reuse of the entire base property by federal, state, or local governmental agencies, and by private parties. Of those reuses that together constitute this alternative, the principal land uses would include an expanded jetport (commercial and general aviation runways and support facilities), a destination resort (theme park,

convention center, hotel, golf resort community, and commercial establishments), aviation-related industries, and a planned office/retail commercial center. Figure 4.2-2 illustrates conflicts with existing and future land use plans, and zoning regulations.

Land Use. If this alternative were to be implemented, changes to existing base land use would result. Numerous buildings would be demolished to accommodate reuse. Buildings suitable for adaptive reuse would be retained. Construction of a second runway would not be underway until after the year 2010, and therefore short-term uses are proposed for that portion of the base proposed for airfield expansion.

The Expanded Airfield/Resort-Recreation Alternative exhibits general compatibility with existing off-base land uses. Four instances of incompatibility would occur if this alternative were to be implemented.

The destination resort adjacent to the northwest corner of the base would be incompatible with off-base single-family residential use immediately south of U.S. 17 Bypass (designated E1 on Figure 4.2-2).

The airfield (including the existing runway) at the northern portion of the base would be incompatible with single-family and mobile home residences to the immediate west, on the south side of U.S. 17 Bypass (E2).

At the southern end of the existing runway, off-base land presently in amusement commercial uses would be incompatible with the RPZ, which extends approximately 2,700 feet to the south of the runway threshold (E3).

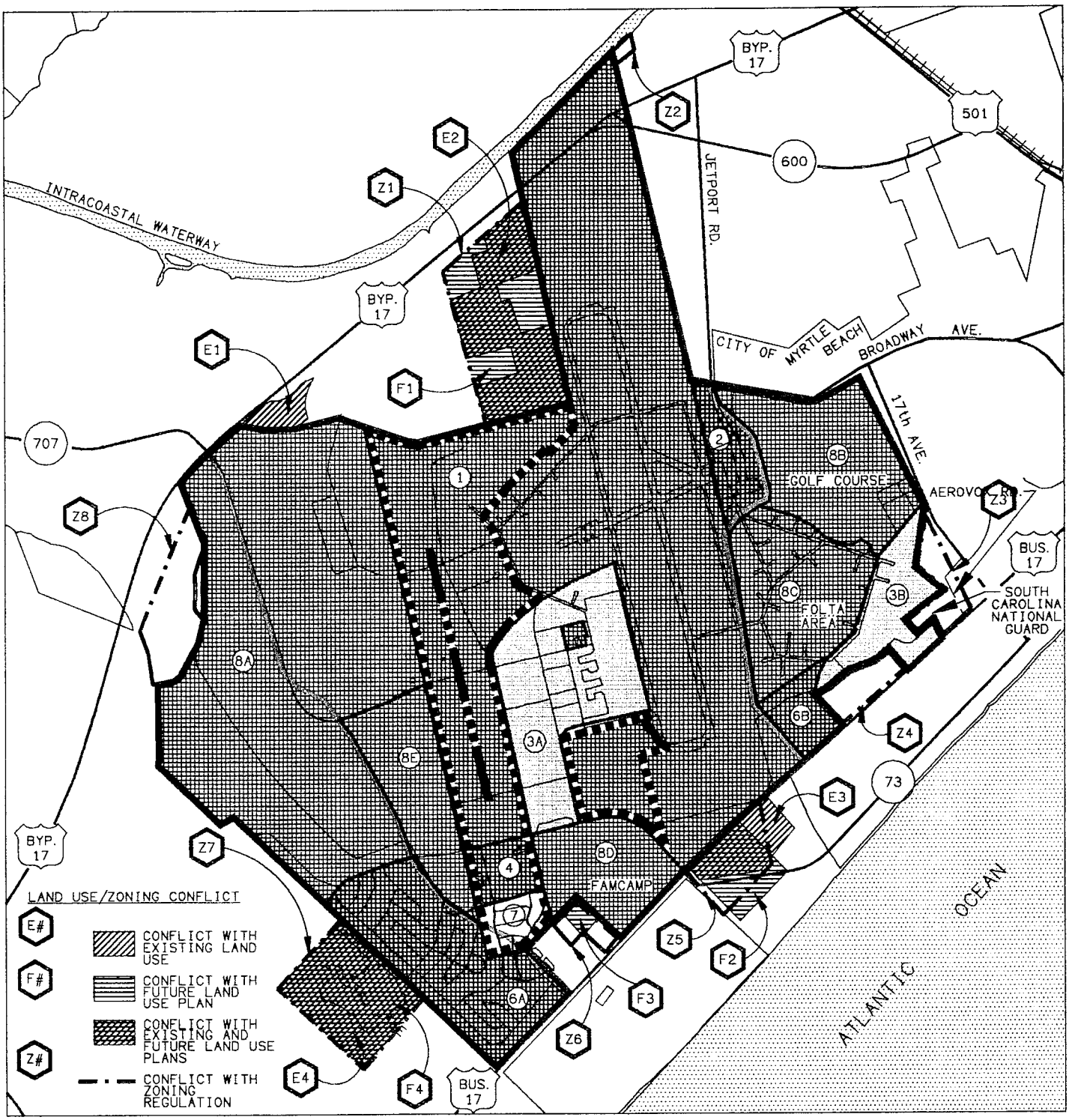
The final occurrence of incompatibility would be at the southwest portion of the base (E4) where proposed commercial development would be directly adjacent to the Crystal Lake mobile home community.

Zoning. The entire base is zoned C-10. All on-base uses except for the airfield and transportation-related uses would be incompatible with this zoning classification. The C-10 zoning district boundary to the east includes AVX Corporation and adjacent uses to the immediate south. (See chapter 3 for zoning map and categories.)

Eight conflicts with off-base zoning (city of Myrtle Beach and Horry County) would occur with this alternative. To the north of the base, proposed airfield use would be in conflict with adjacent properties zoned for single-family and mobile home development (designated Z1 on Figure 4.2-2). A small parcel adjacent to the northern tip of the airfield is zoned for single-family use (Z2), which would be in conflict with airfield and runway uses.

To the east, AVX Corporation, a non-conforming use under the existing zoning, and land immediately south are zoned for commercial use (Z3), in conflict with proposed on-base industrial reuse.

Along the southern boundary of the base, the Memorial Park Cemetery is zoned for one-family residential use (Z4), which would be incompatible with on-base industry; amusement commercial property (Z5) south of U.S. 17 Business would be incompatible with airfield (runway) use; and the proposed housing



EXPLANATION

1. AIRFIELD
2. AVIATION SUPPORT
3. INDUSTRIAL
4. INSTITUTIONAL (MEDICAL)
5. INSTITUTIONAL (EDUCATIONAL)*
6. COMMERCIAL
7. RESIDENTIAL
8. PUBLIC FACILITIES & RECREATION
9. AGRICULTURE*
10. VACANT LAND*

* NOT APPLICABLE

ROAD REALIGNMENT

AIRFIELD EXPANSION

PROPOSED RUNWAY

N W E S

0 1000 3000 feet

LAND USE IMPACT ANALYSIS EXPANDED AIRFIELD/ RESORT-RECREATION ALTERNATIVE

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.2-2

area (Z6) is not compatible with adjacent land that is zoned for commercial planned unit development.

The Crystal Lake community (Z7) has a mobile home zoning classification that would be inconsistent with the proposed planned commercial uses on adjacent base property.

The final zoning conflict would occur at the northwest corner of the base (Z8) where the destination resort would be contiguous with off-base land zoned for residential use.

General Plan. Proposed reuse of the base under the Expanded Airfield/Resort-Recreation Alternative would be incompatible in three instances with the Myrtle Beach Comprehensive Plan and in one instance with the Horry County Land Use Plan. The northern portion of the airfield used for the existing runway would be in conflict with proposed institutional/public facilities uses to the immediate west (designated F1 on Figure 4.2-2). Future off-base commercial development at the south end of the existing airfield (F2) would be incompatible with the RPZ. Proposed interim housing (F3) is in conflict with adjacent planned commercial development. The final instance of incompatibility is the proposed on-base planned commercial development, which would be directly adjacent to the Crystal Lake mobile home community (F4), located in Horry County.

Aesthetics. The design concept of the destination resort and other future facility design plans could incorporate wetlands and other resources having visual sensitivity. Two off-base viewsheds would be impacted: views from Myrtle Beach State Park across U.S. 17 Business toward commercial development, and views from Crystal Lake mobile home community toward this same commercial center.

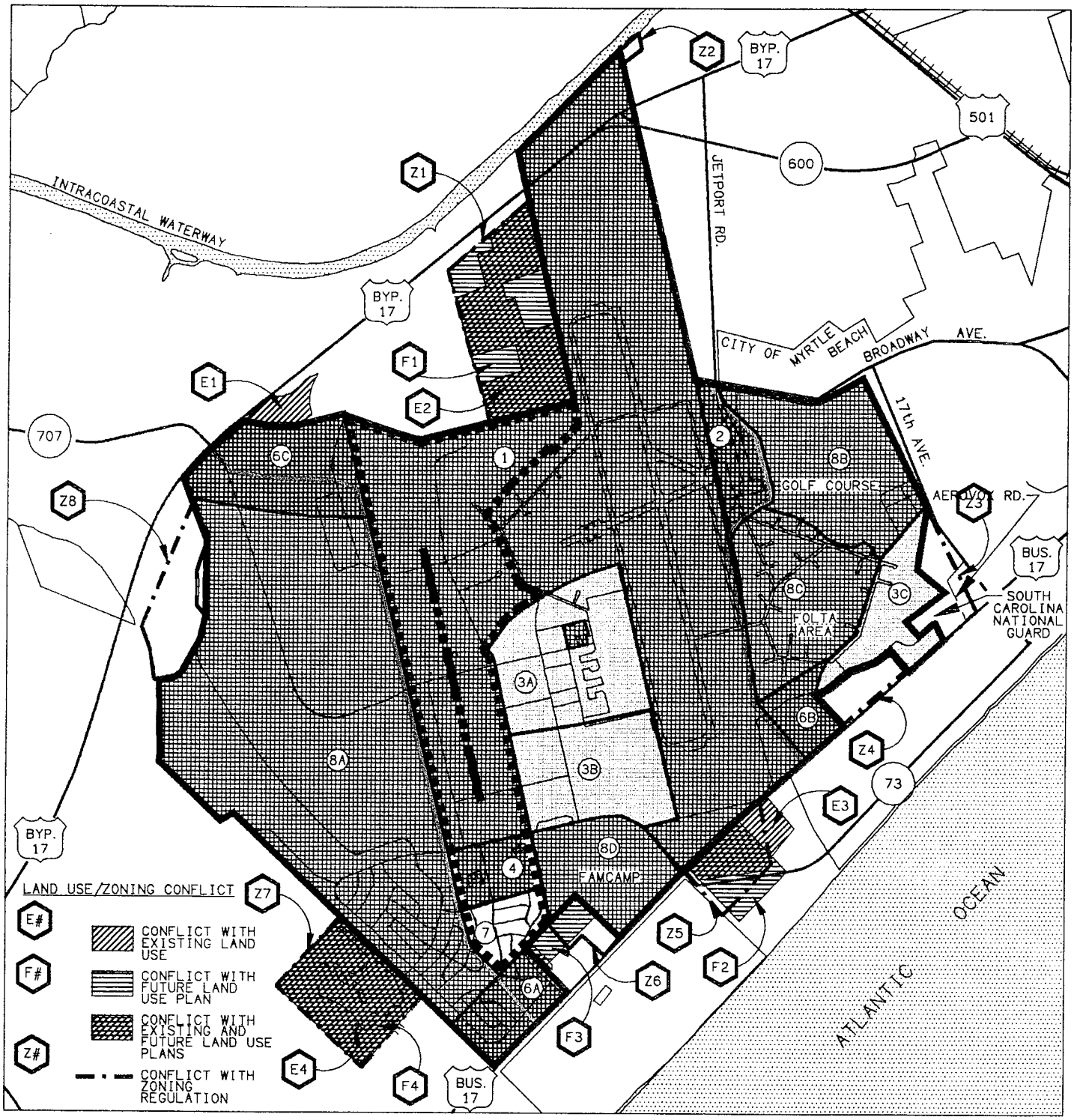
Cumulative Impacts. No cumulative impacts to land use or aesthetic resources would occur should the Expanded Airfield/Resort-Recreation Alternative be implemented.

Mitigation Measures. Possible mitigation measures for this alternative are the same as those discussed for the Proposed Action.

4.2.2.3 Expanded Airfield/Resort-Commercial-Industrial Alternative

The entire base would be utilized by various governmental agencies and private sector interests under the Expanded Airfield/Resort-Commercial-Industrial Alternative. The predominant proposed uses include jetport expansion (general aviation runway and support facilities), a destination resort, industrial and research and development (R&D), and planned commercial centers. Figure 4.2-3 shows land use and zoning conflicts between proposed reuses and off-base development.

Land Use. Implementation of this alternative would result in changes to on-base land use including demolition of several existing buildings and base facilities, and the adaptive reuse of others. The second runway would not be constructed until after the year 2010, and therefore short-term uses were proposed in this area.



EXPLANATION

1. AIRFIELD
2. AVIATION SUPPORT
3. INDUSTRIAL
4. INSTITUTIONAL (MEDICAL)
5. INSTITUTIONAL* (EDUCATIONAL)
6. COMMERCIAL
7. RESIDENTIAL
8. PUBLIC FACILITIES & RECREATION
9. AGRICULTURE*
10. VACANT LAND*

* NOT APPLICABLE

ROAD REALIGNMENT

AIRFIELD EXPANSION

PROPOSED RUNWAY

N W E S

0 1000 3000 feet

LAND USE IMPACT ANALYSIS EXPANDED AIRFIELD/RESORT-COMMERCIAL-INDUSTRIAL ALTERNATIVE

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.2-3

With few exceptions the Expanded Airfield/Resort-Commercial-Industrial Alternative is generally compatible with adjacent existing land uses. There are four locations where conflicts would occur.

Proposed commercial developments at the northwest corner of the base would conflict with adjacent off-base residential land use (designated E1 on Figure 4.2-3). Continued use of the existing airfield would be incompatible with existing residential development just west of the runway at the northernmost part of the base (E2). Existing amusement commercial uses at the south end of the existing airfield (E3) are incompatible with airfield use due to the RPZ restrictions. The final conflict with existing land use would occur adjacent to the proposed destination resort, along the western base boundary (E4). Contiguous land use in this area consists of a mobile home community (Crystal Lake).

Zoning. As addressed in the discussions of prior alternatives, the base is presently zoned C-10. Per this zoning designation, all proposed base uses except for those that are transportation-related would be incompatible. (See chapter 3 for zoning map and categories.)

Implementation of this alternative would result in eight conflicts with existing off-base zoning. Along the northern base boundary, the portion of the airfield incorporating the existing runway would be in conflict with single-family and mobile home zoning districts (designated Z1 on Figure 4.2-3). A small parcel adjacent to the northern tip of the airfield (Z2) is zoned for single-family use, which would be in conflict with airfield and runway uses. Proposed expansion of industry at the southeast corner of the base (Z3) would be incompatible with commercial zoning to the immediate east, and with the cemetery, which is zoned for one-family residential use (Z4). Commercial and residential zoning districts adjacent to the south runway threshold (Z5) and directly north of Myrtle Beach State Park (Z6) would be inconsistent with proposed continued use of the existing runway, interim housing, and planned commercial development at the southwest corner of the base. The proposed destination resort and the Crystal Lake mobile home community (Z7) pose another zoning conflict.

The final instance of zoning incompatibility would occur at the western boundary of the base (Z8) where county property is zoned for single-family residential use and mobile home parks. Proposed reuse of the base property adjacent to these zoning districts would include the destination resort.

General Plan. This alternative exhibits general compatibility with both the Comprehensive Plan for the city of Myrtle Beach (1979), and with the Horry County Land Use Plan (1983).

The most notable inconsistencies with the Myrtle Beach Plan are adjacent to the northern (designated F1 on Figure 4.2-3) and southern (F2) portions of the existing airfield where anticipated future land uses include institutional/public facilities and commercial development, respectively. Proposed on-base housing (with provision for homeless housing) at the southeast corner of the base would be in conflict with adjacent land depicted on the Myrtle Beach Plan as planned commercial; proposed commercial development in this part of the base would be in conflict with adjacent land depicted as single-family residential land

uses (F3). The remaining conflict would be between the proposed destination resort and adjacent Crystal Lake mobile home community property (F4), which retains a mobile home designation in the Horry County Plan.

Aesthetics. Impacts to aesthetic resources both on the base and from off-base properties would be the same for this alternative as previously identified for the Expanded Airfield/Resort-Recreation Alternative.

Cumulative Impacts. Implementation of the Expanded Airfield/Resort-Commercial-Industrial Alternative would not result in cumulative impacts to land use or to aesthetic resources.

Mitigation Measures. Possible mitigation measures are the same as discussed in the Proposed Action.

4.2.2.4 Existing Airfield/Mixed Use Alternative

As with prior alternatives, this alternative also would utilize all of the available land area on base. As this concept does not incorporate expansion of the airfield, it accommodates a wider range of land uses than any of the previously discussed reuse alternatives. Industrial land uses (including a correctional facility and R&D center) would occupy the largest land area. Other principal proposed uses include an educational campus, recreation, and housing. Figure 4.2-4 depicts land use and zoning conflicts associated with this alternative.

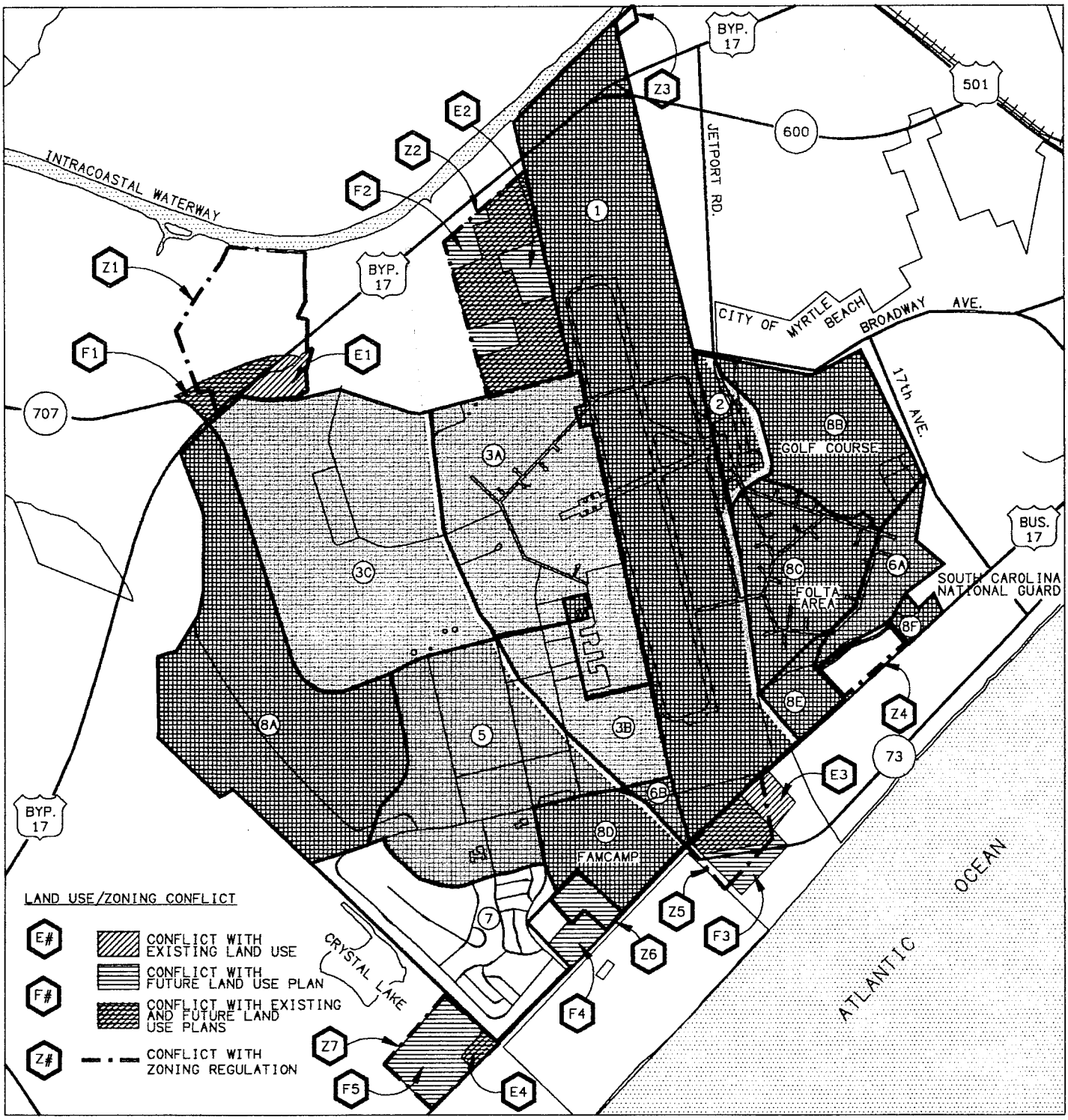
Impacts of the Restricted Second Runway Option would be the same as for the alternative with a single runway.

Land Use. The implementation of this alternative would result in changes to existing on-base land uses. Where possible, existing base buildings and facilities would be reused; however, some proposed development would require structural demolition.

The Existing Airfield/Mixed Use Alternative exhibits general compatibility with adjacent Myrtle Beach and Horry County land use. Four areas of conflict would occur.

Residential and commercial land use along U.S. 17 Bypass close to the northwest corner of the base would be in conflict with the proposed correctional facility (designated E1 on Figure 4.2-4). On the northwestern part of the airfield, commercial aviation operations would be in conflict with adjacent single-family and mobile home residential uses (E2). At the southern edge of the base the existing RPZ would be incompatible with adjacent off-base commercial amusements (E3). Proposed housing at the southwest corner of the base would be in conflict with adjacent commercial development on the northern side of U.S. 17 Business (E4).

Zoning. With the base presently zoned C-10, only transportation-related land uses would be compatible. The balance of land uses proposed in this alternative would require rezoning of base property to achieve compatibility. (See chapter 3 for zoning map and categories.)



EXPLANATION

- (1) AIRFIELD
- (2) AVIATION SUPPORT
- (3) INDUSTRIAL
- (4) INSTITUTIONAL (MEDICAL)
- (5) INSTITUTIONAL* (EDUCATIONAL)
- (6) COMMERCIAL
- (7) RESIDENTIAL
- (8) PUBLIC FACILITIES & RECREATION
- (9) AGRICULTURE*
- (10) VACANT LAND*

* NOT APPLICABLE

ROAD REALIGNMENT

N W E S

0 1000 3000 feet

LAND USE IMPACT ANALYSIS EXISTING AIRFIELD/ MIXED USE ALTERNATIVE

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.2-4

Proposed land uses would be in conflict with off-base property zoned for mobile home and commercial development adjacent to the proposed correctional facility (designated Z1 on Figure 4.2-4) and the northern portion of the airfield (Z2). At the northeast tip of the airfield (Z3), a zoning conflict would occur with adjacent land designated for single-family residency. Along the south portion of the base the Memorial Park Cemetery (Z4) (zoned one family residential), commercial amusements (Z5), and commercial planned unit development (Z6) would be incompatible with proposed on-base land uses.

The final zoning conflicts would be between proposed housing and adjacent off-base properties that are presently zoned for commercial use (Z7).

General Plan. The Existing Airfield/Mixed Use Alternative is generally consistent with land uses proposed in the Myrtle Beach Comprehensive Plan (1979), and with the Horry County Land Use Plan (1983).

Land uses proposed in this alternative would result in five areas of conflict with local land use plans. Portions of the correctional institution would be incompatible with adjacent commercial use along the north side of U.S. 17 Bypass (F1). That portion of the airfield encompassing the northern segment of the runway (F2) would be in conflict with future institutional/public facility uses proposed to the immediate west of the runway. Airfield operations would be incompatible with amusement commercial uses along the southern base boundary (F3), and proposed housing would be in conflict with commercial development proposed northeast (F4), and adjacent to the southwest corner of the base (F5).

Aesthetics. The Existing Airfield/Mixed Use Alternative would not result in conflicts with area viewsheds or scenic resources.

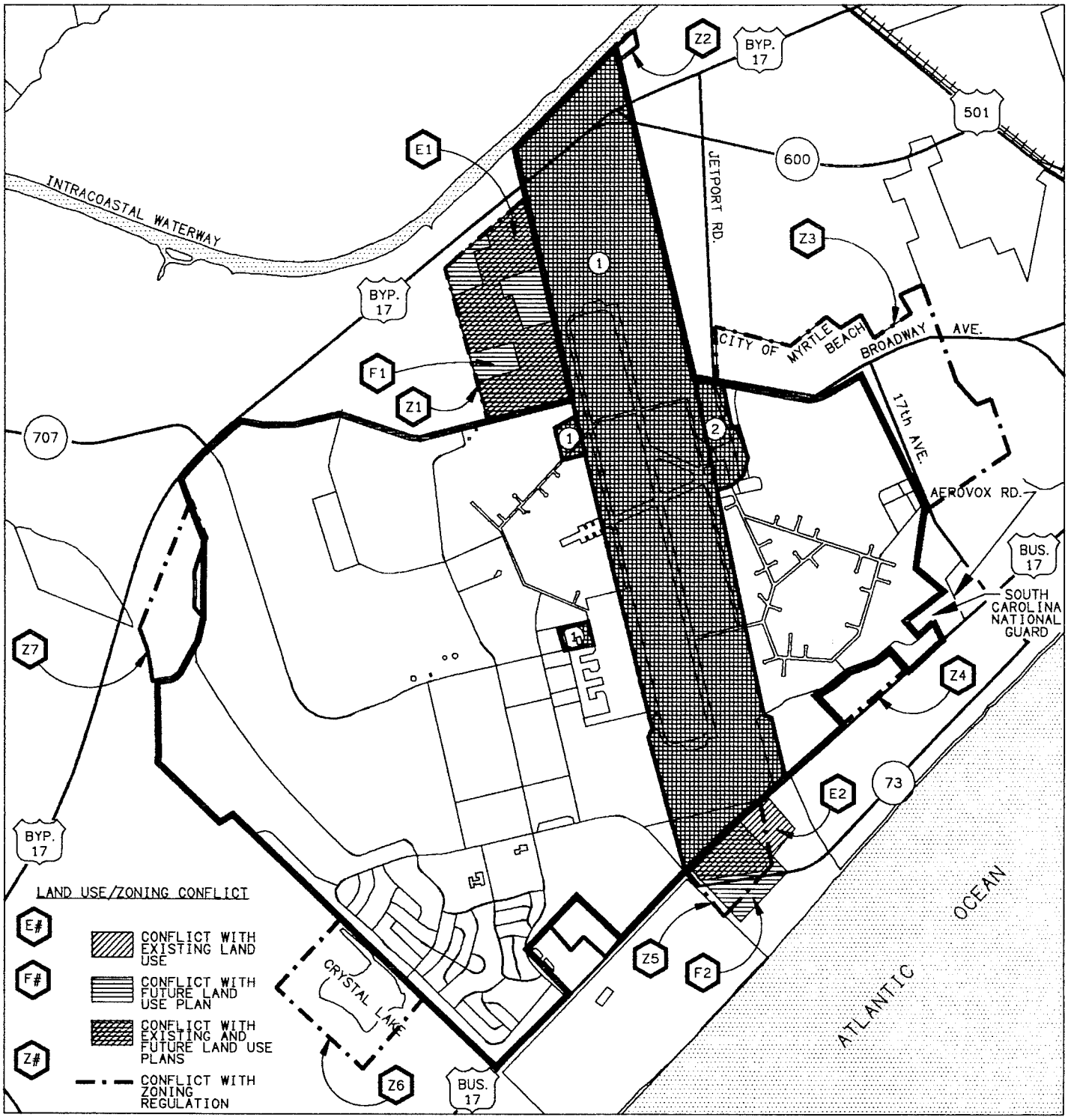
Cumulative Impacts. The Existing Airfield/Mixed Use Alternative would not result in cumulative impacts to either land use or to aesthetic resources.

Mitigation Measures. Mitigation measures for land use impacts would be the same as those discussed for the Proposed Action.

4.2.2.5 No-Action Alternative (Existing Airfield/Caretaker)

The No-Action Alternative, closure of the base with caretaker status, would result in on-base structures being vacated and cessation of base community services, while the Myrtle Beach Jetport would continue activities. The Air Force would implement programs to provide levels of maintenance to limit deterioration of structures and would continue grounds upkeep to retain a positive appearance. Figure 4.2-5 illustrates land use and zoning conflicts.

Land Use. If the No-Action Alternative were to be implemented, there would be no changes to land use designations on the base. Air Force structures and facilities would be vacated, with Air Force Base Disposal Agency operating location (OL) personnel assuming responsibility for maintaining buildings and grounds.



EXPLANATION

- (1) AIRFIELD
- (2) AVIATION SUPPORT
- (3) INDUSTRIAL*
- (4) INSTITUTIONAL* (MEDICAL)
- (5) INSTITUTIONAL* (EDUCATIONAL)
- (6) COMMERCIAL*
- (7) RESIDENTIAL*
- (8) PUBLIC FACILITIES & RECREATION*
- (9) AGRICULTURE*
- (10) VACANT LAND*

* NOT APPLICABLE

0 1000 3000 feet

N W E S

LAND USE IMPACT ANALYSIS NO-ACTION ALTERNATIVE

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.2-5

Ownership of the property would be maintained by the federal government, and although Myrtle Beach AFB would remain within the corporate limits of the city of Myrtle Beach, the city would have no jurisdiction over use of the base.

Implementation of the No-Action Alternative would not result in greater impacts on off-base land uses than presently exist within the ROI. Resort commercial land uses, Myrtle Beach State Park, and residential land uses adjacent to approach, takeoff, and landing zones would retain exposure to high noise levels.

Two instances of incompatibility with existing off-base land use would result from implementation of the No-Action Alternative. Continued operation of the jetport would result in a conflict with residential uses northwest of the airfield (designated E1 on Figure 4.2-5). The other incompatible situation would exist adjacent to the southern end of the airfield, where the RPZ overlays amusement commercial development (E2).

Zoning. Closure, and cessation of military activities at Myrtle Beach AFB would be inconsistent with the C-10 zoning district. Except for the eastern base boundary, the C-10 zoning district boundary follows the base property line. This district was developed by the city of Myrtle Beach to specifically permit use of the property by military and commercial aviation, and related transportation uses. The continued operation of the Myrtle Beach Jetport would not be in conflict with provisions of the C-10 district. Under the No-Action Alternative, the base/jetport would retain the C-10 zoning designation. Approximately 775 acres of off-base property contiguous with the base boundary are zoned for uses that are incompatible with the C-10 zoning district and its permitted uses. (See chapter 3 for zoning map and categories.)

Implementation of this alternative would result in seven conflicts with existing off-base zoning. Along the northern base boundary, the portion of the airfield incorporating the existing runway would be in conflict with single-family mobile home zoning districts (designated Z1 on Figure 4.2-5). A small parcel adjacent to the northern tip of the airfield (Z2) is zoned for single-family use, which would be in conflict with airfield and runway uses. Residential zoning in areas marked Z3 and Z4 would be in conflict with the military/related transportation zoning classification. Commercial zoning districts adjacent to the south runway threshold (Z5) would be inconsistent with the continued use of the airfield. The Crystal Lake mobile home community poses another zoning conflict with the C-10 zoning classification (Z6).

The final instance of zoning incompatibility would occur at the western boundary of the base (Z7) where county property is zoned for single-family residential use and mobile home parks.

General Plans. The No-Action Alternative would be consistent with the city of Myrtle Beach's and Horry County's land use plans to maintain the jetport. Land adjacent to both ends of the airfield (designated F1 and F2 on Figure 4.2-5) would be in conflict with jetport use due to the proposed location of institutional/public facility uses to the north, and the presence of the RPZ to the south.

Aesthetics. Implementation of the No-Action Alternative would not impact the visual and aesthetic qualities of the base, or of the surrounding environs. As some portions of the base would receive less intensive maintenance, minor visual impacts could be generated. This would be manifested mainly in the base housing area where a lower level of landscape maintenance could affect the view from adjacent residential properties to the west.

The absence of human activities for a prolonged period of time would accelerate the return to a more natural landscape in some areas on base.

Cumulative Impacts. The No-Action Alternative would have no cumulative impacts on land use or aesthetics.

Mitigation Measures. There would be no additional land use impacts other than currently exist and, therefore, no land use mitigation measures would be required. Specific attention to grounds maintenance in the areas occupied by base housing would mitigate any aesthetic impacts.

4.2.3 TRANSPORTATION

The effects of the Proposed Action and alternatives on each component of the transportation system, including roadways, airspace and air traffic, and railroads, are presented in this section. Possible mitigation measures are discussed for those components likely to experience adverse impacts under the Proposed Action or any alternative.

Roadways. Reuse-related effects on roadway traffic were assessed by estimating the number of trips generated by each land use considering employees, visitors, residents, and service vehicles associated with construction and all other on-site activities for the Proposed Action and each alternative. A trip is defined as a trip end, or a one-way trip. Principal trip-generating land uses included industrial, office, commercial, residential, theme park, educational, and airport uses. These trips were distributed to the roadway system based on proposed land uses and existing travel patterns. This analysis is based on peak hour trips as distributed, existing data on roadway capacities, traffic volumes, and standards established by state, regional, and local transportation agencies.

The transportation analysis uses the standard analysis techniques of trip generation, trip distribution, and traffic assignment. Trip generation was based on the trip rates from the Institute of Transportation Engineers *Trip Generation Manual*, 5th Edition, or other sources as discussed in Appendix F. These rates were applied to the existing and proposed land uses to get daily and peak hour trips.

Non-project-generated trips (background traffic) were calculated from changes in population and tourism in Horry and Georgetown Counties associated with each forecast year. Traffic associated with the development was distributed within the ROI based on locations of hotels and tourist gateways for tourist-related land uses or to projected population concentrations for non-tourist related land uses. Traffic was assigned to existing and proposed roads using logical travel patterns. The level of service (LOS) changes on key road segments were computed for each alternative based on total trips on that road

and the roadway capacity assumed for that analysis year, including projected roadway improvements (see Appendix F for information on LOS).

The reuse of Myrtle Beach AFB under the Proposed Action and each of the alternatives (except the No-Action) would lead to increased use of area roadways as compared to baseline conditions. Traffic volumes on community roadways would continue to increase through 2013. The existing on-base road system would be used in part, depending on the alternative. Major entrances to the proposed land uses, in the form of one or more major thoroughfares through the base, would be new roads. Construction of the new land uses for all alternatives except the No-Action are assumed to take place at reasonable timeframes throughout the study period. The only access points to the base property are assumed to be on U.S. 17 Business and U.S. 17 Bypass.

Changes in the volume of peak hour traffic on key community roads that were not the result of project-generated traffic were assumed to be proportional to changes in area population and tourism. As the number of daily tourists in the future was projected to be higher than the permanent population, the growth in tourism weighed more heavily on the traffic growth than did the increase in population.

The background traffic projection for the Carolina Bays Parkway in 2013 reflects an estimated diversion only in the Myrtle Beach area. Information was not available on traffic projections of vehicles travelling through the region that might choose to travel on the Parkway instead of U.S. 17 Bypass. The diversion to the Parkway reflects only those vehicles travelling in the Myrtle Beach area that would directly benefit from using the Parkway. A detailed description of the methodology for the traffic analysis is in Appendix E.

Transit is not assumed to carry a significant portion of the peak hour trips in the traffic analysis. However, transit will be discussed as a potential mitigation measure for the future.

Airspace/Air Traffic. The airspace analysis examines the types and levels of aircraft operations projected for the Proposed Action and alternatives and compares them to how the airspace was configured and used under the closure baseline and preclosure reference. The impact analysis considers the relationship of the projected aircraft operations to the operational capacity of the airport, using criteria that have been established by the FAA for determining airport service volumes. Potential effects on airspace use were assessed, based on the extent to which the Proposed Action or alternatives could (1) require modifications to the airspace structure or air traffic control systems and/or facilities; (2) restrict, limit, or otherwise delay other air traffic in the region; or (3) encroach on other airspace areas and uses.

The FAA is ultimately responsible for evaluating the specific effects that the reuse of an airport would have on the safe and efficient use of navigable airspace by aircraft. Such a study is based on details from the airport proponent's Airport Layout Plan and consists of an airspace analysis, a flight safety review, and a review of the potential effect of the proposal on air traffic control and air navigational facilities. Once this study is completed, the FAA can then determine the actual requirements for facilities, terminal and enroute airspace, and instrument flight procedures.

The RAM comparing the impacts of the various alternatives for the year 2013 is shown in Table 4.2-4.

Table 4.2-4. Resource Assessment Matrix - Transportation, 2013

Evaluation Criteria	Unit of Measurement	Proposed Action	Alternative[1] 1	2	3	3a	No-Action
Traffic generated	Trips per day[2]	116,349/ 107,166	100,156/ 92,458	114,404/ 105,383	82,737/ 75,959	83,497/ 76,656	9,915/ 8,870
Air travel	Passengers/ year	1,011,654	1,016,652	1,016,652	948,740	1,006,656	1,001,146
Aircraft activity	Annual operations	150,950	151,010	147,970	126,500	148,300	33,580

[1]Alternatives 1, 2, 3 are the Expanded Airfield/Resort-Recreation, Expanded Airfield/Resort-Commercial-Industrial, and Existing Airfield/Mixed Use Alternatives, respectively. 3a is the Restricted Second Runway Option to the Existing Airfield/Mixed Use Alternative.
[2]Numbers refer to total vehicle trips generated by the reuse/total vehicle trips with transit improvements along U.S. 17 Business.

4.2.3.1 Proposed Action (Expanded Airfield/Resort-Education)

Roadways. Primary access for the Proposed Action would be provided by two major thoroughfares connecting U.S. 17 Business and U.S. 17 Bypass. One road would be provided in the southwest section of the site and provide access to the proposed destination resort, education facility, and residential areas. The other road would be provided in the northeast section of the site and provide access to the jetport, golf course, proposed air museum, and other land uses in this portion of the base. The remaining land uses would be accessed by collector roadways throughout the site. Figure 2.2.1 shows the land uses and the proposed roadways.

Traffic generation was estimated for 23 types and subcategories of land uses for the Proposed Action. The largest trip generator would be the proposed destination resort, which alone has six different subcategories of land uses. The destination resort could attract approximately 46,000 vehicle trips per day by 2013, or 40 percent of the trips generated by this alternative.

An important concept is internal capture, or trips being made between land uses at the base and not leaving the site to impact the external roadway network. An example of internal capture is a trip made from the theme park to the shopping area, or from the jetport to the air museum. Internal trips would account for approximately 21 percent of the total peak hour trips generated by this alternative in 2013. The external trips that remain after deducting the internal trips from the total trips are those that would leave the site and impact the public road network. Tables F-2 through F-4 in Appendix F show the trip generation of the Proposed Action, including total and external trips. Table 4.2-5 shows the daily, peak hour, and external trip generation of this alternative.

Table 4.2-5. Summary of Trip Generation - Proposed Action

	1998	2003	2013
Daily Trips	67,482	99,376	116,349
Total Peak Hour Trips	6,376	9,361	11,442
External Peak Hour Trips	4,828	7,019	8,993

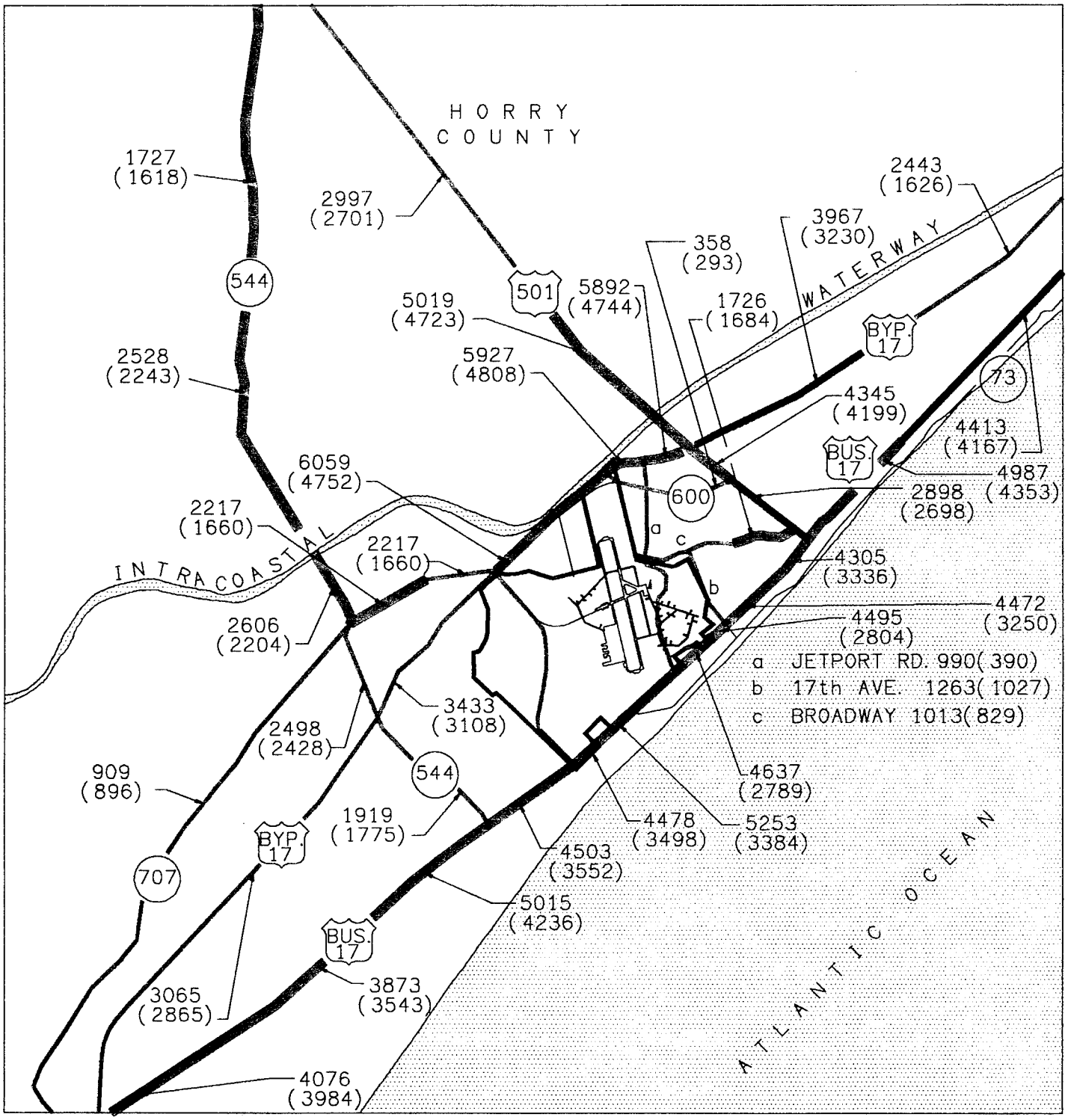
Effects of Project Generated Traffic on Key Community Roads.

Regional roads. The number of peak hour trips for all land uses was estimated based on the procedures presented above and assigned to the area road network. Figures 4.2-6, 4.2-7, and 4.2-8 identify the background and total traffic estimates for each of the area roadways for each analysis year. The LOS resulting from the total traffic also is shown on these figures. The majority of the reuse-related traffic is anticipated to use U.S. 17 Business to access the site. Certain sections of U.S. 17 Business would accommodate over 3,500 development-related trips during the peak hour in 2013. This is 25 times the number of Myrtle Beach AFB trips estimated on this roadway during the P.M. peak hour in the preclosure reference. As a result of the development traffic and the growth in background traffic, U.S. 17 Business would operate at LOS F by 1998, and continue to become more congested by 2013, until traffic volumes attempting to use the roadway would more than double the road's capacity.

A number of other roadways in the area would be very congested in the future. Portions of SC 544 would operate at LOS F by 1998. However, planned improvements to this roadway by 1998 and 2003 would solve most of the congestion problems on SC 544 during that timeframe. By 2013, traffic would increase such that LOS F conditions would prevail. Sections of U.S. 17 Bypass would operate at LOS F by 1998, and continue to become more congested in the future. Sections of U.S. 501 would also operate at LOS F by 1998.

The proposed construction of several roadway projects in the vicinity would help to alleviate some of the congestion on U.S. 17 Bypass and U.S. 501 (South Carolina Department of Highways and Public Transportation, 1991a). The Conway Bypass, scheduled to be constructed prior to 1998, will attract traffic destined for the North Myrtle Beach area from the vicinity of Conway. This will help to relieve congestion on sections of U.S. 501 and U.S.17 Bypass to the east of U.S. 501. Prior to 2003, the construction of frontage roads on U.S. 501 from Conway to the Intracoastal Waterway and the eight-laning of the section from Forestbrook Road to U.S. 17 Bypass will add capacity to U.S. 501 to help carry traffic. The Carolina Bays Parkway will be constructed by 2013 and will provide a parallel route to U.S. 17 Bypass. However, the section of U.S. 17 Bypass between SC 544 and U.S. 501 is expected to remain congested. Also, congestion will increase on SC 544 and U.S. 501 to the east of the Parkway as traffic diverts from U.S. 17 Bypass to the Parkway. Generally, the roadway improvements that are planned for the Myrtle Beach area by 2013 would not alleviate all of the traffic congestion in the area.

Local Roads. Most of the local roadways in the vicinity of the base would not require improvements due to the impact of this alternate. The exception to this is a section of Broadway that would operate at LOS F and require



EXPLANATION

XXXX PEAK SEASON PEAK HOUR TOTAL TRAFFIC

(XXXX) PEAK SEASON PEAK HOUR BACKGROUND TRAFFIC

17 U. S. HIGHWAYS

707 STATE HIGHWAYS

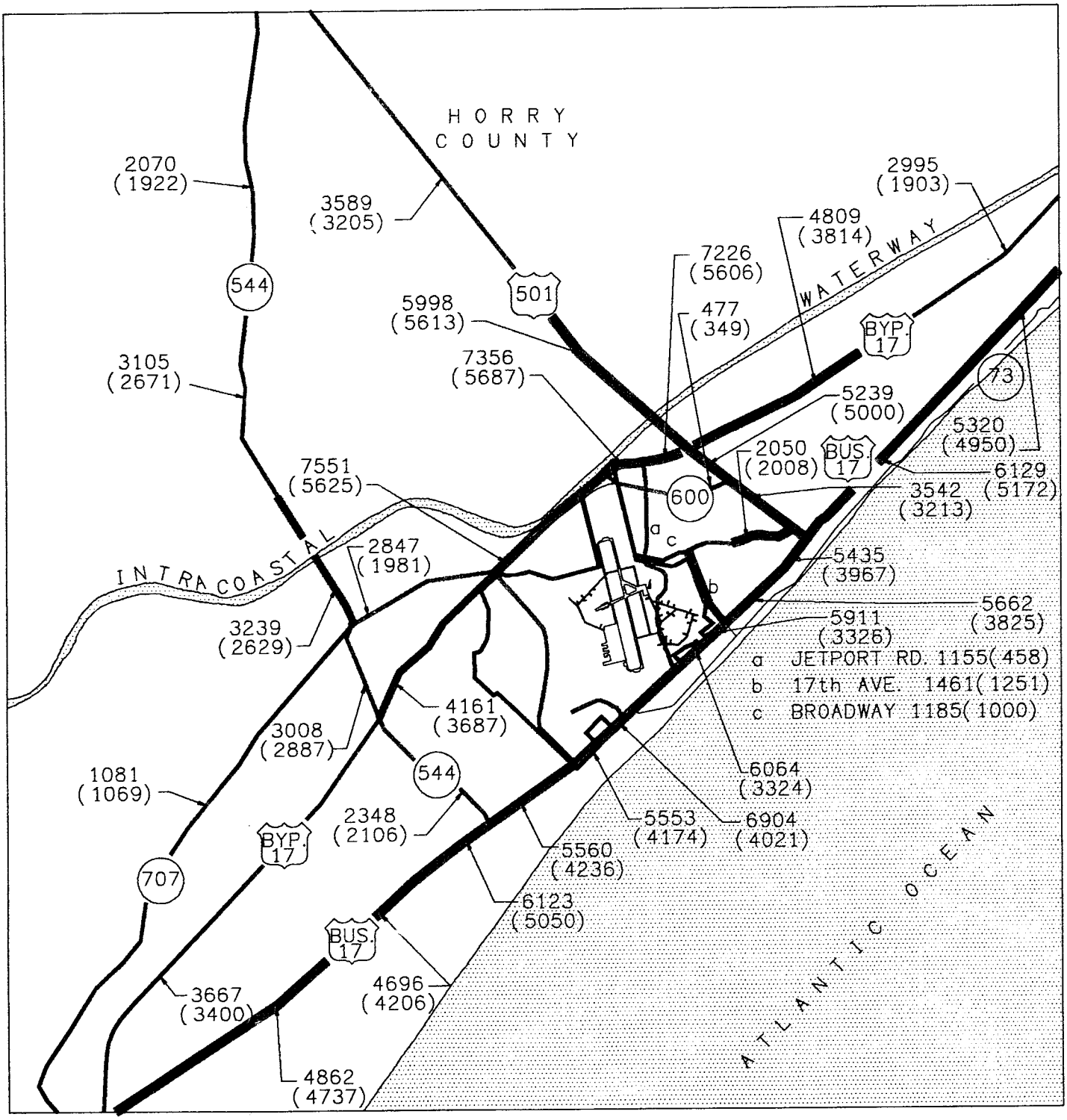
LEVEL OF SERVICE
ABC
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0 1/2 1 2 MILES

1998 PROJECTED TRAFFIC CONDITIONS PROPOSED ACTION

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.2-6



EXPLANATION

XXXX PEAK SEASON PEAK HOUR TOTAL TRAFFIC

(XXXX) PEAK SEASON PEAK HOUR BACKGROUND TRAFFIC

17 U. S. HIGHWAYS

707 STATE HIGHWAYS

LEVEL OF SERVICE
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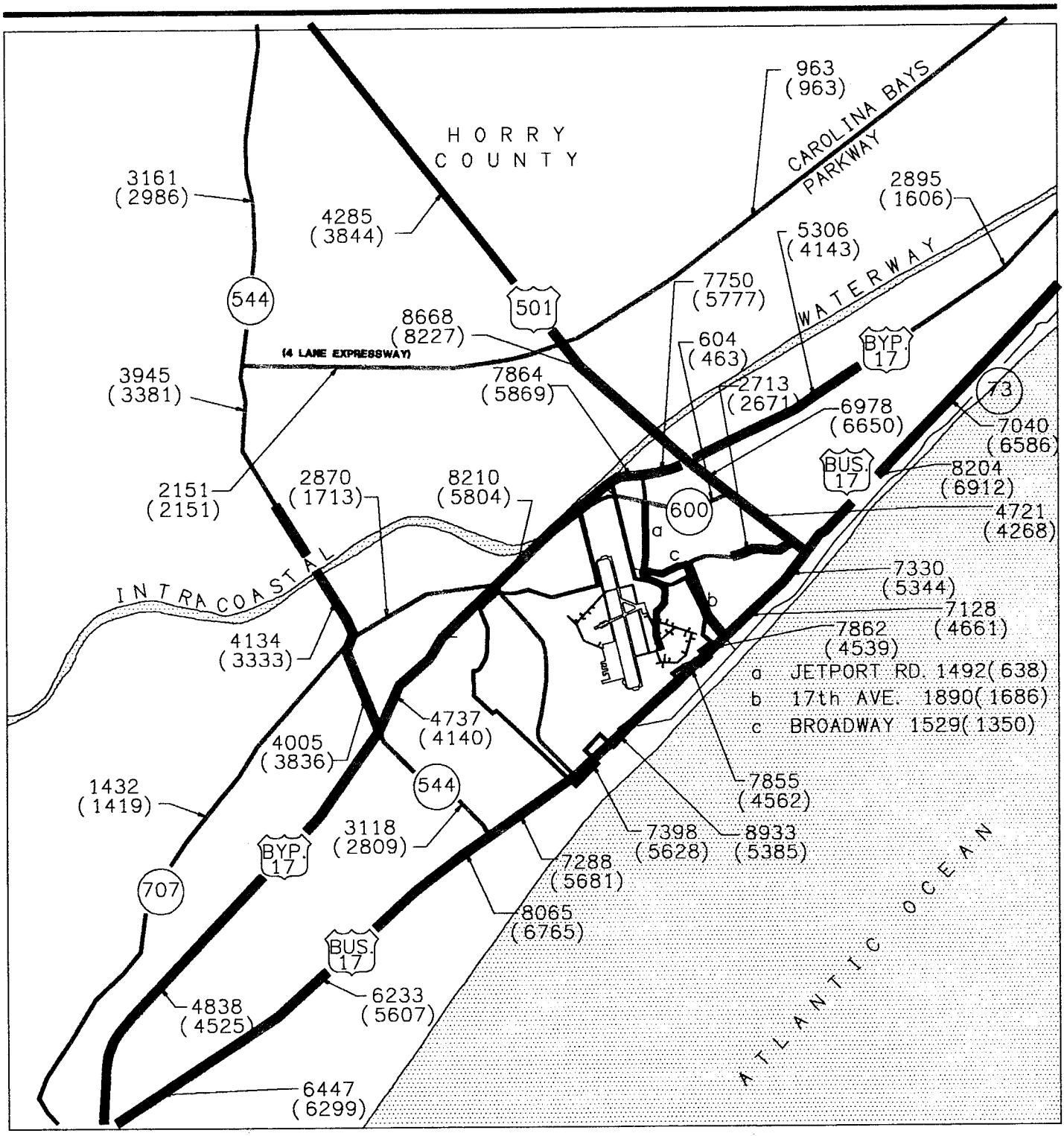
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2003 PROJECTED TRAFFIC CONDITIONS PROPOSED ACTION

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.2-7

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EXPLANATION

XXXX PEAK SEASON PEAK HOUR TOTAL TRAFFIC

(XXXX) PEAK SEASON PEAK HOUR BACKGROUND TRAFFIC

17 U. S. HIGHWAYS

707 STATE HIGHWAYS

LEVEL OF SERVICE
ABC
D
EF

0 1/2 1 2 MILES

2013 PROJECTED TRAFFIC CONDITIONS PROPOSED ACTION

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.2-8

reconstruction to four lanes. Also, 17th Avenue would operate at LOS F, and require improvement to four lanes.

On-Base Roads. Sections of Phillis Boulevard and Farrow Boulevard would be used in the Proposed Action, but most other roadways would involve new construction. The lane requirements are shown in Table 4.2-11 (in the Mitigation Measures section for the Proposed Action).

Airspace/Air Traffic. This analysis assumes that the same type and level of radar coverage and navigational aids would be provided for the jetport and surrounding area as existed prior to base closure, in order to maintain an equivalent level of terminal air traffic control (ATC) services for the reuse aviation activities. The Proposed Action proposes the future addition of a second runway to accommodate the volume of air traffic projected for the jetport. Therefore, it identifies a need for supplementary navigational aids and instrument approach procedures for the added runway.

Airspace requirements for this alternative would be initially the same as those in effect under preclosure conditions (Figure 3.2-14). The airspace formerly controlled by the Myrtle Beach AFB radar approach control facility (RAPCON) would be controlled by the Myrtle Beach FAA RAPCON. With the deletion of control procedures that may have been implemented to satisfy Air Force operational requirements, minor airspace adjustments may be possible to the Myrtle Beach FAA RAPCON airspace to improve overall air traffic flow in the region. The Proposed Action requires a control tower that, along with the navigational aids, establishes an airport traffic area, control zone, and transition area to provide protective airspace for airport traffic and instrument flight procedures. When the second runway becomes operational, the dimensions of the control zone, airport traffic area, and transition area would become slightly larger as a result of the additional runway. Since this alternative proposes a parallel runway west of the existing runway, FAA obstruction clearance criteria should be extended farther west at the jetport. This obstruction clearance requirement may dictate future use of land near the jetport, particularly on the west side. The letter of agreement (LOA) with the Javika Airport should be continued since the same potential airspace and air traffic conflicts would remain that existed before base closure.

Very high frequency omnidirectional range/distance measuring equipment (VOR/DME) and nondirectional beacon (NDB) instrument approaches (similar to the preclosure tactical air navigation [TACAN] procedures depicted in Figures 3.2-16 and 3.2-17) should be implemented for runway 17/35. Holding patterns and flight tracks for these approaches should be developed that would not affect other airspace uses in the ROI, such as the nearby Grand Strand Airport. VOR and NDB stations that transmit electronic signals used by the aircraft for determination of position and for course guidance during an approach should be installed to support these approaches and to replace the TACAN system, which is not compatible with civil navigation equipment. Without these VOR/DME and NDB approaches, the airport would be a visual flight rule (VFR)-only airfield and would not be conducive to commercial and general aviation operations. The replacement approaches would use slightly different sections of airspace within the ROI due to the design criteria differences between VOR/DME and NDB approaches and TACAN approaches.

Discontinuance of instrument approaches or the establishment of new approaches may produce minor changes to the airport control zone.

Civilian pilots use an instrument landing system (ILS) approach rather than a precision approach radar (PAR) when a precision approach is required during low ceiling conditions. Therefore, an ILS capability should be planned for the Proposed Action, and it may be advantageous to decommission the PAR. Additionally, an ILS should be planned for the new runway since the projected level of operations would support a second precision runway.

The FAA is responsible for designing and flight checking instrument approach procedures and would have to examine alternatives that could minimize conflict with other airspace requirements for the area. These published instrument procedures are required for use during weather conditions with ceilings that prevent VFR operations and when the air traffic control system is inoperative. During peak traffic conditions, these procedures can assist in expediting the traffic flow and alleviate airspace congestion. Aircraft remaining in a rectangular radar traffic pattern for successive ILS approaches, such as for pilot training, could remain within 10 nautical miles (nm) of the airfield, which was accomplished in preclosure conditions for military practice approaches. VFR operations, which usually include general aviation aircraft, normally fly directly to and from the field. If the proposed second parallel runway is to be an instrument runway, the flight tracks and airspace for the instrument approaches for the existing runway would have to be modified slightly so as not to conflict with the instrument approaches established for the new runway.

Radar is necessary to support the air traffic control requirements for the Myrtle Beach area because of the volume of air traffic that uses the airspace. In a nonradar environment the capacity to control instrument flight rule (IFR) air traffic is drastically reduced because the separation distance between aircraft is increased. Ultimately, the decision to install these radar systems and navigational aids, as well as to determine the need for air traffic control services, depends on the operational needs and the availability of funds as determined by the FAA and the local airport authority.

As airport growth continues, the airspace structure that supports this alternative, as depicted in Figure 3.2-14, may need modification to accommodate the higher volume of commercial and general aviation traffic predicted for later years. To support the increase in air traffic at the Myrtle Beach Jetport, standard terminal arrival routes (STARs) and standard instrument departures (SIDs) might be necessary to improve the flow of aircraft into and out of the airport. These procedures separate air traffic and normally extend beyond the local area associated with the airport. If these procedures are used, additional maneuvering airspace may be required and agreements would have to be established with Jacksonville and Washington air route traffic control centers (ARTCCs) as well as surrounding ATC facilities.

Enroute general aviation and commercial air traffic that currently transits the airspace associated with the Myrtle Beach AFB RAPCON should not be affected by the base closure and transition of ATC services to the Myrtle Beach FAA RAPCON. The six low altitude federal airways that transit the airspace would not be affected by, nor should they affect, the air traffic control procedures necessary to support the Myrtle Beach Jetport. The LOAs that were

established by the Myrtle Beach AFB RAPCON with surrounding air traffic control agencies could be continued to ensure effective air traffic control procedures between the agencies. Likewise, continued use of the military training routes that pass through the Myrtle Beach FAA RAPCON airspace would not affect the RAPCON airspace and the routes should not require change because the ATC procedures used for the routes are standardized throughout the national airspace system.

Based on preclosure experience with commercial air carriers destined for the jetport, these types of aircraft could continue to be routed directly to the airport for a visual approach or to an ILS approach commencing 8 to 10 miles north of runway 17 without encroaching on the Gamecock Military Operating Areas (MOAs) when they are active. Approaches to runway 35 are over water and keep aircraft separated from any special use airspace.

Aircraft departures could be routed via standard instrument procedures or as otherwise directed by the Myrtle Beach FAA RAPCON. Runway 17 departures take aircraft over water for the initial portion of the climb-out and before being directed on the flight plan to the destination. The flight tracks used at the Air Force base and jetport for runway 35 departures are over land and are designed to take the aircraft over the least populated locations, balancing the performance requirements of the various aircraft with the noise and safety concerns of the public. When the second runway becomes operational, the arrival and departure procedures for the single runway could be modified to assure the required separation between aircraft during simultaneous operations on the parallel runways.

Although the number of aircraft using terminal radar services at the jetport should initially decrease with the discontinuation of military flight operations, there is a continued need for these services due to the increasing commercial and general aviation air traffic projected for the jetport. Steady growth is anticipated for the jetport and the number of annual operations projected by the year 2013 represents a three-fold increase over preclosure military and commercial operations at the Air Force base and jetport. However, about 75 percent of these projected operations may be conducted by general aviation aircraft, which would place less demand on the ATC and airspace systems than did the military and commercial operations that are IFR oriented. Table 4.2-6 reflects the future operations for the Myrtle Beach Jetport. Table 3.2-9 indicates the average daily operations by type of aircraft for March 1993. Tables 4.2-7 through 4.2-9 show the same data for flight operations for the peak month (July) for 1998, 2003, and 2013 for the Proposed Action. It would appear that these increased operations could be accommodated in the ROI and that the Myrtle Beach FAA RAPCON could generally provide individual aircraft handling for the level of operations projected under this alternative, as traffic workload permitted. For relief during high traffic saturation situations, the Myrtle Beach FAA RAPCON could retain the LOA with Jacksonville ARTCC in which Jacksonville could control traffic from 7,000 to 10,000 feet above mean sea level (MSL) when the Myrtle Beach terminal area is saturated.

The 1993 projections (Table 4.2-6) reflect operations at base closure. No statistical data are available that predict general aviation operations at the jetport for 1993. Available studies only indicate anticipated jetport operations levels for 1997 and later. Operations for the remainder of 1993 and into 1994

are difficult to predict because they depend on variable factors that attract general aviation activities such as establishing a fixed-base operator at the jetport and determining the number of operations that would divert from the

Table 4.2-6. Projected Aviation Forecast - Proposed Action

	Annual Operations			
	1993	1998	2003	2013
Aviation Category				
Commercial				
Air Passenger	15,300	22,240	28,760	34,410
Air Cargo	2,550	2,870	3,020	3,070
Subtotal	17,850	25,110	31,780	37,480
General Aviation				
General Aviation	0	64,820	75,220	94,880
Aircraft Maintenance	0	3,720	4,350	5,640
Pilot Training	0	6,290	8,030	12,950
Subtotal	0	74,830	87,600	113,470
Total Operations	17,850	99,940	119,380	150,950
Fleet Mix (Percent of Total Operations)				
Air Passenger Jet	38	11	11	10
Business Jet	0	7	7	7
Single Engine	3	51	50	51
Multi-Engine Piston	0	3	3	3
Multi-Engine Turboprop	59	28	29	29

Source: LPA Group, Inc., 1992.

Table 4.2-7. Projected Aircraft Operations, July 1998 (Single Runway) Proposed Action and Alternatives 1, 2, 3*

Aircraft Category/ Aircraft Type	Average Day Peak Month	Takeoff		Landing	
		Day	Night	Day	Night
Air Passenger					
727-200	8.94	4.47	0.00	4.47	0.00
737-200	0.48	0.23	0.01	0.24	0.00
737-300	15.22	4.94	2.67	7.41	0.20
737-400	14.40	7.20	0.00	7.20	0.00
757-200	1.86	0.93	0.00	0.93	0.00
F-100	4.21	1.58	0.53	2.10	0.00
SAAB 340	27.46	10.60	3.13	12.40	1.33
DHC-8	3.72	1.86	0.00	1.86	0.00
Subtotal	76.29	31.81	6.34	36.61	1.53
Air Cargo					
C402	8.46	3.48	0.75	1.95	2.28
General Aviation (GA)					
Single Engine	137.70	65.47	3.38	65.47	3.38
Touch & Go	80.42	39.42	0.79	39.42	0.79
Multi-Engine Piston	11.26	5.38	0.24	5.40	0.24
Touch & Go	2.54	1.02	0.25	1.02	0.25
Multi-Engine Turbo	79.63	38.29	1.51	38.30	1.53
Jet	31.14	14.98	0.58	14.98	0.60
Subtotal	342.69	164.56	6.75	164.59	6.79
Total	427.44	199.85	13.84	203.15	10.60
Total Touch & Go (T&G)	82.96				
Percent of T&G with GA	24.20%				
Percent of T&G to Total	19.40%				

Notes: Day and night distribution based on July 1991 distribution. Aircraft type based on October 1991 but modified to include more quiet aircraft. Total aircraft based on LPA 1997 peak but increased for 1998. General aviation percent based on LPA 2012 data but modified to match touch and go distribution for 1997. Day - 7 A.M. to 10 P.M.; Night - 10 P.M. to 7 A.M.

* Alternatives 1, 2, 3 are the Expanded Airfield/Resort-Recreation, Expanded Airfield/Resort-Commercial-Industrial, and Existing Airfield/Mixed Use Alternatives, respectively.

Source: LPA Group, Inc., 1992.

Table 4.2-8. Projected Aircraft Operations, July 2003 (Single Runway) Proposed Action and Alternatives 1, 2, 3*

Aircraft Category/ Aircraft Type	Average Day Peak Month	Takeoff		Landing	
		Day	Night	Day	Night
Air Passenger					
757-200	21.04	9.47	1.05	8.42	2.10
737-400	29.45	13.68	1.05	12.62	2.10
747-400	2.10	1.05	0.00	1.05	0.00
SAAB 340	25.26	11.58	1.05	11.58	1.05
DHC-8	18.94	9.47	0.00	9.47	0.00
Subtotal	96.79	45.25	3.15	43.14	5.25
Air Cargo					
C402	8.64	3.57	0.75	2.09	2.23
General Aviation (GA)					
Single Engine	154.54	73.35	3.92	73.35	3.92
Touch & Go	99.64	48.90	0.92	48.90	0.92
Multi-Engine Piston	13.10	6.27	0.28	6.27	0.28
Touch & Go	2.96	1.38	0.10	1.38	0.10
Multi-Engine Turbo	92.76	44.62	1.76	44.62	1.76
Jet	36.28	17.46	0.68	17.46	0.68
Subtotal	399.28	191.98	7.66	191.98	7.66
Total	504.71	240.80	11.56	237.21	15.14
Total Touch & Go (T&G)	102.60				
Percent of T&G with GA	25.70%				
Percent of T&G to Total	20.30%				

Notes: Day and night distribution based on 2012 data provided by LPA. Aircraft type based on 2012 predictions provided by LPA. , Total aircraft based on LPA 2002 peak and increased for 2003. General aviation percent based on LPA 2012 data but modified to match LPA touch & go distribution for 2002. Day - 7 A.M. to 10 P.M.; Night - 10 P.M. to 7 A.M.
*Alternatives 1, 2, 3 are the Expanded Airfield/Resort-Recreation, Expanded Airfield/Resort-Commercial-Industrial, and Existing Airfield/Mixed Use Alternatives, respectively.
Source: LPA Group, Inc., 1992.

Table 4.2-9. Projected Aircraft Operations, July 2013 (Dual Runway) - Proposed Action and Alternatives 1, 2*

Aircraft Category/ Aircraft Type	Average Day Peak Month	Takeoff		Landing	
		Day	Night	Day	Night
Air Passenger					
757-200	25.34	11.40	1.27	10.14	2.53
737-400	35.47	16.47	1.27	15.20	2.53
747-400	2.54	1.27	0.00	1.27	0.00
SAAB 340	30.42	13.94	1.27	13.94	1.27
DHC-8	22.80	11.40	0.00	11.40	0.00
Subtotal	116.57	54.48	3.81	51.95	6.33
Air Cargo					
C402	8.12	2.81	1.25	1.81	2.25
General Aviation (GA) (Main Runway)					
Single Engine	3.16	1.26	0.32	1.26	0.32
Touch & Go	13.22	6.26	0.35	6.26	0.35
Multi-Engine Piston	1.82	0.88	0.03	0.88	0.03
Touch & Go	0.22	0.11	0.00	0.11	0.00
Multi-Engine Turbo	59.72	28.71	1.15	28.71	1.15
Jet	42.14	20.04	1.03	20.04	1.03
Subtotal	120.28	57.26	2.88	57.26	2.88
General Aviation (New Runway)					
Single Engine	218.00	103.07	5.93	103.07	5.93
Touch & Go	92.62	45.56	0.75	45.56	0.75
Multi-Engine Piston	14.26	6.76	0.37	6.76	0.37
Touch & Go	4.44	2.12	0.10	2.12	0.10
Multi-Engine Turbo	59.68	28.71	1.13	28.71	1.13
Jet	4.66	2.25	0.08	2.25	0.08
Subtotal	393.66	188.47	8.36	188.47	8.36
Total	638.63	303.02	16.30	299.49	19.82

Main Runway T&G	13.44	11.20%
New Runway T&G	97.06	24.70%
Percent T&G to Total		17.30%
Percent T&G to GA		21.5%

Notes: Day and night distribution based on 2012 data provided by LPA. Aircraft type based on 2012 predictions provided by LPA. Total aircraft based on LPA 2012 peak and increased for 2013. General aviation percent based on LPA data but modified to match LPA touch & go distribution for 2012. Day - 7 A.M. to 10 P.M.; Night - 10 P.M. to 7 A.M.

*Alternatives 1 and 2 are the Expanded Airfield/Resort-Recreation, and Expanded Airfield/Resort-Commercial-Industrial Alternatives, respectively.

Source: LPA Group, Inc., 1992.

nearby Grand Strand, Conway/Horry County, and Georgetown Airports. Studies indicate that traffic from these airports would divert to the jetport after it is opened to general aviation aircraft. These studies indicate that approximately 50 percent of the itinerant aircraft operations and 35 percent of the operations created by aircraft based at the nearby Grand Strand Airport would switch, over time, to the jetport. The same studies determined that additional traffic also would divert from the Conway/Horry County and Georgetown Airports. Although this diversion of air traffic initially would reduce operations at these other airports, the growth projected for the airports through the year 2013 emphasizes that the Myrtle Beach FAA RAPCON should provide air traffic control services to the area. The addition of general aviation operations at the jetport, coupled with the expected diversion from Grand Strand, would eliminate the potential for the Grand Strand Airport runway to exceed its annual service volume (ASV). Without this relief, a second runway at the airport or some other action to alleviate the overcrowding at the airport may be required.

Air Transportation. The closure of Myrtle Beach AFB will allow the Myrtle Beach Jetport to operate without the restrictions that were imposed by the Air Force for the dual use runway. While the jetport never approached the maximum allowable daily operations set in their Joint Use Agreement (JUA), this would not be an issue in the future under the Proposed Action. The Proposed Action proposes expansion of the airport to construct a second runway in approximately 2010 to accommodate general aviation traffic (see Figure 2.2-1). Details of the general aviation activities are discussed in the Airspace/Air Traffic section for the Proposed Action.

Projected commercial air carrier boardings for this alternative are shown in Table 4.2-10. A master plan has been recently completed by the Myrtle Beach Jetport and the FAA for improvements to accommodate these projected boardings.

Table 4.2-10. Projected Passenger Boardings on Commercial Flights - Proposed Action

1998	2003	2013
554,220	845,544	1,011,654

Railroad Transportation. There is currently no rail service planned for the Myrtle Beach AFB site. Several factors may make passenger and/or freight rail service to the site feasible in the future as the land uses in this alternative develop.

Traffic congestion on the area roadways and the location of a theme park on the site may justify the extension of the Conway to Myrtle Beach excursion train to the site. The industrial component of this alternative may justify freight service to the site. Rail service could be provided from the existing tracks along U.S. 501 to the site by constructing tracks along the existing rail corridor shown in Figure 3.2-8 that parallels U.S. 17 Bypass. Horry County officials

Seaport. It is assumed that the docking facility at the north end of the runway would not be used for fuel delivery in the future, as the jetport currently does not use the facility.

Cumulative Impacts. Cumulative impacts would generally involve the introduction of roadway improvements into the network and the impact of those improvements. As mentioned above, the roadway improvements planned for the vicinity would help to relieve congestion on some of the roads, but would not eliminate the traffic congestion in the area. In addition, the new roads would cause some redirection of traffic which would add congestion to certain roadway segments. For instance, the Carolina Bays Parkway would add congestion to U.S. 501 and SC 544 between U.S. 17 Bypass and the Carolina Bays Parkway.

The Proposed Action would have no cumulative impacts on airspace/air traffic.

Mitigation Measures. The roadway improvements that are necessary to accommodate background traffic and background plus development traffic are summarized in Table 4.2-11. While U.S. 17 Business is shown as needing extensive improvements, including being reconstructed as an expressway by 2003, this would be an expensive and unrealistic solution to the congestion problem. A preferred solution would be mass transit that could provide service along the corridor. This could encourage tourists staying along the beach to use transit instead of their cars while visiting attractions in the area. A transit system accessing the jetport and providing frequent service throughout the Myrtle Beach area could entice visitors to not use a car and depend solely on transit for mobility during their stay. While improvements are shown to be necessary for sections of U.S. 17 Bypass by 1998, the introduction of the Carolina Bays Parkway in 2013 should reduce traffic congestion on the Bypass. While it is expected to remain congested on the section between SC 544 and U.S. 501, through traffic may divert to the Parkway and provide additional relief to the Bypass. The Parkway is needed as soon as possible to help relieve the U.S. 17 Bypass and should also be extended beyond SC 544 to reduce some of the traffic accessing the Parkway near Myrtle Beach and adding congestion to SC 544 and U.S. 501. Although sections of SC 544 and U.S. 501 are planned for improvement during the horizon of this analysis, additional improvements would be required to accommodate either background or total traffic in the area by 2013.

For airspace/air traffic impacts, the mitigation measures previously implemented by the Air Force could be retained to attain the same results. Continuation of the airfield nonoperating hours would eliminate potential complaints of nighttime noises originating from the airport. Commercial flight schedules either currently comply or, in the future, could be adjusted to comply with the established nonoperating hours. Retaining the same arrival and departure tracks would minimize concerns about aircraft noise and accident potential since the tracks for Air Force operations were developed for noise reduction and safety purposes.

TABLE 4.2-11. ROADWAY IMPROVEMENTS-PROPOSED ACTION

PAGE 1 OF 2

ROAD	LINK	EXISTING LANES	1998 V/C (1)	1998 RECOMMENDED IMPROVE-MENTS	1998 (2)	2003 V/C (1)	2003 RECOMMENDED IMPROVE-MENTS	2003 (2)	2013 V/C (1)	2013 RECOMMENDED IMPROVE-MENTS	2013 (2)
BUS.17	MURREL'S INLET-CYPRESS AVE	4LD	1.2	6LD	1,2	1.5	6LD	1,2	1.9	4LX	1,2
BUS.17	CYPRESS AVE-GLEN'S BAY RD	4LD	1.2	6LD	1,2	1.4	6LD	1,2	1.9	4LX	1,2
BUS.17	GLEN'S BAY RD-SC 544	4LD	1.5	6LD	1,2	1.8	4LX	1,2	2.4	6LX	1,2
BUS.17	SC 544-BASE BOUNDARY	4LD	1.3	6LD	1,2	1.7	4LX	2	2.2	6LX	2
BUS.17	BASE BOUNDARY-EXP RD 1	4LD	1.3	6LD	1,2	1.7	4LX	2	2.2	6LX	2
BUS.17	EXP RD 1-RES DR 1	4LD	1.5	4LX	2	2.0	6LX	2	2.6	6LX	2
BUS.17	RES DR 1-CAMP DR	4LD	1.5	4LX	2	2.0	6LX	2	2.6	6LX	2
BUS.17	CAMP DR-FARROW BLVD	4LD	1.6	4LX	2	2.1	6LX	2	2.7	6LX	2
BUS.17	FARROW-EXP RD 3	4LD	1.4	6LD	2	1.8	4LX	2	2.3	6LX	2
BUS.17	EXP RD 3-CEMETERY DR	4LD	1.4	6LD	2	1.8	4LX	2	2.4	6LX	2
BUS.17	CEMETERY-AVX DR	4LD	1.3	6LD	2	1.8	4LX	2	2.3	6LX	2
BUS.17	AVX DR-17TH AVE	4LD	1.4	6LD	2	1.9	4LX	2	2.5	6LX	2
BUS.17	17TH AVE-5TH AVE	4LD	1.4	6LD	1,2	1.8	4LX	2	2.3	6LX	2
BUS.17	5TH-US 501	4LD	1.4	6LD	1,2	1.7	4LX	2	2.3	6LX	2
BUS.17	US 501-S 1017	6LD	1.1	4LX	2	1.3	4LX	1,2	1.8	6LX	1,2
BUS.17	S 1017-US 17	6LD	1.0	NI	2	1.2	4LX	1,2	1.5	6LX	1,2
BYP.17	MURREL'S INLET-SC 544	4LD PAC	0.7	NI	–	0.8	NI	–	1.1	6LD PAC	1
BYP.17	SC 544-SC 707	4LD PAC	0.8	NI	–	0.9	NI	–	1.1	6LD PAC	–
BYP.17	SC 707-EXP RD 2	4LD PAC	1.3	6LD PAC	–	1.7	6LX	–	1.8	6LX	–
BYP.17	EXP RD 2-S 600	4LD PAC	1.4	6LD PAC	–	1.7	6LX	–	1.8	6LX	–
BYP.17	S 600-JETPORT RD	4LD PAC	1.3	6LD PAC	–	1.6	6LX	–	1.7	6LX	–
BYP.17	JETPORT RD-US 501	4LD PAC	1.3	6LD PAC	1	1.6	6LX	–	1.7	6LX	–
BYP.17	US 501- S 1017	4LD PAC	0.9	NI	–	1.1	6LD PAC	–	1.2	6LD PAC	–
BYP.17	S 1017-US BUS 17	4LD PAC	0.5	NI	–	0.7	NI	–	0.6	NI	–
SC 707	US 17-SC 544	2L	0.6	NI	–	0.7	NI	–	0.9	NI	–
SC 707	SC 544-BEGIN 4LD	2L	1.5	4LD	1	0.9	NI	3	0.9	NI	–
SC 707	BEGIN 4LD-BYP 17	4LD	0.7	NI	–	0.9	NI	–	0.9	NI	–
SC 544	CONWAY-S 814	2L	1.1	4LD	1	0.6	NI	3	0.9	NI	–
SC 544	S 814-S 611	2L	1.6	4LD	1	0.9	NI	3	1.2	6LD	1
SC 544	S 611-SC 707	2L	1.6	4LD	1	1.0	NI	3	1.2	6LD	–
SC 544	SC 707-BYP 17	2L	0.7	NI	3	0.9	NI	–	1.2	6LD	1
SC 544	BYP 17-BUS 17	2L	0.6	NI	3	0.7	NI	–	0.9	NI	–
US 501	CONWAY-S 137	4LD	0.9	NI	–	0.8	NI	3	1.0	NI	–
US 501	S 137-BYP 17	4LD	1.7	6LD PAC	1	1.0	4LX	1,3	1.5	6LX	1
US 501	BYP 17-S 600	4LD	1.4	6LD	1	1.7	4LX	1	2.2	6LX	1

TABLE 4.2-11. ROADWAY IMPROVEMENTS-PROPOSED ACTION (CONTINUED)

PAGE 2 OF 2

ROAD	LINK	EXISTING LANES	1998 V/C (1)	1998 RECOMMENDED IMPROVE-MENTS	1998 (2)	2003 V/C (1)	2003 RECOMMENDED IMPROVE-MENTS	2003 (2)	2013 V/C (1)	2013 RECOMMENDED IMPROVE-MENTS	2013 (2)
US 501	S 600-BROADWAY	4LD	1.0	NI	–	1.1	6LD	1	1.5	6LD (LOS E)	1
US 501	BROADWAY-BUS 17	4LD	1.0	NI	–	1.1	6LD	1	1.5	6LD (LOS E)	1
S 600	BYP 17-JETPORT RD	2L	0.3	NI	–	0.3	NI	–	0.6	NI	–
S 600	JETPORT RD-US 501	2L	0.2	NI	–	0.3	NI	–	0.4	NI	–
JETPORT	BYP 17-S 600	2L	0.5	NI	–	0.6	NI	–	0.7	NI	–
JETPORT	S 600-BROADWAY	2L	0.6	NI	–	0.7	NI	–	0.9	NI	–
JETPORT	BROADWAY-SUPPORT RD	2L	0.6	NI	–	0.7	NI	–	0.9	NI	–
BROADWAY	JETPORT RD-17TH AVE	2L	0.6	NI	–	0.7	NI	–	1.0	NI	–
BROADWAY	17TH AVE-5TH AVE	2L	0.6	NI	–	0.7	NI	–	0.9	NI	–
BROADWAY	5TH AVE-US 501	2L	1.1	4LD	1	1.3	4LD	1	1.7	4LD	1
17TH AVE	BROADWAY-GOLF COURSE DRIVE	2L	0.9	NI	–	1.0	4LD	–	1.3	4LD	1
17TH AVE	GOLF COURSE DRIVE-AVX DR	2L	0.9	NI	–	1.0	4LD	–	1.3	4LD	1
17TH AVE	AVX DR-BUS 17	2L	0.8	NI	–	0.9	NI	–	1.3	4LD	1
AVE D	BYP 17-THEME PARK A	–	0.6	4LD	–	0.9	4LD	–	0.7	6LD	–
AVE "D"	THEME PARK A-THEME PARK B	–	0.6	4LD	–	0.9	4LD	–	0.7	6LD	–
AVE "D"	THEME PARK B-SUPPORT B DR	–	0.6	4LD	–	0.8	6LD	–	0.9	6LD	–
AVE "D"	SUPPORT B DR-AIRFIELD DR	–	0.6	4LD	–	1.2	6LD	–	0.9	6LD	–
AVE "D"	AIRFIELD DR-IND C DR	–	0.7	2L	–	0.6	4LD	–	0.9	4LD	–
EXP RD 1	THEME PARK B-PARK	–	0.9	4LD	–	0.9	6LD	–	0.9	6LD	–
EXP RD 1	PARK-EDUCATION RD	–	0.9	4LD	–	0.9	6LD	–	0.9	6LD	–
EXP RD 1	EDUCATION-RESIDENT DR	–	0.9	4LD	–	0.9	6LD	–	0.9	6LD	–
EXP RD 1	RESIDENT DR-BUS 17	–	0.9	4LD	–	0.9	6LD	–	0.9	6LD	–
EXP RD 2	BYP 17-INDUST C DR	–	0.2	2L	–	0.3	2L	–	0.4	2L	–
EXP RD 2	INDUST C DR-AIRPORT RD	–	0.1	2L	–	0.1	2L	–	0.2	2L	–
FARROW	INDUST A-BUS 17	–	0.0	2L	–	0.0	2L	–	0.0	2L	–
EXP RD 3	BUS 17-COMM B	–	0.3	2L	–	0.5	2L	–	0.5	4LD	–
EXP RD 3	COMM B-MUSEUM DR	–	0.2	2L	–	0.3	2L	–	0.4	2L	–
EXP RD 3	MUSEUM DR-SUPPORT DR	–	0.3	2L	–	0.4	2L	–	0.5	2L	–
EXP RD 3	SUPPORT DR-JETPORT	–	0.3	2L	–	0.4	2L	–	0.5	2L	–
BAYS PKWY	SC 544-US 501	–	–	–	–	–	–	–	0.3	4LX	1,3
BAYS PKWY	US 501-CONWAY BYPASS	–	–	–	–	–	–	–	0.1	4LX	1,3

(1) VOLUME TO CAPACITY RATIO (V/C) IS BASED ON LOS "D" CAPACITY OF EXISTING OR PROGRAMMED NUMBER OF LANES.

(2) 1-THIS IMPROVEMENT WOULD BE REQUIRED BY GROWTH IN BACKGROUND TRAFFIC. WITHOUT THE ADDITION OF DEVELOPMENT TRAFFIC.

2-IMPROVEMENTS MAY BE PARTIALLY MITIGATED BY EXTENSIVE TRANSIT IMPROVEMENTS.

3-PROGRAMMED FOR IMPROVEMENT WITHIN THIS TIME PERIOD.

LD=LANES/DIVIDED HIGHWAY

LX=LANES/EXPRESSWAY

PAC=PARTIAL ACCESS CONTROL

NI=NO IMPROVEMENTS NECESSARY

If Det. 1, 107 Fighter Interceptor Group (NYANG) desires continued use of the jetport for simulated flame-out (SFO) landing practice as well as an emergency recovery airfield when its aircraft cannot fly to Shaw AFB, the existing LOA should be retained to continue this capability. Given the projected growth in air traffic at this airport, the jetport may be unable to support SFO operations due to air traffic congestion. SFO operations tend to disrupt the flow of other traffic at the airport, a situation that may be undesirable from an ATC perspective. Unlike military fighter aircraft, civilian aircraft do not require a runway aircraft arresting system. In fact, for many civilian aircraft, contact with an arresting system can be hazardous to their operation. Therefore, the local airport operator may want to remove the equipment from the runway. If the aircraft arresting systems are retained, the airport authority should follow FAA guidance for runway arresting systems at joint use airfields.

The addition of general aviation to the operations at the jetport would not generate any additional impact to the operating hours requiring new mitigation measures since these operations normally occur well outside the nonoperating hours. Construction of the proposed second runway would have a mitigating effect and allow the jetport to accommodate all forecast levels of air traffic operations through the year 2013.

4.2.3.2 Expanded Airfield/Resort-Recreation Alternative

Roadways. Primary access for this alternative would be provided by two major thoroughfares connecting U.S. 17 Business and U.S. 17 Bypass. One road would be provided in the southwestern section of the site and provide access to the proposed destination resort, medical facility, and commercial areas. The other road would be provided in the northeastern section of the site and provide access to the jetport, golf course, proposed air museum, and other land uses in this portion of the base. Collector roadways would serve the other land uses in this alternative. Figure 2.3-1 shows the land uses and the proposed roadways.

Traffic generation was estimated for 20 types and subcategories of land uses for the Expanded Airfield/Resort-Recreation Alternative. The largest trip generator would be the proposed destination resort, which alone has eight different subcategories of land uses. The destination resort could attract approximately 46,000 trips per day by 2013, or 46 percent of the trips generated by this alternative.

Internal trips would account for approximately 20 percent of the total peak hour trips generated by this alternative in 2013. The external trips that remain after deducting the internal trips from the total trips are those that would leave the site and impact the public road network. Tables F-5 through F-7 in Appendix F show the trip generation of the Expanded Airfield/Resort-Recreation Alternative, including total and external trips. Table 4.2-12 shows the daily, peak hour, and external trip generation of this alternative.

Table 4.2-12. Summary of Trip Generation - Expanded Airfield/Resort-Recreation Alternative

	1998	2003	2013
Daily Trips	66,741	91,667	100,156
Total Peak Hour Trips	6,355	8,711	9,898
External Peak Hour Trips	4,949	6,680	7,933

Effects of Project Generated Traffic on Key Community Roads.

Regional roads. The number of peak hour trips for all land uses was estimated based on the procedures presented above and assigned to the area road network. Figures 4.2-9, 4.2-10, and 4.2-11 identify the background and total traffic estimates for each of the area roadways. The LOS resulting from the total traffic also is shown on these figures. The general effects of this alternative would be similar to the impacts due to the Proposed Action. The figures showing traffic and LOS for each alternative detail the small differences in impacts created by each alternative.

Local Roads. The impacts of this alternative are similar to the Proposed Action.

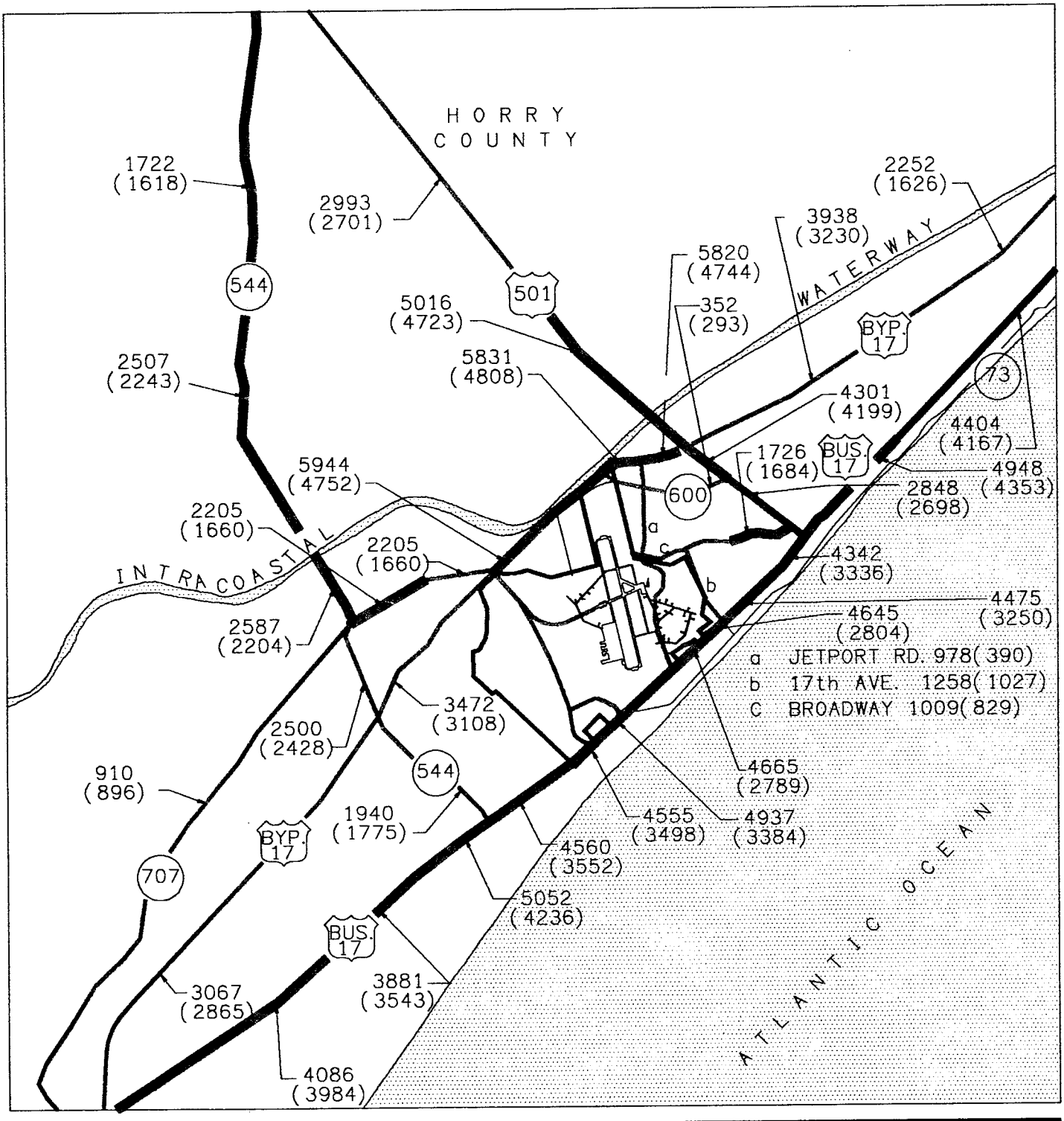
On-Base Roads. Sections of Phillis Boulevard and Farrow Boulevard would be used in this alternative, but most other roadways would involve new construction. The lane requirements are shown in Table 4.2-15 (in the Mitigation Measures section for this alternative).

Airspace/Air Traffic. Based on the volume and types of air traffic projected for the jetport and the area surrounding Myrtle Beach, the airspace and air traffic requirements for this alternative would be the same as those discussed for the Proposed Action. Table 4.2-13 projects the aviation operations for this alternative. Tables 4.2-7, 4.2-8, and 4.2-9 show the projected flight operations for the peak month for 1998, 2003, and 2013.

Air Transportation, Railroad Transportation, and Seaports. Overall impacts are similar to the Proposed Action. Airline boardings are slightly higher than the Proposed Action due to increased attractions in this reuse alternative. Table 4.2-14 shows the projected boardings for each analysis year.

Table 4.2-14. Project Passenger Boardings on Commercial Flights - Expanded Airfield/Resort-Recreation Alternative

1998	2003	2013
554,220	849,660	1,016,652



EXPLANATION

XXXX PEAK SEASON PEAK HOUR TOTAL TRAFFIC

(XXXX) PEAK SEASON PEAK HOUR BACKGROUND TRAFFIC

17 U. S. HIGHWAYS

707 STATE HIGHWAYS

LEVEL OF SERVICE
ABC
D
EF

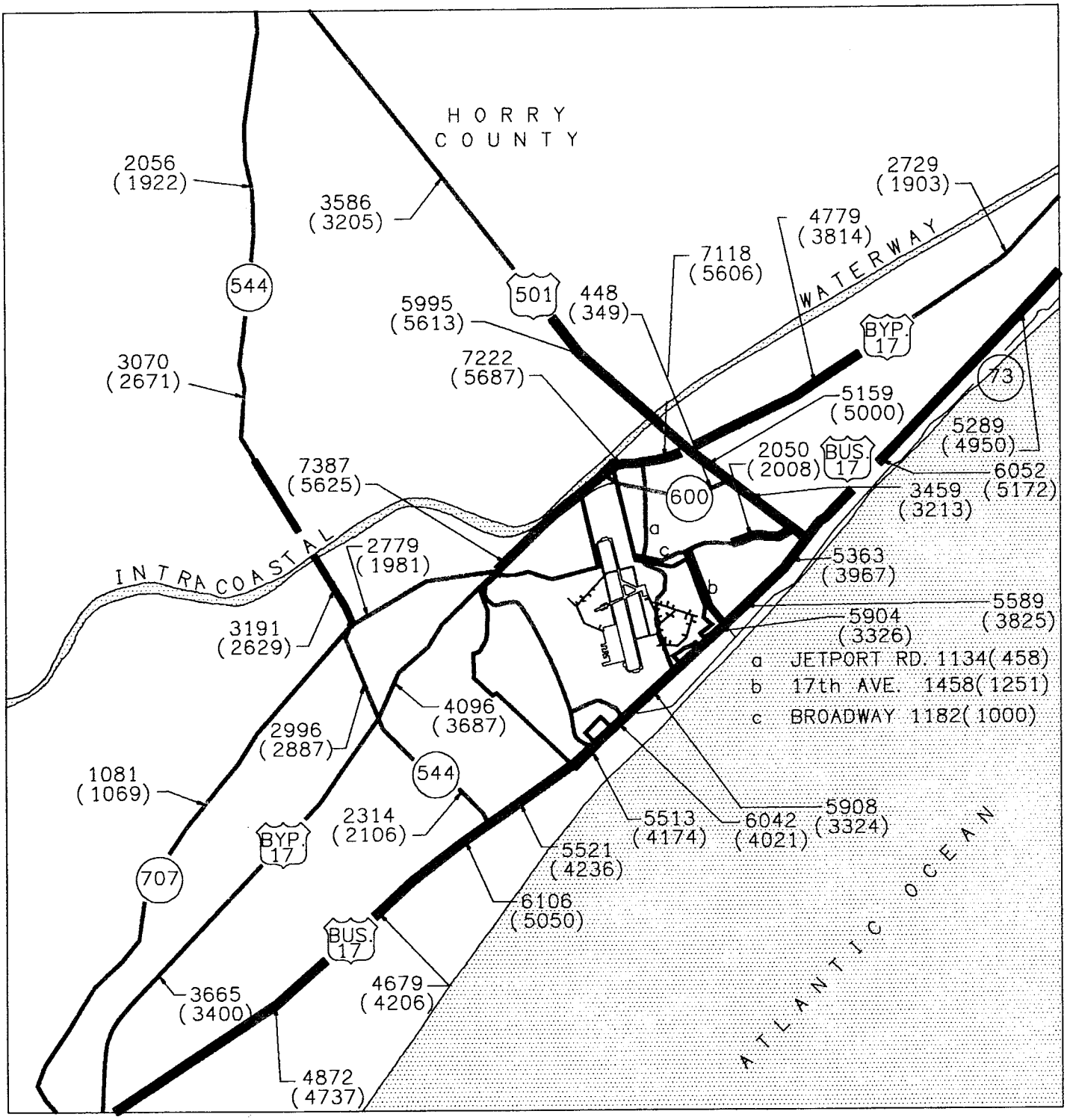
0 1/2 1 2 MILES

1998 PROJECTED TRAFFIC CONDITIONS EXPANDED AIRFIELD/ RESORT-RECREATION ALTERNATIVE

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.2-9

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EXPLANATION

XXXX PEAK SEASON PEAK HOUR TOTAL TRAFFIC

(XXXX) PEAK SEASON PEAK HOUR BACKGROUND TRAFFIC

17 U. S. HIGHWAYS

707 STATE HIGHWAYS

LEVEL OF SERVICE
ABC
D
EF

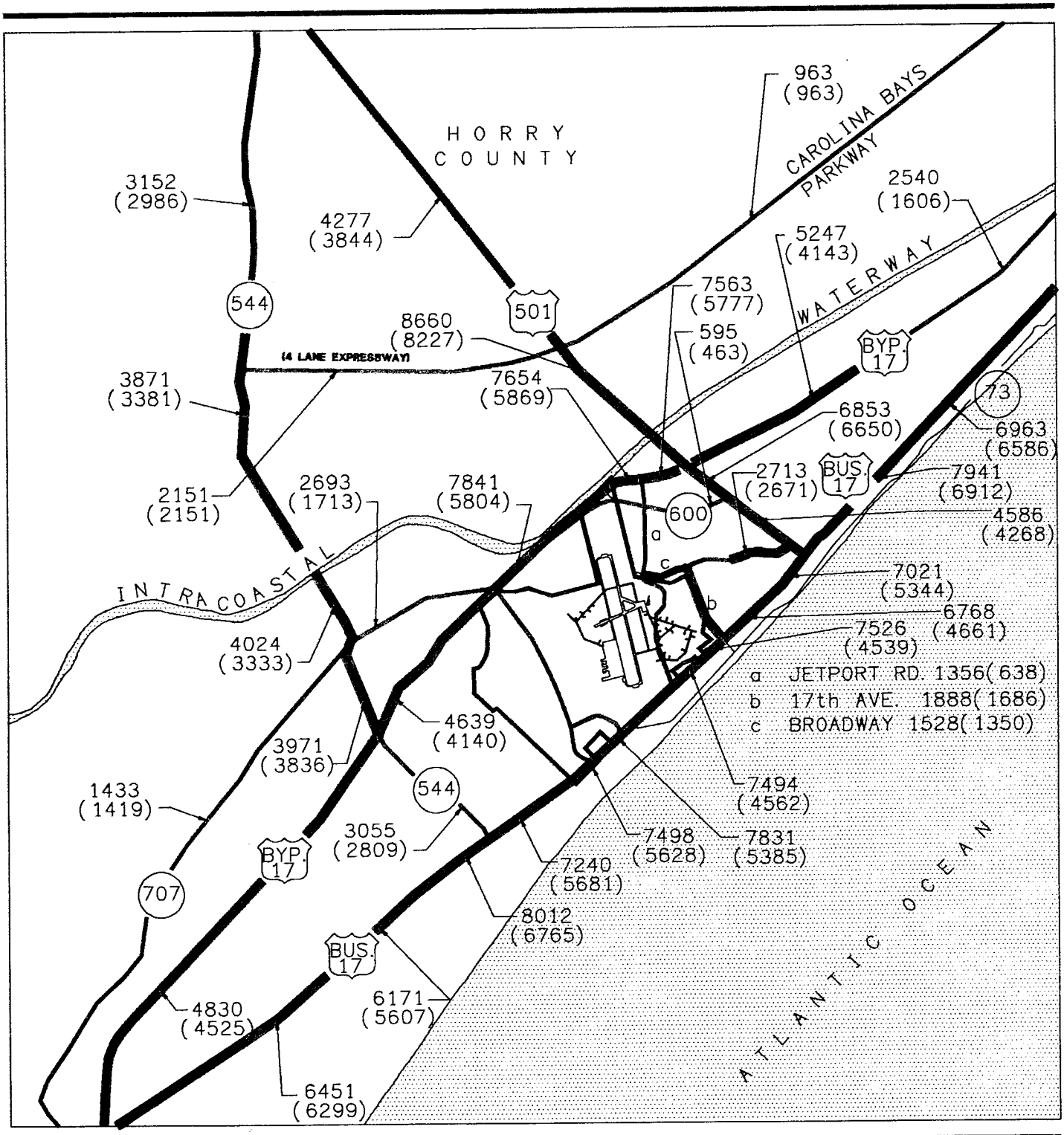
0 1/2 1 2 MILES

2003 PROJECTED TRAFFIC CONDITIONS EXPANDED AIRFIELD/ RESORT-RECREATION ALTERNATIVE

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.2-10

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EXPLANATION

XXXX PEAK SEASON PEAK HOUR TOTAL TRAFFIC

(XXXX) PEAK SEASON PEAK HOUR BACKGROUND TRAFFIC

17 U. S. HIGHWAYS

707 STATE HIGHWAYS

LEVEL OF SERVICE
ABC
D
EF

0 1/2 1 2 MILES

2013 PROJECTED TRAFFIC CONDITIONS EXPANDED AIRFIELD/ RESORT-RECREATION ALTERNATIVE

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.2-11

Table 4.2-13 Projected Aviation Forecast - Expanded Airfield/Resort-Recreation Alternative

	Annual Operations			
	1993	1998	2003	2013
Aviation Category				
Commercial				
Air Passenger	15,300	22,240	28,900	34,580
Air Cargo	2,550	2,870	3,020	3,070
Subtotal	17,850	25,110	31,920	37,650
General Aviation				
General Aviation	0	64,820	75,220	94,880
Aircraft Maintenance	0	3,640	4,270	5,530
Pilot Training	0	6,290	8,030	12,950
Subtotal	0	74,750	87,520	113,360
Total Operations	17,850	99,860	119,440	151,010
Fleet Mix (Percent of Total Operations)				
Air Passenger Jet	38	11	11	10
Business Jet	0	7	7	7
Single Engine	3	51	50	51
Multi-Engine Piston	0	3	3	3
Multi-Engine Turboprop	59	28	29	29

Source: LPA Group, Inc., 1992.

Cumulative Impacts. The cumulative impacts of this alternative are similar to the Proposed Action.

Mitigation Measures. Table 4.2-15 shows the necessary roadway improvements to accommodate LOS D conditions by each analysis year. The general description of these improvements is similar to the description for the Proposed Action. Detailed differences in the necessary improvements can be determined by comparing the tables.

Airspace/air traffic mitigation would be the same as described for the Proposed Action.

4.2.3.3 Expanded Airfield/Resort-Commercial-Industrial Alternative

Roadways. Primary access for this alternative would be provided by two major thoroughfares connecting U.S. 17 Business and U.S. 17 Bypass. One road would be in the southwest section of the site providing access to the proposed destination resort, medical facility, residential area, and commercial areas. The other road would be in the northeast section of the site and provide access to the jetport, golf course, proposed air museum, and other land uses in this portion of the base. Collector roadways would serve other land uses in this alternative. Figure 2.3-2 shows the land uses and the proposed roadways.

Traffic generation was estimated for 20 types and subcategories of land uses for the Expanded Airfield/Resort-Commercial-Industrial Alternative. The largest trip generator would be the proposed destination resort, which alone has eight different subcategories of land uses. The destination resort could attract approximately 46,000 trips per day by 2013, or 40 percent of the trips generated by this alternative.

Internal trips would account for approximately 20 percent of the total peak hour trips generated by this alternative in 2013. The external trips that remain after deducting the internal trips from the total trips are those that would leave the site and impact the public road network. Tables F-8 through F-10 in Appendix F show the trip generation of the Expanded Airfield/Resort-Commercial-Industrial Alternative, including total and external trips. Table 4.2-16 shows the daily, peak hour, and external trip generation of this alternative.

Table 4.2-16. Summary of Trip Generation - Expanded Airfield/Resort-Commercial-Industrial Alternative

	1998	2003	2013
Daily Trips	77,173	105,619	114,404
Total Peak Hour Trips	7,317	9,837	10,829
External Peak Hour Trips	5,777	7,621	8,612

TABLE 4.2-15. ROADWAY IMPROVEMENTS-EXPANDED AIRFIELD/RESORT-RECREATION ALTERNATIVE

PAGE 1 OF 3

			1998			2003			2013		
ROAD	LINK	EXISTING LANES	V/C (1)	RECOMMENDED IMPROVE-MENTS	(2)	V/C (1)	RECOMMENDED IMPROVE-MENTS	(2)	V/C (1)	RECOMMENDED IMPROVE-MENTS	(2)
BUS.17	MURREL'S INLET-CYPRESS AVE	4LD	1.2	6LD	1,2	1.5	6LD	1,2	1.9	4LX	1,2
BUS.17	CYPRESS AVE-GLEN'S BAY RD	4LD	1.2	6LD	1,2	1.4	6LD	1,2	1.8	4LX	1,2
BUS.17	GLEN'S BAY RD-SC 544	4LD	1.5	6LD	1,2	1.8	4LX	1,2	2.4	6LX	1,2
BUS.17	SC 544-BASE BOUNDARY	4LD	1.4	6LD	1,2	1.6	4LX	2	2.2	6LX	2
BUS.17	BASE BOUNDARY-COMM A/DR 3	4LD	1.4	6LD	1,2	1.6	4LX	2	2.2	6LX	2
BUS.17	COMM A/DR3-EXP RD 1	4LD	1.5	6LD	1,2	1.8	4LX	2	2.3	6LX	2
BUS.17	EXP RD 1-CAMP DR	4LD	1.5	6LD	2	1.8	4LX	2	2.4	6LX	2
BUS.17	CAMP DR-FARROW BLVD	4LD	1.5	6LD	2	1.8	4LX	2	2.3	6LX	2
BUS.17	FARROW-EXP RD 3	4LD	1.4	6LD	2	1.8	4LX	2	2.2	6LX	2
BUS.17	EXP RD 3-INDUST B DR	4LD	1.4	6LD	2	1.8	4LX	2	2.3	6LX	2
BUS.17	INDUST B DR-17TH AVE	4LD	1.5	6LD	2	1.9	4LX	2	2.4	6LX	2
BUS.17	17TH AVE-5TH AVE	4LD	1.4	6LD	2	1.8	4LX	2	2.2	6LX	2
BUS.17	5TH-US 501	4LD	1.4	6LD	2	1.7	4LX	2	2.3	6LX	2
BUS.17	US 501-S 1017	6LD	1.1	4LX	2	1.3	4LX	1,2	1.7	6LX	2
BUS.17	S 1017-US 17	6LD	1.0	NI	-	1.1	4LX	1,2	1.5	6LX	2
BYP.17	MURREL'S INLET-SC 544	4LD PAC	0.7	NI	-	0.8	NI	-	1.1	6LD PAC	1
BYP.17	SC 544-SC 707	4LD PAC	0.8	NI	-	0.9	NI	-	1.0	6LD PAC	-
BYP.17	SC 707-EXP RD 2	4LD PAC	1.3	6LD PAC	1	1.6	6LX	-	1.7	6LX	-
BYP.17	EXP RD 2-S 600	4LD PAC	1.3	6LD PAC	1	1.7	6LX	-	1.8	6LX	-
BYP.17	S 600-JETPORT RD	4LD PAC	1.3	6LD PAC	1	1.6	6LX	-	1.7	6LX	-
BYP.17	JETPORT RD-US 501	4LD PAC	1.3	6LD PAC	1	1.6	6LX	-	1.7	6LX	-
BYP.17	US 501- S 1017	4LD PAC	0.9	NI	-	1.1	6LD PAC	-	1.2	6LD PAC	-
BYP.17	S 1017-BUS 17	4LD PAC	0.5	NI	-	0.6	NI	-	0.6	NI	-
SC 707	US 17-SC 544	2L	0.6	NI	-	0.7	NI	-	0.9	NI	-
SC 707	SC 544-BEGIN 4LD	2L	1.5	4LD	1	0.9	NI	3	0.9	NI	-
SC 707	BEGIN 4LD-BYP 17	4LD	0.7	NI	-	0.9	NI	-	0.9	NI	-
SC 544	CONWAY-S 814	2L	1.1	4LD	1	0.6	NI	3	0.9	NI	-
SC 544	S 814-S 611	2L	1.6	4LD	1	0.9	NI	3	1.2	6LD	1
SC 544	S 611-SC 707	2L	1.6	4LD	1	1.0	NI	3	1.2	6LD	-
SC 544	SC 707-BYP 17	2L	0.7	NI	3	0.9	NI	-	1.2	6LD	1
SC 544	BYP 17-BUS 17	2L	0.6	NI	3	0.7	NI	-	0.9	NI	-

TABLE 4.2-15. ROADWAY IMPROVEMENTS-EXPANDED AIRFIELD/RESORT-RECREATION ALTERNATIVE (CON)

			1998			2003			2013		
ROAD	LINK	EXISTING LANES	V/C (1)	RECOMMENDED IMPROVE-MENTS	(2)	V/C (1)	RECOMMENDED IMPROVE-MENTS	(2)	V/C (1)	RECOMMENDED IMPROVE-MENTS	(2)
US 501	CONWAY-S 137	4LD	0.9	NI	-	0.8	NI	3	1.0	NI	-
US 501	S 137-BYP 17	4LD	1.7	6LD PAC	1	1.0	4LX	3	1.5	6LX	1
US 501	BYP 17-S 600	4LD	1.4	6LD	1	1.7	4LX	1	2.2	6LX	1
US 501	S 600-BROADWAY	4LD	0.9	NI	-	1.1	6LD	1	1.5	6LD	1
US 501	BROADWAY-BUS 17	4LD	0.9	NI	-	1.1	6LD	1	1.5	6LD	1
S 600	BYP 17-JETPORT RD	2L	0.3	NI	-	0.4	NI	-	0.5	NI	-
S 600	JETPORT RD-US 501	2L	0.2	NI	-	0.3	NI	-	0.4	NI	-
JETPORT	BYP 17-S 600	2L	0.5	NI	-	0.6	NI	-	0.7	NI	-
JETPORT	S 600-BROADWAY	2L	0.6	NI	-	0.7	NI	-	0.9	NI	-
JETPORT	BROADWAY-SUPPORT RD	2L	0.6	NI	-	0.7	NI	-	0.9	NI	-
BROADWAY	JETPORT RD-17TH AVE	2L	0.6	NI	-	0.7	NI	-	1.0	NI	-
BROADWAY	17TH AVE-5TH AVE	2L	0.6	NI	-	0.7	NI	-	0.9	NI	-
BROADWAY	5TH AVE-US 501	2L	1.1	4LD	1	1.3	4LD	1	1.7	4LD	1
17TH AVE	BROADWAY-GOLF COURSE DRIVE	2L	0.9	NI	-	1.0	4LD	-	1.3	4LD	1
17TH AVE	GOLF COURSE DRIVE-AVX DR	2L	0.9	NI	-	1.0	4LD	-	1.3	4LD	1
17TH AVE	AVX DR-BUS 17	2L	0.8	NI	-	0.9	NI	-	1.3	4LD	1
AVE D	BYP 17-THEME PARK A	-	0.5	4LD	-	0.9	4LD	-	0.7	6LD	-
AVE "D"	THEME PARK A-THEME PARK B	-	0.5	4LD	-	0.9	4LD	-	0.7	6LD	-
EXP RD 1	THEME PARK B-PARK	-	0.6	4LD	-	0.9	4LD	-	0.7	6LD	-
EXP RD 1	PARK-FARROW	-	0.6	4LD	-	0.9	4LD	-	0.7	6LD	-
EXP RD 1	FARROW-COMM A/DR1	-	0.5	4LD	-	0.6	4LD	-	0.6	4LD	-
EXP RD 1	COMM A/DR1-RES DR	-	1.0	2L	-	0.5	4LD	-	0.5	4LD	-
EXP RD 1	RESIDENT DR-COMM A/DR 2	-	1.0	2L	-	0.5	4LD	-	0.5	4LD	-
EXP RD 1	COMM A/DR 2-BUS 17	-	1.0	2L	-	0.5	4LD	-	0.5	4LD	-
EXP RD 2	BYP 17-AIRPORT DR	-	0.1	2L	-	0.1	2L	-	0.2	2L	-
FARROW	EXP RD 1-MED ENT	-	0.4	2L	-	0.8	2L	-	1.0	2L	-
FARROW	MED ENT-INDUST A	-	0.5	2L	-	0.9	2L	-	1.0	2L	-
FARROW	INDUST A-BUS 17	-	0.5	2L	-	0.9	2L	-	1.0	2L	-
EXP RD 3	BUS 17-COMM B DR	-	0.3	2L	-	0.4	2L	-	0.5	2L	-
EXP RD 3	COMM B DR-MUSEUM DR	-	0.2	2L	-	0.3	2L	-	0.3	2L	-
EXP RD 3	MUSEUM DR-SUPPORT DR	-	0.3	2L	-	0.4	2L	-	0.4	2L	-

TABLE 4.2-15. ROADWAY IMPROVEMENTS-EXPANDED AIRFIELD/RESORT-RECREATION ALTERNATIVE (CONTINUED)

PAGE 3 OF 3

			1998			2003			2013		
ROAD	LINK	EXISTING LANES	V/C (1)	RECOMMENDED IMPROVE-MENTS	(2)	V/C (1)	RECOMMENDED IMPROVE-MENTS	(2)	V/C (1)	RECOMMENDED IMPROVE-MENTS	(2)
EXP RD 3	SUPPORT DR-JETPORT	-	0.3	2L	-	0.3	2L	-	0.4	2L	-
BAYS PKWY	SC 544-US 501	-	-	-	-	-	-	-	0.3	4LX	1,3
BAYS PKWY	US 501-CONWAY BYPASS	-	-	-	-	-	-	-	0.1	4LX	1,3

(1) VOLUME TO CAPACITY RATIO (V/C) IS BASED ON LOS "D" CAPACITY OF EXISTING OR PROGRAMMED NUMBER OF LANES.

(2) 1-THIS IMPROVEMENT WOULD BE REQUIRED BY GROWTH IN BACKGROUND TRAFFIC WITHOUT THE ADDITION OF DEVELOPMENT TRAFFIC.

2-IMPROVEMENTS MAY BE PARTIALLY MITIGATED BY EXTENSIVE TRANSIT IMPROVEMENTS.

3-PROGRAMMED FOR IMPROVEMENT WITHIN THIS TIME PERIOD.

LD=LANES/DIVIDED HIGHWAY

LX=LANES/EXPRESSWAY

PAC=PARTIAL ACCESS CONTROL

NI=NO IMPROVEMENTS NECESSARY

Effects of Project Generated Traffic on Key Community Roads.

Regional roads. The number of peak hour trips, both construction and operational, for all land uses was estimated based on the procedures presented above and assigned to the area road network. Figures 4.2-12, 4.2-13, and 4.2-14 identify the background and total traffic estimates for each of the area roadways. The LOS resulting from the total traffic also is shown on these figures. The general effects of this alternative are similar to the impacts due to the Proposed Action. The figures showing traffic and LOS for each alternative detail the small differences in impacts created by each alternative.

Local Roads. The impacts of this alternative are similar to the Proposed Action.

On-Base Roads. Sections of Farrow Boulevard would be used in this alternative, but most other internal roadways would involve new construction. The lane requirements are shown in Table 4.2-19 (in the Mitigation Measures section for this alternative).

Airspace/Air Traffic. Based on the volume and types of air traffic projected for the jetport and the area surrounding Myrtle Beach, the airspace and air traffic requirements for this alternative would those discussed for the Proposed Action. Table 4.2-17 reflects the projected aircraft operations for this alternative. Tables 4.2-7, 4.2-8, and 4.2-9 show the projected flight operations for the peak month for 1998, 2003, and 2013.

Air Transportation, Railroad Transportation, and Seaports. Overall impacts are similar to the Proposed Action. Airline boardings are slightly higher than the Proposed Action due to increased attractions in this reuse alternative. Table 4.2-18 shows the projected boardings for each analysis year.

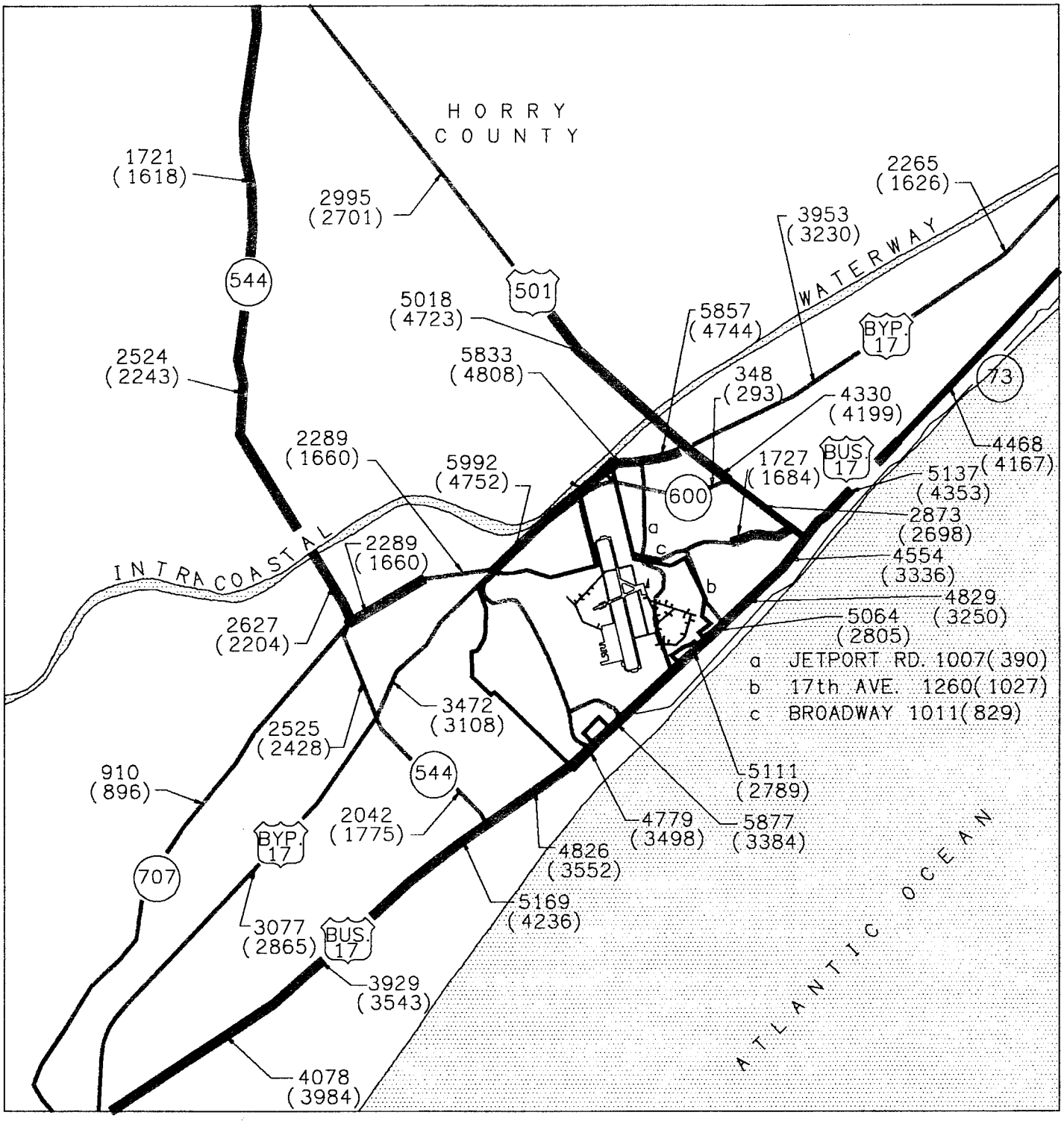
Table 4.2-18. Projected Passenger Boardings on Commercial Flights - Expanded Airfield/Resort-Commercial-Industrial Alternative

1998	2003	2013
554,220	849,660	1,016,652

Cumulative Impacts. The cumulative impacts of this alternative are similar to the Proposed Action.

Mitigation Measures. Table 4.2-19 shows the necessary roadway improvements to accommodate LOS D conditions by each analysis year. The general description of these improvements is similar to the description for the Proposed Action. Detailed differences in the necessary improvements can be determined by comparing the tables.

Airspace/air traffic mitigation would be the same as the Proposed Action.



EXPLANATION

XXXX PEAK SEASON PEAK HOUR TOTAL TRAFFIC

(XXXX) PEAK SEASON PEAK HOUR BACKGROUND TRAFFIC

17 U. S. HIGHWAYS

707 STATE HIGHWAYS

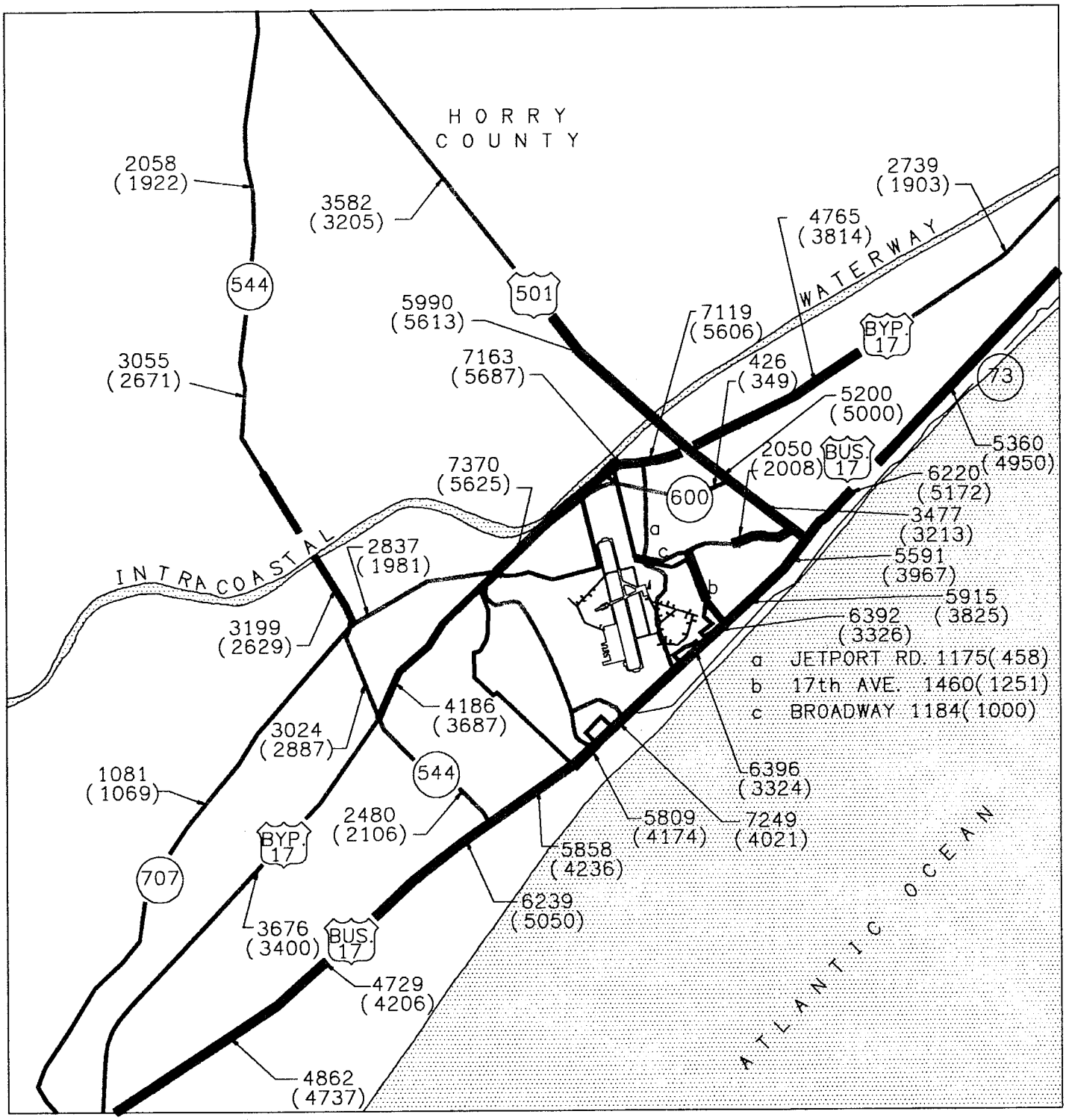
LEVEL OF SERVICE
ABC
D
EF

0 1/2 1 2 MILES

1998 PROJECTED TRAFFIC CONDITIONS EXPANDED AIRFIELD/ RESORT-COMMERCIAL-INDUSTRIAL ALTERNATIVE

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.2-12



EXPLANATION

XXXX PEAK SEASON PEAK HOUR TOTAL TRAFFIC

(XXXX) PEAK SEASON PEAK HOUR BACKGROUND TRAFFIC

17 U. S. HIGHWAYS

707 STATE HIGHWAYS

LEVEL OF SERVICE
ABC
D
EF

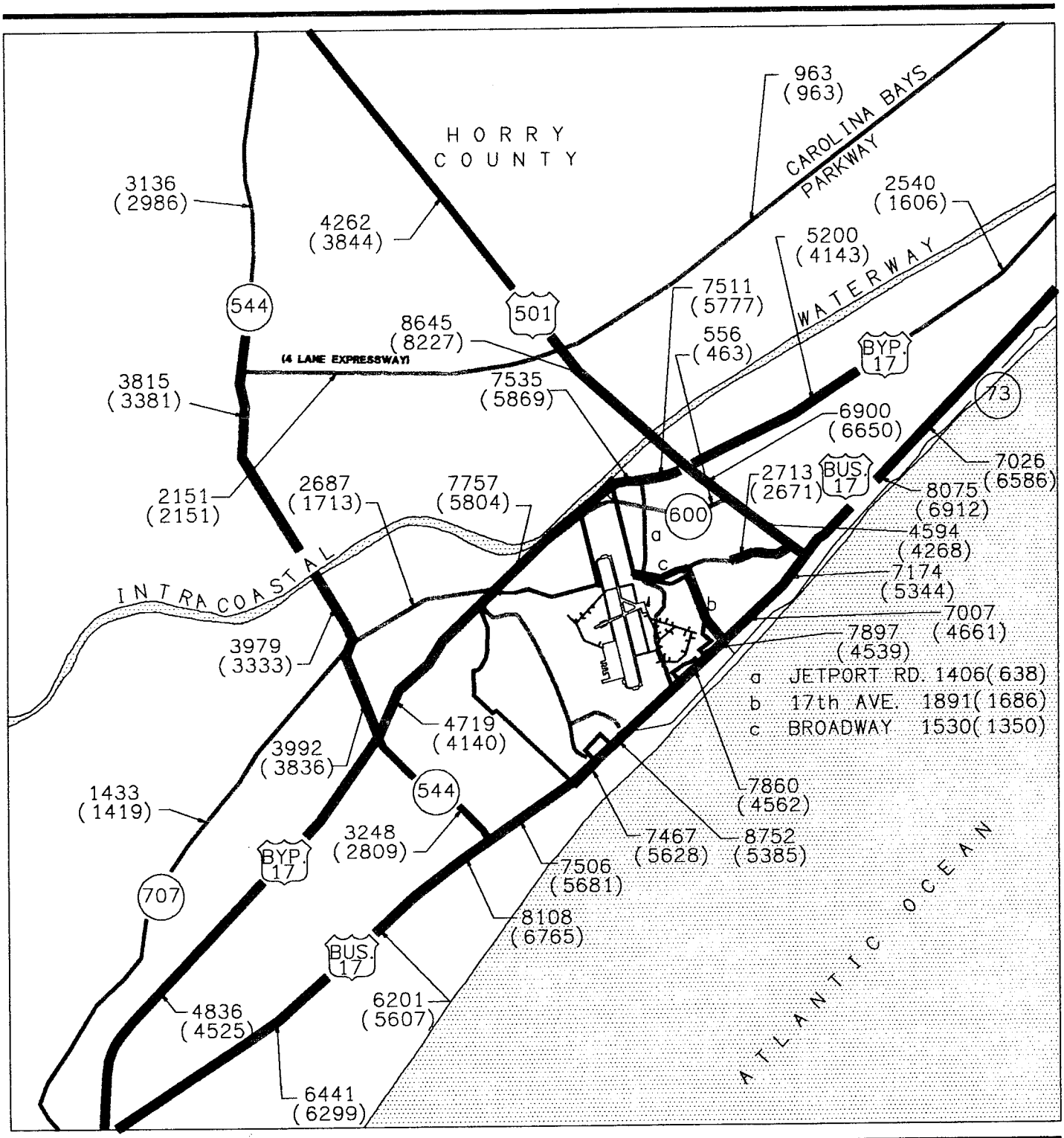
0 1/2 1 2 MILES

2003 PROJECTED TRAFFIC CONDITIONS EXPANDED AIRFIELD/ RESORT-COMMERCIAL-INDUSTRIAL ALTERNATIVE

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.2-13

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EXPLANATION

XXXX — PEAK SEASON PEAK HOUR TOTAL TRAFFIC

(XXXX) — PEAK SEASON PEAK HOUR BACKGROUND TRAFFIC

17 — U. S. HIGHWAYS

707 — STATE HIGHWAYS

LEVEL OF SERVICE
ABC
D
EF

0 1/2 1 2 MILES

2013 PROJECTED TRAFFIC CONDITIONS EXPANDED AIRFIELD/ RESORT-COMMERCIAL-INDUSTRIAL ALTERNATIVE

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.2-14

TABLE 4.2-19. ROADWAY IMPROVEMENTS-EXPANDED AIRFIELD/RESORT-COMMERCIAL-INDUSTRIAL ALTERNATIVE

PAGE 1 OF 2

			1998			2003			2013		
ROAD	LINK	EXISTING LANES	V/C (1)	RECOMMENDED IMPROVE-MENTS	(2)	V/C (1)	RECOMMENDED IMPROVE-MENTS	(2)	V/C (1)	RECOMMENDED IMPROVE-MENTS	(2)
BUS.17	MURREL'S INLET-CYPRESS AVE	4LD	1.2	6LD	1,2	1.5	6LD	1,2	1.9	4LX	1,2
BUS.17	CYPRESS AVE-GLEN'S BAY RD	4LD	1.2	6LD	1,2	1.4	6LD	1,2	1.9	4LX	1,2
BUS.17	GLEN'S BAY RD-SC 544	4LD	1.5	6LD (LOS E)	1,2	1.9	4LX	1,2	2.4	6LX	1,2
BUS.17	SC 544-BASE BOUNDARY	4LD	1.4	6LD	1,2	1.7	4LX	2	2.2	6LX	2
BUS.17	BASE BOUNDARY-EXP RD 1	4LD	1.4	6LD	1,2	1.7	4LX	2	2.2	6LX	2
BUS.17	EXP RD 1-CAMP DR	4LD	1.7	4LX	2	2.1	6LX	2	2.6	6LX	2
BUS.17	CAMP DR-FARROW BLVD	4LD	1.8	4LX	2	2.2	6LX	2	2.6	6LX	2
BUS.17	FARROW-EXP RD 3	4LD	1.5	4LX	2	1.9	4LX	2	2.3	6LX	2
BUS.17	EXP RD 3-IND B RD	4LD	1.5	4LX	2	1.9	4LX	2	2.4	6LX	2
BUS.17	IND B RD-17TH AVE	4LD	1.6	4LX	2	1.9	4LX	2	2.5	6LX	2
BUS.17	17TH AVE-5TH AVE	4LD	1.5	6LD	1,2	1.9	4LX	2	2.2	6LX	2
BUS.17	5TH-US 501	4LD	1.5	6LD	1,2	1.8	4LX	2	2.3	6LX	2
BUS.17	US 501-S 1017	6LD	1.1	4LX	2	1.4	4LX	2	1.8	6LX	1,2
BUS.17	S 1017-US 17	6LD	1.0	NI	2	1.2	4LX	2	1.5	6LX	1,2
BYP.17	MURREL'S INLET-SC 544	4LD PAC	0.7	NI	–	0.8	NI	–	1.1	6LD PAC	1
BYP.17	SC 544-SC 707	4LD PAC	0.8	NI	–	0.9	NI	–	1.0	6LD PAC	–
BYP.17	SC 707-EXP RD 2	4LD PAC	1.3	6LD PAC	1	1.6	6LX	–	1.7	6LX	–
BYP.17	EXP RD 2-S 600	4LD PAC	1.3	6LD PAC	1	1.7	6LX	–	1.7	6LX	–
BYP.17	S 600-JETPORT RD	4LD PAC	1.3	6LD PAC	1	1.6	6LX	–	1.7	6LX	–
BYP.17	JETPORT RD-US 501	4LD PAC	1.3	6LD PAC	1	1.6	6LX	–	1.7	6LX	–
BYP.17	US 501 - S 1017	4LD PAC	0.9	NI	–	1.1	6LD PAC	–	1.2	6LD PAC	–
BYP.17	S 1017-BUS 17	4LD PAC	0.5	NI	–	0.6	NI	–	0.6	NI	–
SC 707	US 17-SC 544	2L	0.6	NI	–	0.7	NI	–	0.9	NI	–
SC 707	SC 544-BEGIN 4LD	2L	1.6	4LD	1	0.9	NI	3	0.9	NI	–
SC 707	BEGIN 4LD-BYP 17	2L	0.7	NI	–	0.9	NI	–	0.9	NI	–
SC 544	CONWAY-S 814	2L	1.1	4LD	1	0.6	NI	3	0.9	NI	–
SC 544	S 814-S 611	2L	1.6	4LD	1	0.9	NI	3	1.1	6LD	1
SC 544	S 611-SC 707	2L	1.7	4LD	1	1.0	NI	3	1.2	6LD	–
SC 544	SC 707-BYP 17	2L	0.8	NI	3	0.9	NI	–	1.2	6LD	1
SC 544	BYP 17-BUS 17	2L	0.6	NI	3	0.7	NI	–	1.0	NI	–
US 501	CONWAY-S 137	4LD	0.9	NI	–	0.8	NI	3	0.9	NI	–
US 501	S 137-BYP 17	4LD	1.7	6LD	1	1.0	4LX	1,3	1.5	6LX	1
US 501	BYP 17-S 600	4LD	1.4	6LD	1	1.7	4LX	1	2.2	6LX	1
US 501	S 600-BROADWAY	4LD	0.9	NI	–	1.1	6LD	1	1.5	6LD	1

TABLE 4.2-19. ROADWAY IMPROVEMENTS-EXPANDED AIRFIELD/RESORT-COMMERCIAL-INDUSTRIAL ALTERNATIVE (CONTINUED)

			1998			2003			2013		
ROAD	LINK	EXISTING LANES	V/C (1)	RECOMMENDED IMPROVE-MENTS	(2)	V/C (1)	RECOMMENDED IMPROVE-MENTS	(2)	V/C (1)	RECOMMENDED IMPROVE-MENTS	(2)
US 501	BROADWAY-BUS 17	4LD	0.9	NI	-	1.1	6LD	1	1.5	6LD	1
S 600	BYP 17-JETPORT RD	2L	0.3	NI	-	0.4	NI	-	0.5	NI	-
S 600	JETPORT RD-US 501	2L	0.2	NI	-	0.3	NI	-	0.4	NI	-
JETPORT	BYP 17-S 600	2L	0.5	NI	-	0.6	NI	-	0.7	NI	-
JETPORT	S 600-BROADWAY	2L	0.6	NI	-	0.7	NI	-	0.9	NI	-
JETPORT	BROADWAY-SUPPORT RD	2L	0.6	NI	-	0.7	NI	-	0.9	NI	-
BROADWAY	JETPORT RD-17TH AVE	2L	0.6	NI	-	0.7	NI	-	1.0	NI	-
BROADWAY	17TH AVE-5TH AVE	2L	0.6	NI	-	0.7	NI	-	0.9	NI	-
BROADWAY	5TH AVE-US 501	2L	1.1	4LD	1	1.3	4LD	1	1.7	4LD	1
17TH AVE	BROADWAY-GOLF COURSE DRIVE	2L	0.9	NI	-	1.0	4LD	-	1.3	4LD	1
17TH AVE	GOLF COURSE DRIVE-AVX DR	2L	0.9	NI	-	1.0	4LD	-	1.3	4LD	1
17TH AVE	AVX DR-BUS 17	2L	0.8	NI	-	0.9	NI	-	1.3	4LD	1
EXP RD 1	BYP 17-COMM C DR	-	0.6	4LD	-	0.8	4LD	-	0.9	4LD	-
EXP RD 1	COMM C DR-THEME PARK A	-	0.8	4LD	-	0.8	6LD	-	0.9	6LD	-
EXP RD 1	THEME PARK A-THEME PARK B	-	0.7	4LD	-	0.7	6LD	-	0.8	6LD	-
EXP RD 1	THEME PARK B-EXP RD 4	-	0.9	4LD	-	0.8	6LD	-	0.9	6LD	-
EXP RD 1	THEME PARK B-MEDICAL DR	-	0.9	4LD	-	0.7	6LD	-	0.7	6LD	-
EXP RD 1	MEDICAL DR-RES DR	-	0.9	4LD	-	0.8	6LD	-	0.7	6LD	-
EXP RD 1	RES DR-COMM DR 1	-	0.9	4LD	-	0.8	6LD	-	0.7	6LD	-
EXP RD 1	COMM DR 1-BUS 17	-	0.7	6LD	-	0.9	6LD	-	0.9	6LD	-
EXP RD 2	BYP 17-AIRPORT	-	0.2	2L	-	0.3	2L	-	0.4	2L	-
FARROW	INDUST A-BUS 17	-	0.1	2L	-	0.3	2L	-	0.6	2L	-
EXP RD 3	BUS 17-COMM B DR	-	0.4	2L	-	0.6	2L	-	0.7	2L	-
EXP RD 3	COMM B DR-MUSEUM DR	-	0.2	2L	-	0.3	2L	-	0.4	2L	-
EXP RD 3	MUSEUM DR-SUPPORT DR	-	0.3	2L	-	0.4	2L	-	0.4	2L	-
EXP RD 3	SUPPORT DR-JETPORT	-	0.3	2L	-	0.4	2L	-	0.4	2L	-
BAYS PKWY	SC 544-US 501	-	-	-	-	-	-	-	0.3	4LX	1,3
BAYS PKWY	US 501-CONWAY BYPASS	—	-	-	-	-	-	-	0.1	4LX	1,3

(1) VOLUME TO CAPACITY RATIO (V/C) IS BASED ON LOS "D" CAPACITY OF EXISTING OR PROGRAMMED NUMBER OF LANES.

(2) 1-THIS IMPROVEMENT WOULD BE REQUIRED BY GROWTH IN BACKGROUND TRAFFIC WITHOUT THE ADDITION OF DEVELOPMENT TRAFFIC.

2-IMPROVEMENTS MAY BE PARTIALLY MITIGATED BY EXTENSIVE TRANSIT IMPROVEMENTS.

3-PROGRAMMED FOR IMPROVEMENT WITHIN THIS TIME PERIOD.

LD=LANES/DIVIDED HIGHWAY

LX=LANES/EXPRESSWAY

PAC=PARTIAL ACCESS CONTROL

NI=NO IMPROVEMENTS NECESSARY

Table 4.2-17. Projected Aviation Forecast - Expanded Airfield/Resort-Commercial-Industrial Alternative

	Annual Operations			
	1993	1998	2003	2013
Aviation Category				
Commercial				
Air Passenger	15,300	22,240	28,900	34,580
Air Cargo	2,550	2,870	3,020	3,070
Subtotal	17,850	25,110	31,920	37,650
General Aviation				
General Aviation	0	62,930	73,020	92,120
Aircraft Maintenance	0	3,460	4,050	5,250
Pilot Training	0	6,290	8,030	12,950
Subtotal	0	72,680	85,100	110,320
Total Operations	17,850	97,790	117,020	147,970
Fleet Mix (Percent of Total Operations)				
Air Passenger Jet	38	11	11	10
Business Jet	0	7	7	7
Single Engine	3	51	50	51
Multi-Engine Piston	0	3	3	3
Multi-Engine Turboprop	59	28	29	29

Source: LPA Group, Inc., 1992.

4.2.3.4 Existing Airfield/Mixed Use Alternative

Roadways. Primary access for this alternative would be provided by two major thoroughfares connecting U.S. 17 Business and U.S. 17 Bypass. One road would be provided in the central part of the site and provide access to the proposed educational facility and industrial park. The other road would be provided in the northeastern section of the site and provide access to the jetport, golf course, proposed air museum, and other land uses in this portion of the base. Another minor road would be provided at the southwest corner of the base to provide access to the PGA golf course. Collector roads would serve the remaining land uses. Figure 2.3-3 shows the land uses and the proposed roadways.

Traffic generation was estimated for 15 types and subcategories of land uses for the Existing Airfield/Mixed Use Alternative. The largest trip generator would be the proposed industrial area. The industrial area could attract approximately 20,000 trips per day by 2013, or 24 percent of the trips generated by this alternative.

Internal trips would account for only eight percent of the total peak hour trips generated by this alternative in 2013. The external trips that remain after deducting the internal trips from the total trips are those that would leave the site and impact the public road network. Tables F-11 through F-13 in Appendix F show the trip generation of this alternative, including total and external trips. Table 4.2-20 shows the daily, peak hour, and external trip generation of this alternative.

Table 4.2-20. Summary of Trip Generation - Existing Airfield/Mixed Use Alternative

	1998	2003	2013
Daily Trips	37,979	60,586	82,737
Total Peak Hour Trips	3,968	6,669	9,529
External Peak Hour Trips	3,589	6,036	8,723

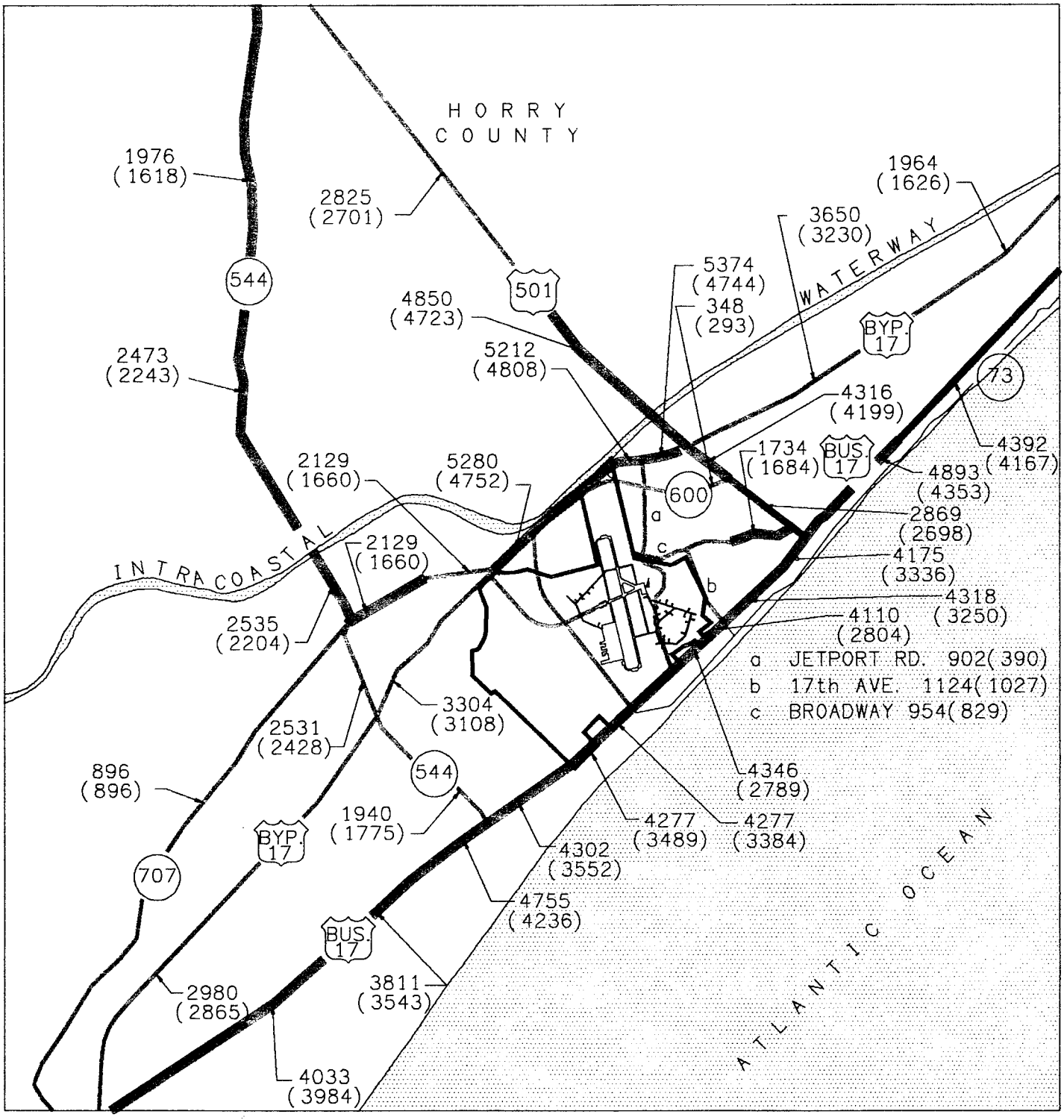
Effects of Project Generated Traffic on Key Community Roads.

Regional roads. The number of peak hour trips, both construction and operational, for all land uses was estimated based on the procedures presented above and assigned to the area road network. Figures 4.2-15, 4.2-16, and 4.2-17 identify the background and total traffic estimates for each of the area roadways. The LOS resulting from the total traffic also is shown on these figures. The general effects of this alternative are similar to the impacts due to the Proposed Action. The figures showing traffic and LOS for each alternative detail the small differences in impacts created by each alternative.

Local Roads. The impacts of this alternative are similar to the Proposed Action.

On-Base Roads. Sections of Phillis Boulevard and Farrow Boulevard would be used in this alternative, but most other internal roadways would involve new construction. The lane requirements are shown in Table 4.2-24 (in the Mitigation Measures section for this alternative).

Airspace/Air Traffic. Based on the volume and types of air traffic projected for the jetport and the area surrounding Myrtle Beach, the airspace and air traffic requirements for this alternative would be similar to those discussed for the Proposed Action. Table 4.2-21 reflects the unrestrained projected aviation operations forecast for 1993, 1998, and 2003. For airspace and air traffic impacts, the restrained operations forecast for 2013 (126,500 operations) is based on the calculated runway ASV and is approximately 22,000 operations less than the unrestrained forecast (148,300 operations). Under these conditions, a single runway may not be able to accommodate all operations at all times. Operations may be limited by a demand that exceeds the runway capacity. According to the FAA, ASV is a reasonable estimate of an airport's



EXPLANATION

XXXX PEAK SEASON PEAK HOUR TOTAL TRAFFIC

(XXXX) PEAK SEASON PEAK HOUR BACKGROUND TRAFFIC

17 U. S. HIGHWAYS

707 STATE HIGHWAYS

LEVEL OF SERVICE

ABC

D

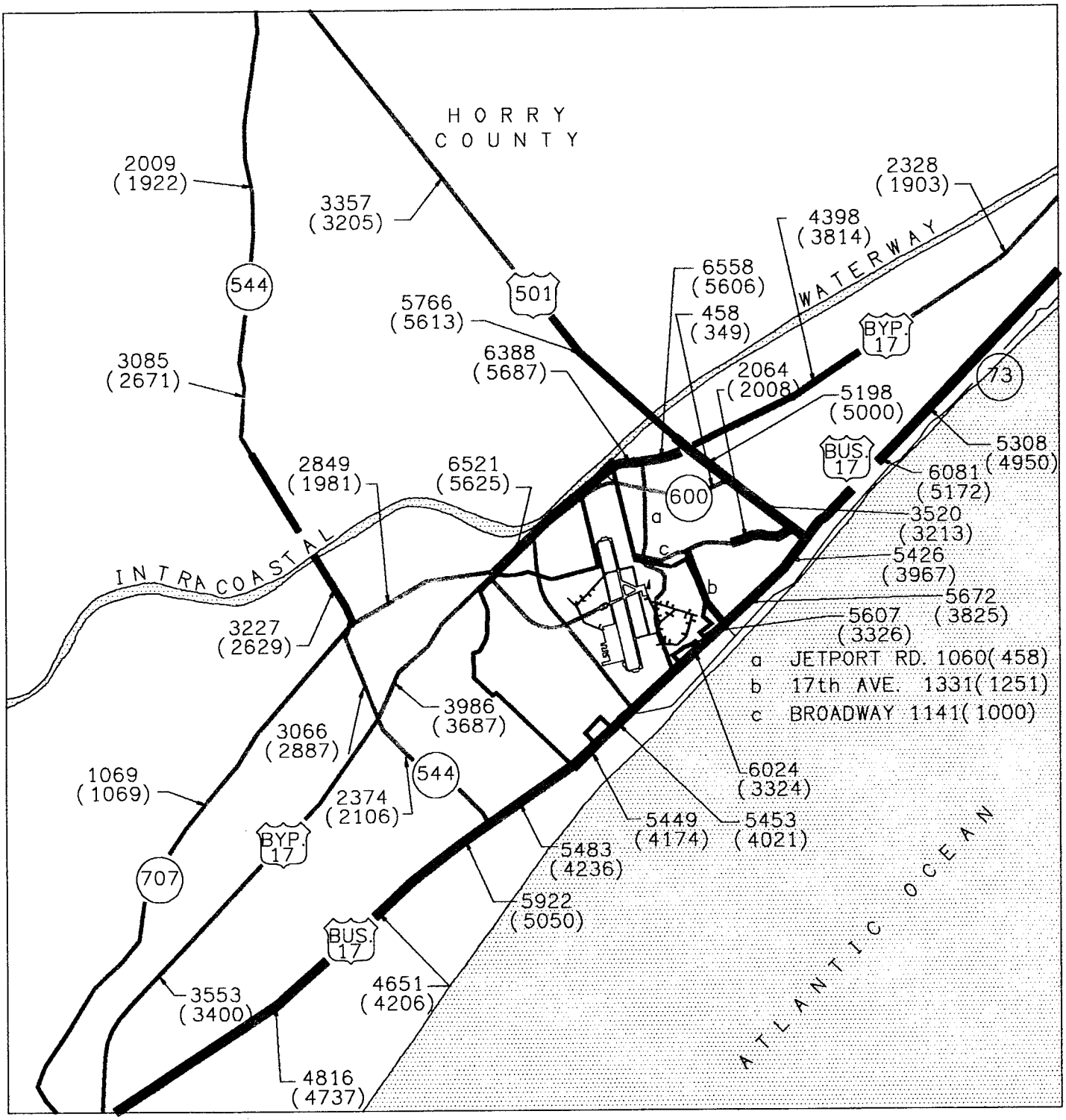
EF

0 1/2 1 2 MILES

1998 PROJECTED TRAFFIC CONDITIONS EXISTING AIRFIELD/ MIXED USE ALTERNATIVE

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.2-15



EXPLANATION

XXXX PEAK SEASON PEAK HOUR TOTAL TRAFFIC

(XXXX) PEAK SEASON PEAK HOUR BACKGROUND TRAFFIC

17 U. S. HIGHWAYS

707 STATE HIGHWAYS

LEVEL OF SERVICE
ABC
D
EF

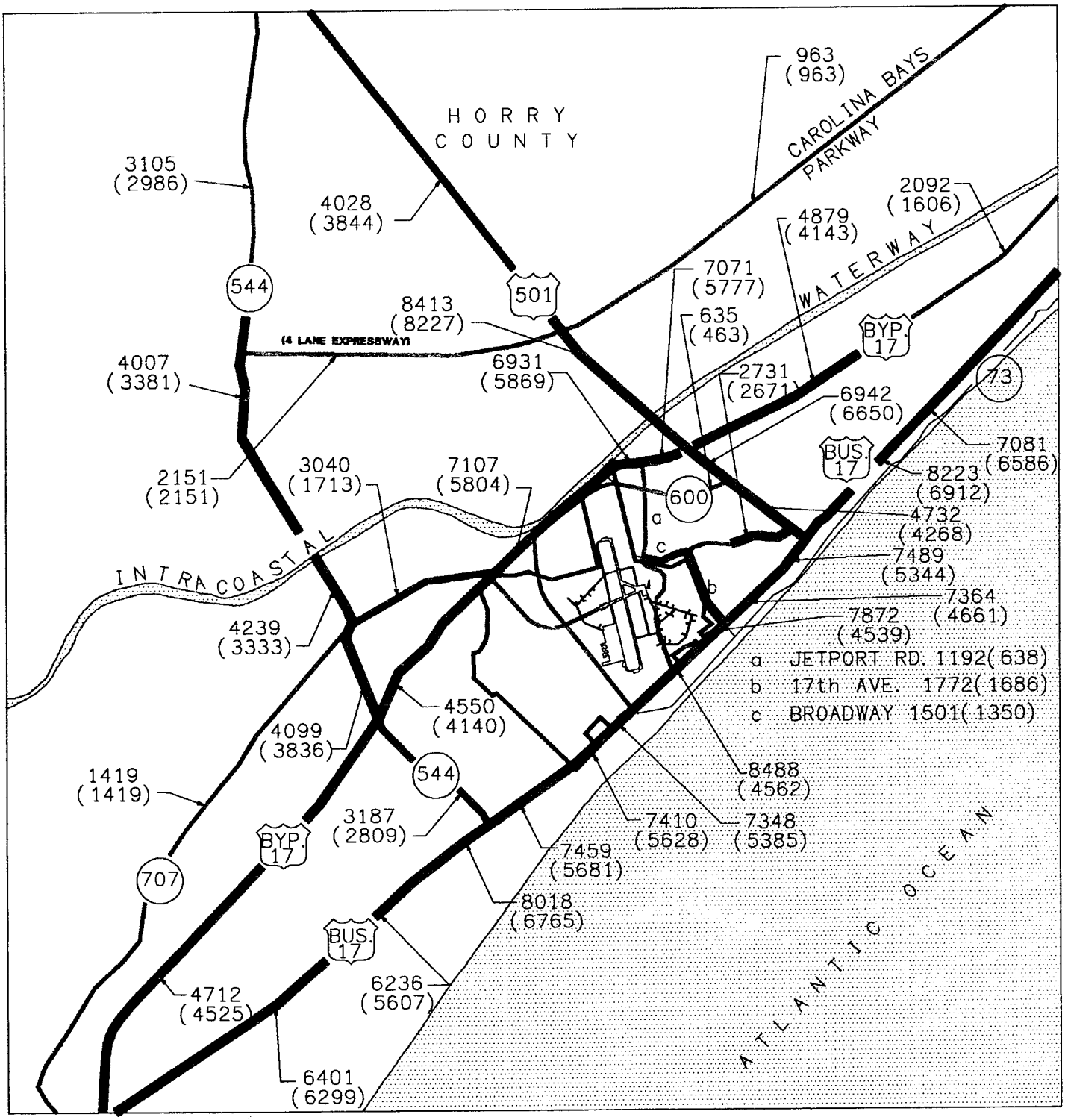
0 1/2 1 2 MILES

2003 PROJECTED TRAFFIC CONDITIONS EXISTING AIRFIELD/ MIXED USE ALTERNATIVE

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.2-16

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EXPLANATION

XXXX PEAK SEASON PEAK HOUR TOTAL TRAFFIC

(XXXX) PEAK SEASON PEAK HOUR BACKGROUND TRAFFIC

17 U. S. HIGHWAYS

707 STATE HIGHWAYS

LEVEL OF SERVICE
ABC
D
EF

0 1/2 1 2 MILES

2013 PROJECTED TRAFFIC CONDITIONS EXISTING AIRFIELD/ MIXED USE ALTERNATIVE

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.2-17

annual capacity. It accounts for differences in runway use, aircraft mix, weather conditions, etc., that would be encountered over a year's time. Tables 4.2-7 and 4.2-8 show the projected flight operations for the average day of the peak month for 1998 and 2003 respectively. Restrained projected peak month operations for 2013 are depicted in Table 4.2-22. The table reflects reduced levels of operations that might indicate the effect of single runway operations during peak hours of activity.

Table 4.2-21 Projected Aviation Forecast - Existing Airfield/Mixed Use Alternative

	Annual Operations			
	1993	1998	2003	2013*
Aviation Category				
Commercial				
Air Passenger	15,300	22,240	28,620	29,210
Air Cargo	2,550	2,870	3,020	2,620
Subtotal	17,850	25,110	31,640	31,830
General Aviation				
General Aviation	0	62,930	73,020	78,580
Aircraft Maintenance	0	3,900	4,570	5,050
Pilot Training	0	6,290	8,030	11,040
Subtotal	0	73,120	85,620	94,670
Total Operations	17,850	98,230	117,260	126,500
Fleet Mix (Percent of Total Operations)				
Air Passenger Jet	38	11	11	11
Business Jet	0	7	7	7
Single Engine	3	51	50	52
Multi-Engine Piston	0	3	3	3
Multi-Engine Turboprop	59	28	29	27

*Capped at a level of operations not to exceed the calculated annual service volume for single runway operations.
Source: LPA Group, Inc., 1992.

Table 4.2-22. Projected Aircraft Operations, July 2013 - Existing Airfield/Mixed Use Alternative (Single Runway)

Aircraft Category/ Aircraft Type	Average Day Peak Month	Takeoff		Landing	
		Day	Night	Day	Night
Air Passenger					
757-200	25.13	11.32	1.25	10.05	2.51
737-400	35.10	16.30	1.25	15.05	2.50
747-400	2.50	1.25	0.00	1.25	0.00
SAAB 340	14.11	6.47	0.59	6.46	0.59
DHC-8	22.59	11.30	0.00	11.29	0.00
Subtotal	99.43	46.64	3.09	44.10	5.60
Air Cargo					
C402	6.93	2.52	0.95	2.56	0.90
General Aviation (GA)					
Single Engine	181.40	86.11	4.59	86.11	4.59
Touch & Go	116.95	57.40	1.08	57.40	1.07
Multi-Engine Piston	15.40	7.37	0.33	7.37	0.33
Touch & Go	3.46	1.73	0.00	1.73	0.00
Multi-Engine Turbo	108.92	52.39	2.07	52.39	2.07
Jet	42.56	20.49	0.79	20.49	0.79
Subtotal	468.69	225.49	8.86	225.49	8.85
Total	575.05	274.65	12.90	272.15	15.35
Total Touch & Go (T&G)	120.41				
Percent of T&G with GA	25.69%				
Percent of T&G to Total	20.93%				

Notes: Day and night distribution based on 2012 data provided by LPA. Aircraft type based on 2012 predictions provided by LPA. Total number of aircraft based on annual service volume for one runway. General aviation percent based on LPA 2012 data but modified to match LPA touch & go distribution for 2012. Day - 7 A.M. to 10 P.M.; Night - 10 P.M. to 7 A.M.
Source: LPA Group, Inc., 1992.

Air Transportation, Railroad Transportation, and Seaports. Overall impacts are similar to the Proposed Action. Airline boardings are slightly lower than the Proposed Action due to fewer attractions in this reuse alternative and the capacity of the single runway. Table 4.2-23 shows the projected boardings for each analysis year.

Table 4.2-23. Projected Passenger Boardings on Commercial Flights - Existing Airfield/Mixed Use Alternative

1998	2003	2013
554,220	841,420	948,740

Cumulative Impacts. The cumulative impacts of this alternative on traffic are the same as described for the Proposed Action.

As discussed for similar conditions under the Proposed Action, anticipated operations growth of the jetport could exceed the ASV for a single runway configuration sometime after 2003. Projected ASV is approximately 126,500 operations. If action is not taken to accommodate the air traffic demand that exceeds runway ASV, traffic could be lost to other area airports.

Opening the jetport to general aviation should initially attract operations from the Grand Strand and, to a lesser extent, from other airports. The diversion of aircraft from Grand Strand should have a short-term positive effect at that airport by slowing operations growth. However, this slower growth of aircraft operations at Grand Strand might only delay the airport reaching its ASV. As with the jetport, the Grand Strand Airport is expected to gain additional air traffic over the next 20 years. The situation could then exist where both the jetport and Grand Strand could reach a level of operations by approximately 2013 that could cause each airport to be near or exceed its ASV.

Mitigation Measures. Table 4.2-24 shows the necessary roadway improvements to accommodate LOS D conditions by each analysis year. The general description of these improvements is similar to the description for the Proposed Action. Detailed differences in the necessary improvements can be determined by comparing the tables.

For airspace and air traffic impacts, the mitigation measures under this alternative are similar to those discussed for the Proposed Action. In addition, to alleviate the situation where both the jetport and the Grand Strand Airport operations level could reach or exceed runway ASV, a second runway may have to be constructed at one or both airports to accommodate the air traffic requirement. If land were not available at the airport(s) for expansion at that time, the potential options could be:

- Consolidate operations from both airports at a new airport location with an airport designed to accommodate combined projected air traffic from both airports and close the existing airports
- Continue operating one airport at its current location with a single runway and relocate the other airport and construct dual runways at the new location
- Expand the Conway/Horry County Airport to assume excess air traffic from the jetport and the Grand Strand Airport.

Restricted Second Runway Option

An option to this alternative would construct a restricted utility runway by the year 2013 between the existing runway and the west parallel taxiway (Figure 2.3-4). The runway would be constructed to accommodate only light, category A and B general aviation aircraft that are less than 12,500 pounds maximum gross weight. It could be approximately 5,400 feet long and 100 feet wide with 700 feet separation between runway centerlines. This spacing would meet the minimum FAA separation requirements between parallel runways. However, some aircraft control and sequencing restrictions would apply to aircraft operating from runways this close together. Locating the new runway in this position should place the control tower abeam a point approximately in the middle of the runway and should provide adequate lateral spacing between the tower and the western edge of the primary surface associated with this runway. A taxiway could be constructed at the southern end of the new runway to connect to the apron area if the runway is 5,400 feet long.

TABLE 4.2-24. ROADWAY IMPROVEMENTS-EXISTING AIRFIELD MIXED USE ALTERNATIVE
PAGE 1 OF 2

			1998			2003			2013		
ROAD	LINK	EXISTING LANES	V/C (1)	RECOMMENDED IMPROVE-MENTS	(2)	V/C (1)	RECOMMENDED IMPROVE-MENTS	(2)	V/C (1)	RECOMMENDED IMPROVE-MENTS	(2)
BUS.17	MURREL'S INLET-CYPRESS AVE	4LD	1.2	6LD	1,2	1.4	6LD	1,2	1.9	4LX	1,2
BUS.17	CYPRESS AVE-GLEN'S BAY RD	4LD	1.1	6LD	1,2	1.4	6LD	1,2	1.9	4LX	1,2
BUS.17	GLEN'S BAY RD-SC 544	4LD	1.4	6LD	1,2	1.8	4LX	1,2	2.4	6LX	1,2
BUS.17	SC 544-BASE BOUNDARY	4LD	1.3	6LD	1,2	1.6	4LX	2	2.2	6LX	2
BUS.17	BASE BOUNDARY-RES DR	4LD	1.3	6LD	1,2	1.6	4LX	2	2.2	6LX	2
BUS.17	RES DR -CAMP DR	4LD	1.3	6LD	1,2	1.6	4LX	2	2.2	6LX	2
BUS.17	CAMP DR-EXP RD 1	4LD	1.3	6LD	1,2	1.6	4LX	2	2.2	6LX	2
BUS.17	EXP RD 1-EXP RD 2	4LD	1.3	6LD	2	1.8	4LX	2	2.5	6LX	2
BUS.17	EXP RD 2-CEMETERY DR	4LD	1.3	6LD	2	1.8	4LX	2	2.5	6LX	2
BUS.17	CEMETERY DR-COMM A DR	4LD	1.2	6LD	2	1.7	4LX	2	2.4	6LX	2
BUS.17	COMM A DR-17TH AVE	4LD	1.3	6LD	2	1.8	4LX	2	2.5	6LX	2
BUS.17	17TH AVE-5TH AVE	4LD	1.4	6LD	1,2	1.8	4LX	2	2.4	6LX	2
BUS.17	5TH-US 501	4LD	1.3	6LD	1,2	1.7	4LX	2	2.4	6LX	2
BUS.17	US 501-S 1017	6LD	1.1	4LX	2	1.3	4LX	1,2	1.8	6LX	1,2
BUS.17	S 1017-US 17	6LD	1.0	NI	2	1.2	4LX	1,2	1.5	6LX	1,2
BYP.17	MURREL'S INLET-SC 544	4LD PAC	0.7	NI	-	0.8	NI	-	1.0	6LD PAC	1
BYP.17	SC 544-SC 707	4LD PAC	0.7	NI	-	0.9	NI	-	1.0	6LD PAC	-
BYP.17	SC 707-EXP RD 1	4LD PAC	1.2	6LD PAC	1	1.4	6LD PAC	1	1.6	6LX	-
BYP.17	EXP RD 1-S 600	4LD PAC	1.2	6LD PAC	1	1.4	6LD PAC	1	1.6	6LX	-
BYP.17	S 600-JETPORT RD	4LD PAC	1.2	6LD PAC	1	1.4	6LD PAC	1	1.5	6LX	-
BYP.17	JETPORT RD-US 501	4LD PAC	1.2	6LD PAC	1	1.5	6LD PAC	1	1.6	6LX	-
BYP.17	US 501- S 1017	4LD PAC	0.8	NI	-	1.0	NI	-	1.1	6LD PAC	-
BYP.17	S 1017-BUS 17	4LD PAC	0.4	NI	-	0.5	NI	-	0.5	NI	-
SC 707	US 17-SC 544	2L	0.6	NI	-	0.7	NI	-	0.9	NI	-
SC 707	SC 544-BEGIN 4LD	2L	1.4	4LD	1	0.9	NI	3	1.0	NI	-
SC 707	BEGIN 4LD-BYP 17	4LD	0.7	NI	-	0.6	NI	-	1.0	NI	-
SC 544	CONWAY-S 814	2L	1.1	4LD	1	0.6	NI	3	0.9	NI	-
SC 544	S 814-S 611	2L	1.6	4LD	1	0.9	NI	3	1.2	6LD	1
SC 544	S 611-SC 707	2L	1.6	4LD	1	1.0	NI	3	1.3	6LD	-
SC 544	SC 707-BYP 17	2L	0.8	NI	3	0.9	NI	-	1.2	6LD	1
SC 544	BYP 17-BUS 17	2L	0.6	NI	3	0.7	NI	-	1.0	NI	-
US 501	CONWAY-S 137	4LD	0.8	NI	-	0.7	NI	3	0.9	NI	-
US 501	S 137-BYP 17	4LD	1.6	6LD PAC	1	1.0	6LD PAC	1,3	1.4	6LX	1
US 501	BYP 17-S 600	4LD	1.4	6LD	1	1.7	6LD(LOS E)	1	2.2	6LX	1

TABLE 4.2-24. ROADWAY IMPROVEMENTS-EXISTING AIRFIELD MIXED USE ALTERNATIVE (CONTINUED)
PAGE 2 OF 2

			1998			2003			2013		
ROAD	LINK	EXISTING LANES	V/C (1)	RECOMMENDED IMPROVE-MENTS	(2)	V/C (1)	RECOMMENDED IMPROVE-MENTS	(2)	V/C (1)	RECOMMENDED IMPROVE-MENTS	(2)
US 501	S 600-BROADWAY	4LD	0.9	NI	-	1.1	6LD	1	1.5	6LD	1
US 501	BROADWAY-BUS 17	4LD	0.9	NI	-	1.1	6LD	1	1.5	6LD	1
S 600	BYP 17-JETPORT RD	2L	0.2	NI	-	0.3	NI	-	0.4	NI	-
S 600	JETPORT RD-US 501	2L	0.2	NI	-	0.3	NI	-	0.4	NI	-
JETPORT	BYP 17-S 600	2L	0.5	NI	-	0.6	NI	-	0.8	NI	-
JETPORT	S 600-BROADWAY	2L	0.5	NI	-	0.6	NI	-	0.8	NI	-
JETPORT	BROADWAY-SUPPORT RD	2L	0.6	NI	-	0.7	NI	-	0.8	NI	-
BROADWAY	JETPORT RD-17TH AVE	2L	0.6	NI	-	0.7	NI	-	0.9	NI	-
BROADWAY	17TH AVE-5TH AVE	2L	0.6	NI	-	0.7	NI	-	0.9	NI	-
BROADWAY	5TH AVE-US 501	2L	1.1	4LD	1	1.3	4LD	1	1.7	4LD	1
17TH AVE	BROADWAY-GOLF COURSE DRIVE	2L	0.8	NI	-	0.9	NI	-	1.3	4LD	1
17TH AVE	GOLF COURSE DRIVE-AVX DR	2L	0.8	NI	-	0.9	NI	-	1.2	4LD	1
17TH AVE	AVX DR-BUS 17	2L	0.8	NI	-	1.0	NI	-	1.3	4LD	1
EXP RD 1	BYP 17-INDUST DR	-	0.3	2L	-	0.4	2L	-	0.5	2L	-
EXP RD 1	INDUST DR-AVE D	-	0.3	2L	-	0.4	2L	-	0.5	2L	-
EXP RD 1	AVE D-EDUCATION DR	-	0.7	2L	-	0.6	4LD	-	0.9	4LD	-
EXP RD 1	EDUCATION DR-COMM B DR	-	0.7	2L	-	0.6	4LD	-	0.9	4LD	-
EXP RD 1	COMM B DR-BUS 17	-	0.6	4LD	-	0.7	6LD	-	0.9	8LD	-
AVE D	BYP 17-IND DR	-	0.4	2L	-	0.9	2L	-	0.7	4LD	-
AVE D	IND DR-EXP RD 1	-	0.4	2L	-	0.9	2L	-	0.7	4LD	-
EXP RD 2	BUS 17-AIR MUSEUM DR	-	0.2	2L	-	0.2	2L	-	0.2	2L	-
EXP RD 2	AIR MUSEUM DR-AIR SUPPORT	-	0.3	2L	-	0.3	2L	-	0.3	2L	-
EXP RD 2	AIR SUPPORT-JETPORT RD	-	0.3	2L	-	0.3	2L	-	0.3	2L	-
BAYS PKWY	SC 544-US 501	-	-	-	-	-	-	-	0.3	4LX	1,3
BAYS PKWY	US 501-CONWAY BYPASS	-	-	-	-	-	-	-	0.1	4LX	1,3

(1) VOLUME TO CAPACITY RATIO (V/C) IS BASED ON LOS "D" CAPACITY OF EXISTING OR PROGRAMMED NUMBER OF LANES.

(2) 1-THIS IMPROVEMENT WOULD BE REQUIRED BY GROWTH IN BACKGROUND TRAFFIC .
2-IMPROVEMENTS MAY BE PARTIALLY MITIGATED BY EXTENSIVE TRANSIT IMPROVEMENTS.
3-PROGRAMMED FOR IMPROVEMENT WITHIN THIS TIME PERIOD.

LD=LANES/DIVIDED HIGHWAY
LX=LANES/EXPRESSWAY
PAC=PARTIAL ACCESS CONTROL
NI=NO IMPROVEMENTS NECESSARY

The transportation impacts of this alternative would be only slightly greater than the impacts of the Existing Airfield/Mixed Use Alternative with the single runway. Table F-14 in Appendix F shows the detailed trip generation of this option for 2013, the only year that would change from the Existing Airfield/Mixed Use Alternative. Table 4.2-25 summarizes the daily, peak hour, and external traffic generation of this option for 2013.

Table 4.2-25. Summary of Trip Generation - Existing Airfield/Mixed Use Alternative - Restricted Second Runway Option

	2013
Daily Trips	83,497
Total Peak Hour Trips	9,595
External Peak Hour Trips	8,785

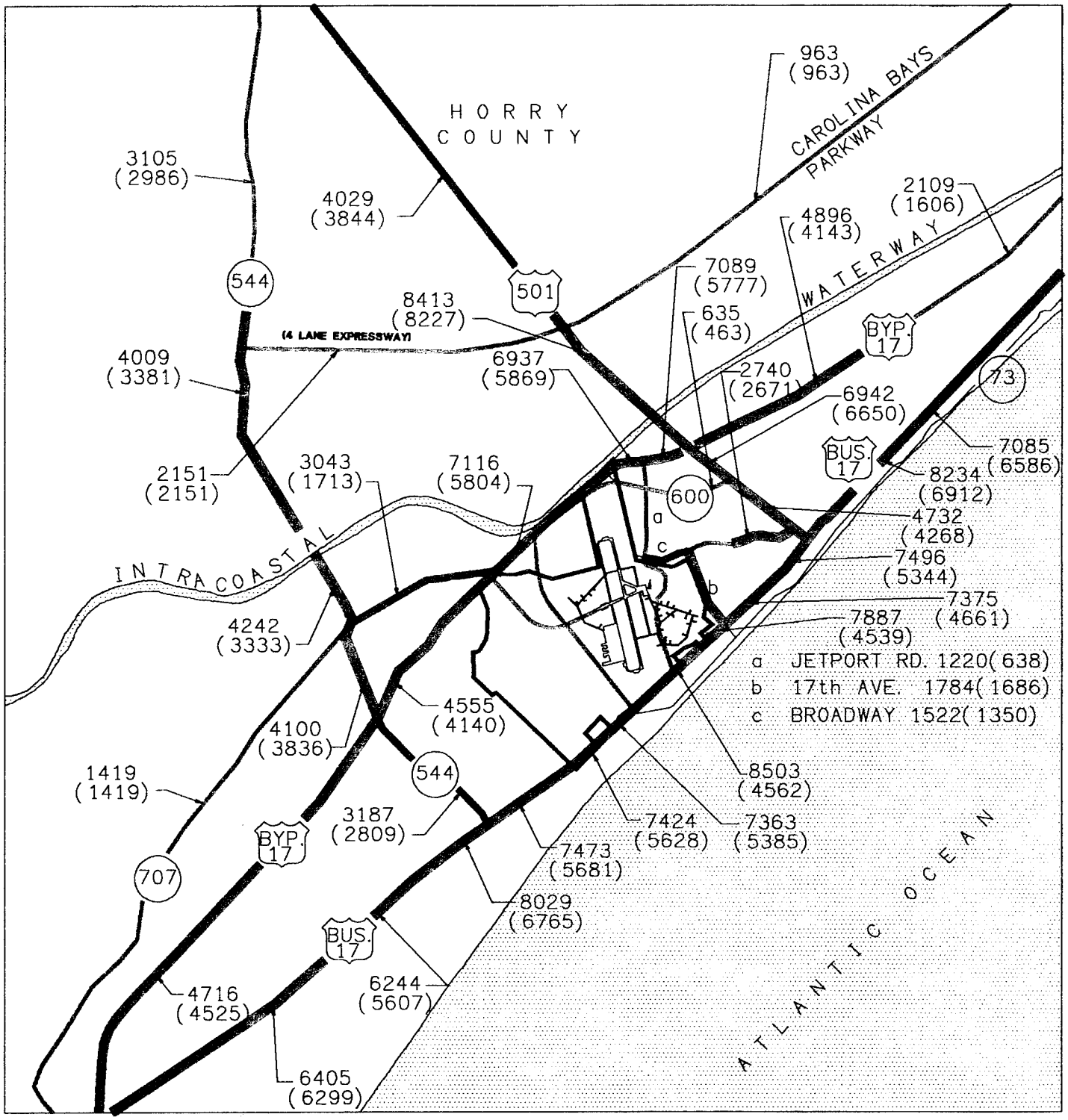
Effects of Project Generated Traffic on Key Community Roads

The impacts of this option on roadways in the Myrtle Beach area are almost identical to the impacts of the Existing Airfield/Mixed Use Alternative. Figure 4.2-18 identifies the background and total traffic estimates, as well as LOS for each of the area roadways. On-base roads used for this option are the same as those used for the alternative without the optional second runway.

Airspace/Air Traffic. The airspace and air traffic requirements for this option would be similar to those discussed for the Proposed Action. However, there would be no instrument approaches to this utility runway and it would be used only under VFR conditions. The runway protection zones and approach surfaces should be accommodated within the proposed airfield boundaries. Since this new runway would be very close to the existing runway, the flight tracks would be essentially the same as those for the existing runway.

Table 4.2-26 depicts the unrestrained aviation forecast for 2013 for this option. The projections for years 1993, 1998, and 2003 stated in Table 4.4-21 would apply for this option. Table 4.2-27 shows the projected aircraft operations for the average day of the peak month of 2013 for this dual runway configuration. An airport with this runway layout should produce an ASV capable of accommodating forecast aircraft operations at the jetport.

Air Transportation, Railroad Transportation, and Seaports. Overall impacts are similar to the Existing Airfield/Mixed Use Alternative. Airline boardings are slightly higher than the alternative without the optional second runway due to the additional capacity provided by the second runway. Passenger boardings in 2013 under the Restricted Second Runway Option are projected to be 1,006,656.



EXPLANATION

XXXX — PEAK SEASON PEAK HOUR TOTAL TRAFFIC

(XXXX) — PEAK SEASON PEAK HOUR BACKGROUND TRAFFIC

17 — U. S. HIGHWAYS

707 — STATE HIGHWAYS

LEVEL OF SERVICE
ABC
D
EF

0 1/2 1 2 MILES

2013 PROJECTED TRAFFIC CONDITIONS EXISING AIRFIELD/ MIXED USE ALTERNATIVE (RESTRICTED SECOND RUNWAY OPTION)

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.2-18

Table 4.2-26. Projected Aviation Forecast - Existing Airfield/Mixed Use Alternative - Restricted Second Runway Option

	Annual Operations[1] 2013
Aviation Category	
Commercial:	
Air Passenger	34,240
Air Cargo	3,070
Subtotal	37,310
General Aviation:	
General Aviation	92,120
Aircraft Maintenance	5,920
Pilot Training	12,950
Subtotal	110,990
Total Operations	148,300
Fleet Mix (Percent of Total Operations)	
Air Passenger Jet	9
Business Jet	8
Single Engine Piston	52
Multi-Engine Piston	3
Multi-Engine Turboprop	28

[1]An operation is a takeoff or a landing.
Note: Table 4.2-21 data apply for years 1993, 1998, and 2013.

Table 4.2-27. Projected Aircraft Operations, July 2013 - Existing Airfield/Mixed Use Alternative Restricted Second Runway Option

Aircraft Category/ Aircraft Type	Average Day Peak Month	Takeoff		Landing	
		Day	Night	Day	Night
Air Passenger					
757-200	25.33	11.39	1.27	10.14	2.53
737-400	35.47	16.47	1.27	15.20	2.53
747-400	2.54	1.27	0.00	1.27	0.00
SAAB 340	30.42	13.94	1.27	13.94	1.27
DHC-8	22.79	11.39	0.00	11.40	0.00
Subtotal	116.55	54.46	3.81	51.95	6.33
Air Cargo					
C402	8.12	2.81	1.25	1.81	2.25
General Aviation (GA) (Main Runway)					
Single Engine	15.04	6.86	0.66	6.86	0.66
Touch & Go	19.12	12.43	0.00	6.69	0.00
Multi-Engine Piston	2.76	1.32	0.06	1.32	0.06
Touch & Go	0.29	0.15	0.00	0.14	0.00
Multi-Engine Turbo	64.07	32.26	1.26	32.26	1.26
Jet	49.90	24.01	0.94	24.01	0.94
Subtotal	151.18	77.03	2.92	71.28	2.92
General Aviation (New Runway)					
Single Engine	221.46	104.74	5.99	104.74	5.99
Touch & Go	94.07	60.40	0.75	32.17	0.75
Multi-Engine Piston	14.48	6.86	0.38	6.86	0.38
Touch & Go	4.51	2.83	0.10	1.48	0.10
Multi-Engine Turbo	60.66	29.18	1.15	27.18	1.15
Subtotal	395.18	204.01	8.37	172.43	8.37
Total	671.03	338.31	16.35	297.47	19.87

Main Runway T&G	19.41	12.59%
New Runway T&G	98.58	24.94%
Percent T&G to Total		17.50%
Percent T&G to GA		21.47%

Notes: Day and night distribution based on 2012 data provided by LPA. Aircraft type based on 2012 predictions provided by LPA. Total aircraft based on LPA 2012 peak and increased for 2013 and modified for this option. General aviation percent based on LPA data but modified to match LPA touch & go distribution for 2012. General Aviation Runway Distribution has been modified for this runway configuration.
Source: LPA Group, 1992.

Cumulative Impacts. The cumulative impacts of this option on traffic are the same as the alternative without the option.

Mitigation Measures. The mitigation measures for traffic impacts of this option are identical to those of the Existing Airfield/Mixed Use Alternative. Table 4.2-24 shows the necessary roadway improvements to accommodate LOS D conditions for the alternative with a single runway and with the Restricted Second Runway Option.

Implementation of the Restricted Second Runway Option should enable the jetport to accommodate forecast aviation operations for the year 2013. It also could alleviate the need for the potential mitigation measures for air traffic with a single runway, as previously discussed.

4.2.3.5 No-Action Alternative (Existing Airfield/Caretaker)

Roadways. Under the No-Action Alternative, on-base roads would no longer be used except by the maintenance staff. All on-base roads would operate at LOS A. The jetport would continue to operate. The No-Action Alternative does not include expansion of jetport operations or services above by the levels allowed under the Joint Use Agreement (JUA).

There is an increase in air carrier operations throughout the study period, which results in additional vehicular traffic generation from the jetport. Table F-15 in Appendix F shows the detailed trip generation of this alternative. Table 4.2-28 shows the daily, peak hour, and external trip generation of this alternative.

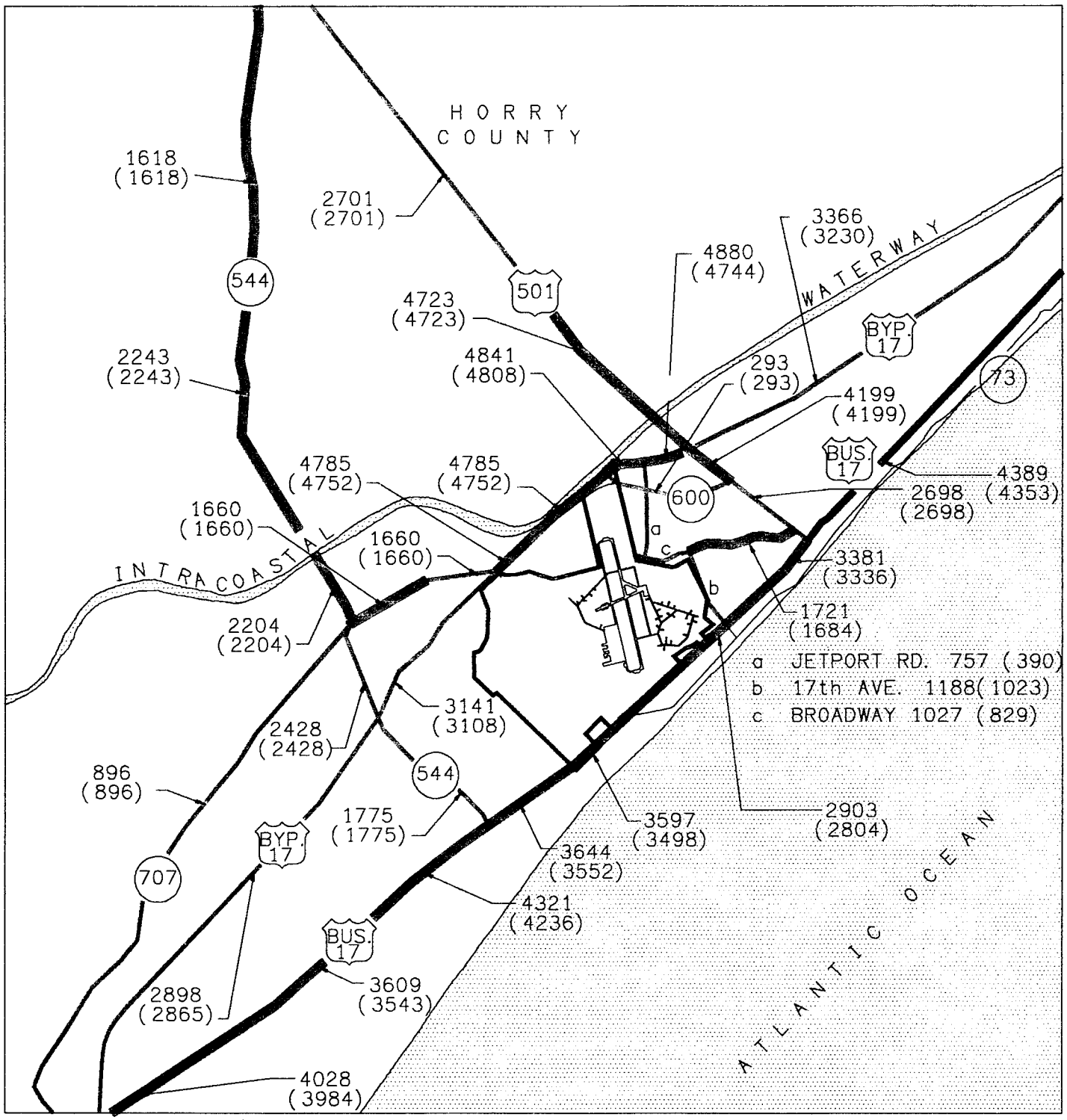
Table 4.2-28. Summary of Trip Generation - No-Action Alternative

	1998	2003	2013
Daily trips	5,601	8,235	9,915
Total Peak Hour Trips	367	511	604
External Peak Hour Trips	367	511	604

Traffic on key community roads would increase due to growth in permanent and seasonal population and growth in tourism. U.S. 17 Business, which is currently operating at LOS C and D near the base with approximately 3,000 vehicles during the peak period of the day, is projected to accommodate approximately 6,000 vehicles during the peak hour by 2013, and would operate at LOS F. Traffic volumes on major roadways in the area are lower than the Proposed Action, but extensive road improvements are still required to maintain acceptable LOS. Figures 4.2-19, 4.2-20, and 4.2-21 display traffic volumes and LOS for key roadways in 1998, 2003, and 2013, respectively, under the No-Action Alternative.

As transit service is currently provided only to the south base site, transit service would not be impacted by the No-Action Alternative. Off-base transit ridership would grow due to the same reasons that highway travel would increase as well as expansion of transit service.

Airspace/Air Traffic. Based on the volume and types of air traffic projected for the jetport and the area surrounding Myrtle Beach, the airspace and air traffic



EXPLANATION

XXXX PEAK SEASON PEAK HOUR TOTAL TRAFFIC

(XXXX) PEAK SEASON PEAK HOUR BACKGROUND TRAFFIC

17 U. S. HIGHWAYS

707 STATE HIGHWAYS

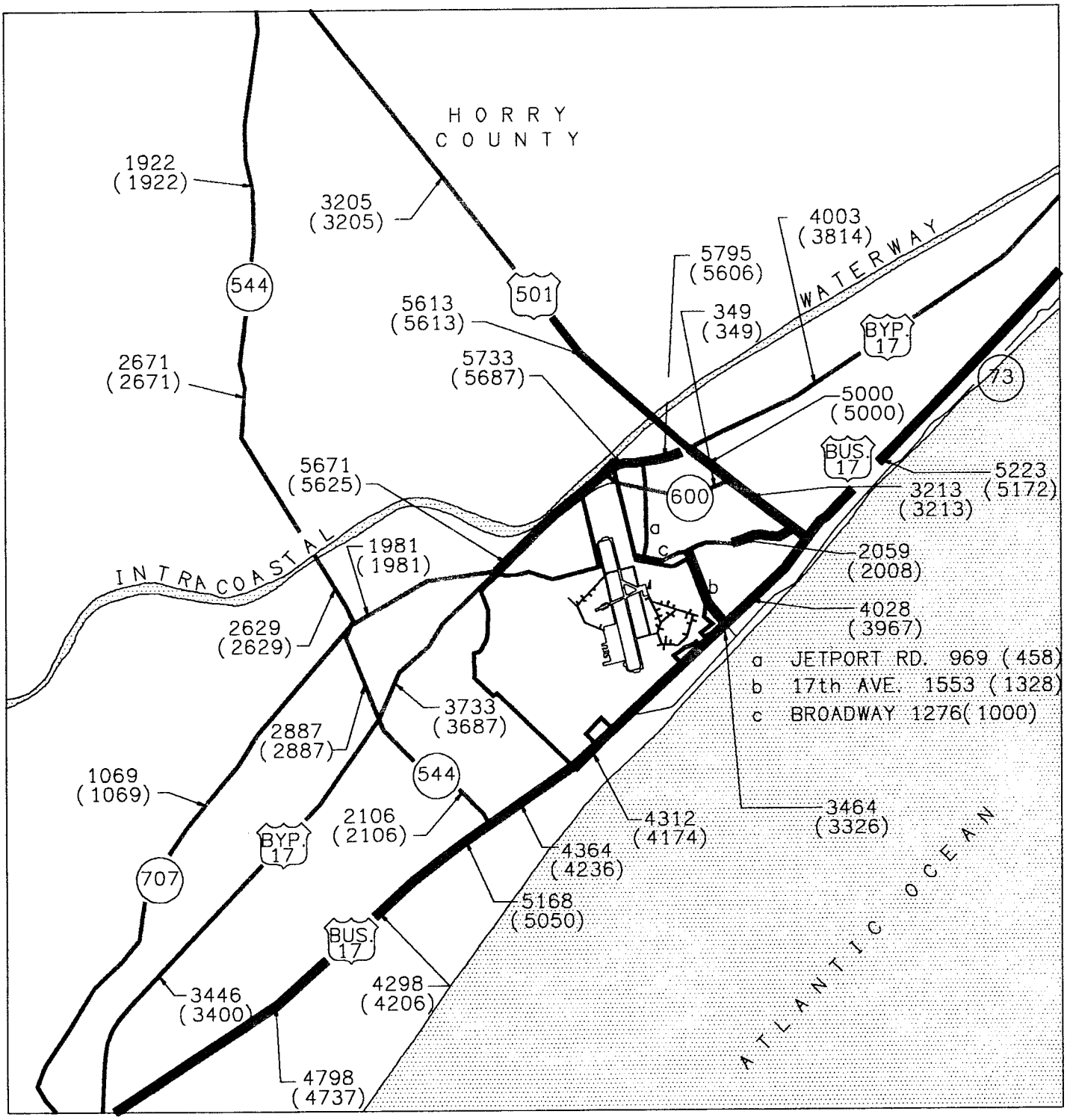
LEVEL OF SERVICE
ABC
D
EF

0 1/2 1 2 MILES

1998 PROJECTED TRAFFIC CONDITIONS NO-ACTION ALTERNATIVE

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.2-19



EXPLANATION

XXXX PEAK SEASON PEAK HOUR TOTAL TRAFFIC

(XXXX) PEAK SEASON PEAK HOUR BACKGROUND TRAFFIC

17 U. S. HIGHWAYS

707 STATE HIGHWAYS

LEVEL OF SERVICE
ABC
D
EF

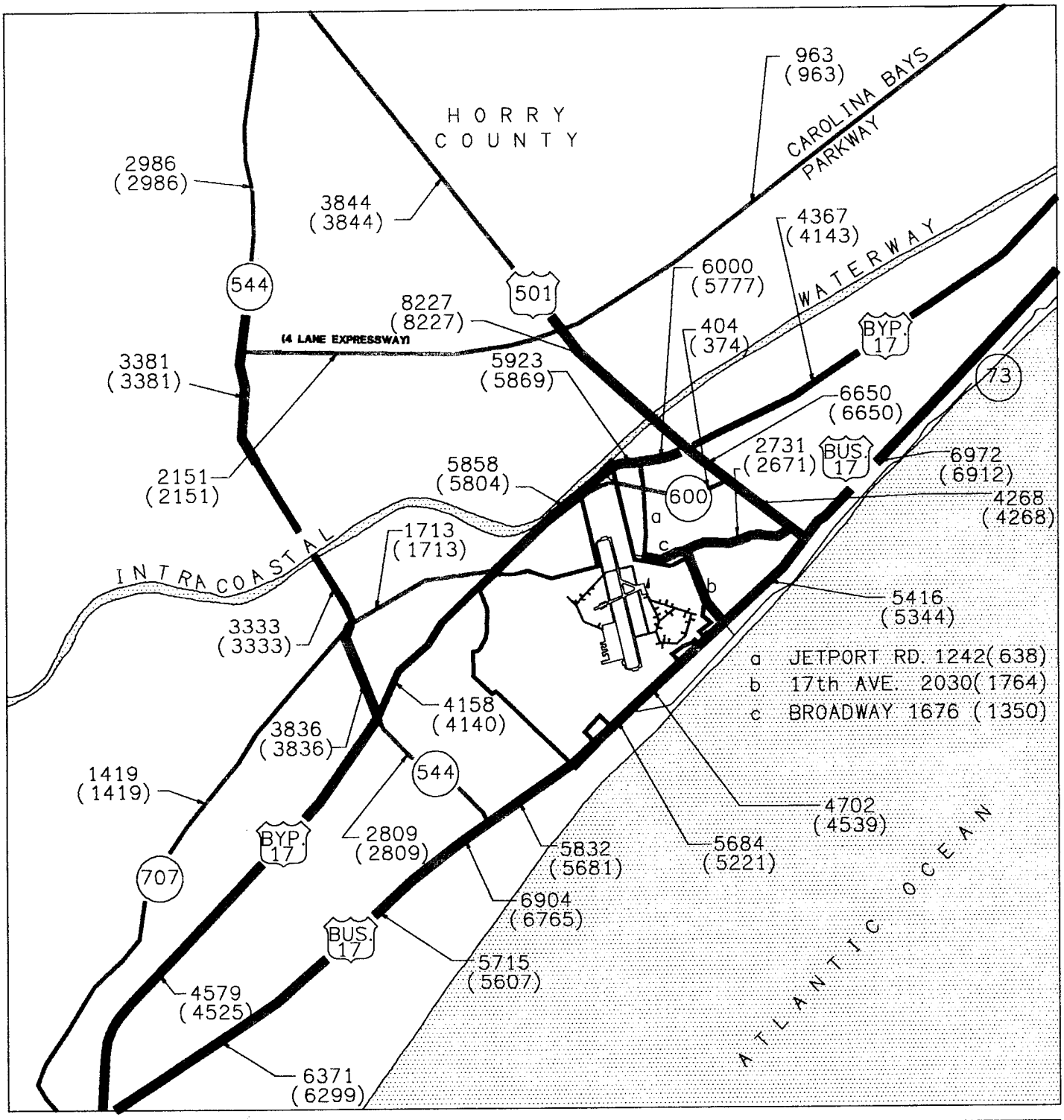
0 1/2 1 2 MILES

2003 PROJECTED TRAFFIC CONDITIONS NO-ACTION ALTERNATIVE

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.2-20

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EXPLANATION

XXXX — PEAK SEASON PEAK HOUR TOTAL TRAFFIC

(XXXX) — PEAK SEASON PEAK HOUR BACKGROUND TRAFFIC

17 — U. S. HIGHWAYS

707 — STATE HIGHWAYS

LEVEL OF SERVICE
ABC
D
EF

0 1/2 1 2 MILES

2013 PROJECTED TRAFFIC CONDITIONS NO-ACTION ALTERNATIVE

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.2-21

control requirements for this alternative would be similar to those discussed for the Proposed Action. Although the number of operations forecast for the jetport are much lower than those for the Proposed Action and the other alternatives, runway protection zones, navigation aids, a control tower, crash-rescue-fire protection, and airfield security would be necessary to conduct aircraft operations at the jetport. The volume of air traffic projected for the area requires airspace and air traffic control services for the region. These services would be provided by the FAA at the former Myrtle Beach AFB RAPCON facilities under this alternative.

This alternative limits the number of operations at the jetport to 1991 JUA levels (approximately 92 operations per day, 33,580 per year). Commercial aviation (air carrier and air cargo) would be permitted at the jetport, while general aviation would be prohibited. Table 4.2-29 reflects the projected annual aircraft operations for the jetport for 1993, 1998, 2003, and 2013. Table 4.2-30 lists forecasted operations of an average day of the peak month for 2013. If aviation activity grows as projected, aircraft operations for year 2013 would have to be reduced by approximately 3,700 operations to meet the level of 33,580 operations.

Table 4.2-29. Projected Aviation Forecast - No-Action Alternative

	Annual Operations			
	1993	1998	2003	2013
Aviation Category				
Commercial				
Air Passenger	15,300	22,240	28,620	30,560
Air Cargo	2,550	2,870	3,020	3,020
Total Operations	17,850	25,110	31,640	33,580
Fleet Mix (Percent of Total Operations)				
Air Passenger Jet	38	51	50	57
Single Engine	3	0	0	0
Multi-Engine Turboprop	59	49	50	43

Note: An operation is a takeoff or a landing.
Source: LPA Group, Inc., 1992.

Table 4.2-30. Projected Aircraft Operations, July 2013 - No-Action Alternative (Single Runway)

Aircraft Category/ Aircraft Type	Average Day Peak Month	Takeoff		Landing	
		Day	Night	Day	Night
Air Passenger					
757-200	21.05	9.48	1.04	8.42	2.11
737-400	29.44	13.67	1.04	12.62	2.11
747-400	2.10	1.05	0.00	1.05	0.00
SAAB 340	11.83	5.43	0.49	5.42	0.49
DHC-8	18.94	9.47	0.00	9.47	0.00
Subtotal	83.36	39.10	2.57	36.98	4.71
Air Cargo					
C402	8.64	4.32	0.00	4.32	0.00
Total	92.00	43.42	2.57	41.30	4.71

Notes: Day and night distribution based on 2012 data provided by LPA. Aircraft type based on 2012 predictions provided by LPA. Total number of aircraft based on LPA 2002 peak, but reduced to 92 operations per day as stipulated in the JUA. Day - 7 A.M. to 10 P.M.; Night - 10 P.M. to 7 A.M.

Source: LPA Group, Inc., 1992.

Air Transportation. Under the No-Action Alternative, passenger boarding at the jetport could increase from the closure baseline levels due to the growth in the permanent and seasonal population, and tourism. However, jetport operations would not increase beyond JUA levels. Table 4.2-31 displays projected passenger boardings for 1998, 2003, and 2013.

Table 4.2-31. Projected Passenger Boardings on Commercial Flights - No-Action Alternative

1998	2003	2013
529,312	841,420	1,001,146

Rail. Under the No-Action Alternative, rail transportation would be unaffected. As Myrtle Beach AFB is not currently served by a rail spur, any growth or other impacts on rail would be completely independent of base closure.

Seaport. Under the No-Action Alternative, seaport activity would be unaffected. Myrtle Beach AFB does not currently depend on the Port of Georgetown for shipping. A docking facility on the Intracoastal Waterway north of the base, used to import fuel, is expected to close.

Cumulative Impacts. The cumulative impacts for this alternative would be the same as discussed for the Existing Airfield/Mixed Use Alternative.

Mitigation Measures. Table 4.2-32 shows the necessary improvements based upon the No-Action Alternative. While overall traffic volumes are lower, improvements are still needed to the transportation system to accommodate traffic at an adequate LOS. However, improvements to U.S. 17 Bypass and U.S. 17 Business are less extensive than those required under the Proposed Action. In 2013, the lane requirements on U.S. 17 Business drop from a six-lane expressway to a four-lane expressway. On U.S. 17 Bypass, lane

TABLE 4.2-32. ROADWAY IMPROVEMENTS–NO–ACTION ALTERNATIVE

PAGE 1 OF 2

			1998			2003			2013		
ROAD	LINK	EXISTING LANES	V/C (1)	RECOMMENDED IMPROVE–MENTS	(2)	V/C (1)	RECOMMENDED IMPROVE–MENTS	(2)	V/C (1)	RECOMMENDED IMPROVE–MENTS	(2)
BUS 17	MURREL'S INLET–CYPRESS AVE	4LD	1.2	6LD	1,2	1.4	6LD	1,2	1.9	4LX	1,2
BUS 17	CYPRESS AVE–GLEN'S BAY RD	4LD	1.1	6LD	1,2	1.3	6LD	1,2	1.7	4LX	1,2
BUS 17	GLEN'S BAY RD–SC 544	4LD	1.3	6LD	1,2	1.5	6LD	1,2	2.1	4LX(LOS E)	1,2
BUS 17	SC 544–BASE BOUNDARY	4LD	1.1	6LD	1,2	1.3	6LD	1,2	1.7	4LX	1,2
BUS 17	BASE BOUNDARY–SC 73	4LD	1.1	6LD	1,2	1.3	6LD	1,2	1.7	4LX	1,2
BUS 17	SC 73–17TH AVE	4LD	0.9	NI	2	1.1	NI	–	1.5	6LD	1,2
BUS 17	17TH AVE–US 501	4LD	1.1	6LD	1,2	1.3	6LD	1,2	1.7	4LX	1,2
BUS 17	US 501–S 1017	6LD	1.0	NI	2	1.1	4LX	1,2	1.5	6LX	1,2
BYP 17	MURREL'S INLET–SC 544	4LD PAC	0.6	NI	–	0.8	NI	–	1.0	6LD PAC	1,2
BYP 17	SC 544–SC 707	4LD PAC	0.7	NI	–	0.8	NI	–	0.9	NI	–
BYP 17	SC 707–AIRPORT ACCESS	4LD PAC	1.1	6LD PAC	1	1.3	6LD PAC	1	1.3	6LD PAC	1
BYP 17	AIRPORT ACCESS–N. PATROL RD	4LD PAC	1.1	6LD PAC	1	1.3	6LD PAC	1	1.3	6LD PAC	1
BYP 17	N. PATROL RD–S 600	4LD PAC	1.1	6LD PAC	1	1.3	6LD PAC	1	1.3	6LD PAC	1
BYP 17	S 600–JETPORT RD	4LD PAC	1.1	6LD PAC	1	1.3	6LD PAC	1	1.3	6LD PAC	1
BYP 17	JETPORT RD–US 501	4LD PAC	1.1	6LD PAC	1	1.3	6LD PAC	1	1.3	6LD PAC	1
BYP 17	US 501– S 1017	4LD PAC	0.7	NI	–	0.9	NI	–	1.0	NI	–
SC 707	US 17–SC 544	2L	0.6	NI	–	0.7	NI	–	0.9	NI	–
SC 707	SC 544–BEGIN 4LD	2L	1.1	4LD	1	0.6	NI	–	0.5	NI	–
SC 707	4LD–US 17 BYPASS	4LD	0.5	NI	–	0.6	NI	–	0.5	NI	–
SC 544	CONWAY–S 814	2L	1.0	4LD	1	0.6	NI	3	0.9	NI	–
SC 544	S 814–S 611	2L	1.4	4LD	1	0.8	NI	3	1.0	NI	1
SC 544	S 611–SC 707	2L	1.4	4LD	1	0.8	NI	3	1.0	NI	–
SC 544	SC 707–BYP 17	4LD	0.7	NI	3	0.9	NI	–	1.1	6LD	1
SC 544	BYP 17–BUS 17	4LD	0.5	NI	3	0.6	NI	–	0.8	NI	–
US 501	CONWAY–S 137	4LD	0.8	NI	–	0.7	NI	3	0.9	NI	–
US 501	S 137–BYP 17	4LD	1.6	6LD	1	1.0	6LD PAC	1,3	1.4	6LX	1
US 501	BYP 17–S 600	4LD	1.4	6LD	1	1.6	4LX	1	2.1	6LX	1
US 501	S 600–BROADWAY	4LD	0.9	NI	–	1.0	6LD	1	1.4	6LD	1
US 501	BROADWAY–BUS 17	4LD	0.9	NI	–	1.1	6LD	1	1.4	6LD	1
S 600	BYP 17–JETPORT RD	2L	0.2	NI	–	0.2	NI	–	0.3	NI	–
S 600	JETPORT RD–US 501	2L	0.2	NI	–	0.2	NI	–	0.3	NI	–
BROADWAY	JETPORT–17TH	2L	0.7	NI	–	0.8	NI	–	1.1	4LD	–
BROADWAY	17TH–US 501	2L	1.1	4LD	1	1.3	4LD	1	1.7	4LD	1
17TH	BROADWAY–BUS 17	2L	0.8	NI	–	1.1	4LD	–	1.4	4LD	1

TABLE 4.2.32. ROADWAY IMPROVEMENTS–NO–ACTION ALTERNATIVE (CONTINUED)

ROAD	LINK	EXISTING LANES	1998 V/C (1)	1998 RECOMMENDED IMPROVEMENTS	1998 (2)	2003 V/C (1)	2003 RECOMMENDED IMPROVEMENTS	2003 (2)	2013 V/C (1)	2013 RECOMMENDED IMPROVEMENTS	2013 (2)
JETPORT	SUPPORT RD–BROADWAY	2L	0.5	NI	–	0.6	NI	–	0.8	NI	–
JETPORT	BROADWAY–S 600	2L	0.4	NI	–	0.4	NI	–	0.6	NI	–
JETPORT	S 600–US 17 BYPASS	2L	0.4	NI	–	0.5	NI	–	0.6	NI	–
BAYS PK	SC 544–US 501	–	–	–		–	–	–	0.3	4LX	1,3
BAYS PK	US 501–CONWAY BYPASS	–	–	–		–	–	–	0.1	4LX	1,3

(1) VOLUME TO CAPACITY RATIO (V/C) IS BASED ON LOS "D" CAPACITY OF EXISTING OR PROGRAMMED NUMBER OF LANES.

(2) 1–THIS IMPROVEMENT WOULD BE REQUIRED BY GROWTH IN BACKGROUND TRAFFIC. WITHOUT THE ADDITION OF DEVELOPMENT TRAFFIC.

2–IMPROVEMENTS MAY BE PARTIALLY MITIGATED BY EXTENSIVE TRANSIT IMPROVEMENTS.

3–PROGRAMMED FOR IMPROVEMENT WITHIN THIS TIME PERIOD.

LD=LANES/DIVIDED HIGHWAY

LX=LANES/EXPRESSWAY

PAC=PARTIAL ACCESS CONTROL

NI=NO IMPROVEMENTS NECESSARY

requirements drop from a six-lane expressway to a six-lane partial access controlled roadway. The expansion of mass transit is a logical alternative to improving U.S. 17 Business.

Overall, the mitigation measures for this alternative are similar to those discussed in the Proposed Action.

4.2.4 UTILITIES

Direct and indirect changes in future utility demand for each reuse option were estimated based on historic, preclosure, and per-capita average daily use on Myrtle Beach AFB and in the ROI. These factors were applied to projections of numbers of future residents and employees associated with each of the reuse options.

For each utility, the changes in land use associated with the Proposed Action and alternatives would likely create the need for changes in the existing distribution and collection systems at Myrtle Beach AFB, including modifications to on-base water pumping and treatment facilities, wastewater collection systems, service providers for solid waste disposal, and distribution systems for electricity and natural gas. Utility corridors would likely be required and new service entrances with metering may be needed on existing facilities. The full extent of these changes, however, cannot presently be anticipated because only conceptual plans of future development currently exist for the site.

For each of the reuse options analyzed in this section, the following assumptions were made:

- The future site developers would undertake any corrective actions necessary to comply with regulatory requirements and local ordinances including modifications to the existing on-base wastewater collection system and construction of pretreatment facilities, if necessary. It has not been determined if wastewater flows from the site would remain connected to the Grand Strand Water and Sewer Authority (GSWSA) interceptor system and treatment facilities, or if the city of Myrtle Beach would provide service. It may be feasible to have both providers serving the site.

- The site of Myrtle Beach AFB would be serviced by local utility providers.

- On-site demand impacts are expected to be small relative to the utility provider's service area demand projections. Consequently, project-related usage was included in the total demand and not further differentiated by location.

Myrtle Beach AFB has been making regular improvements to maintain and upgrade its existing on-base water distribution system. Past usage and productive capacity of the water supply wells has been in excess of safe groundwater yield. There are concerns, however, that saltwater intrusion in

the area may be exacerbated by increased demand if the reuse were to approach build-out.

Other means for providing additional water to the base exist. These include the purchase of land and development of a dedicated water supply source off base, and connection to an existing off-base water distribution system such as the city of Myrtle Beach or GSWSA. The feasibility of the first two supply sources is questionable, based on local interviews and a review of water resource constraints in the region. Section 4.4.2, Water Resources, examines water resources issues in further detail.

Table 4.2-33 presents a summary of utility demand changes associated with the Proposed Action and alternatives.

The proposed reuse activities at Myrtle Beach AFB would require the commitment of various resources, such as labor, capital, energy, building materials, and land. Some existing facilities are proposed to be reused. Long-term resource commitment, primarily fossil fuels for energy and construction materials, would not be recoverable. Short-term commitments of labor and capital would result from construction activities.

4.2.4.1 Proposed Action (Expanded Airfield/Resort-Education)

Water Demand. Under the Proposed Action, water demand within the Upper Basin region of the GSWSA service area, which covers much of the ROI, would increase over the demand estimated for the baseline (Table 4.2-33). In the short term, through about 1998, the project-related increase in the water demand would remain below an average of about 2.0 million gallons per day (MGD). By 2013, the average project-related demand would be approximately 3.4 MGD.

Infrastructure improvements would be required throughout the Myrtle Beach ROI in the various districts that would experience direct and indirect population changes from the Proposed Action. Under the Proposed Action, total demand within the region would reach an average of 55.4 MGD by 2013, approximately 6.5 percent greater than the projection for the No-Action Alternative (52.0 MGD) for that year.

Current extraction rates from the groundwater wells that supply the base are within safe levels. If water consumption levels increase substantially due to reuse, future site developers would have to identify other options for the provision of additional water.

Specific improvements to the water supply system would be dependent on the developers' requirements and the suppliers' plans to change the existing on-base supply infrastructure. Formal procedures, consisting of securing permits from the South Carolina Department of Water Resources, would be required.

Table 4.2-33. Projected Utility Demand in the Myrtle Beach AFB ROI[1]

	1993 Baseline	1998	Percent Increase	2003	Percent Increase	2013	Percent Increase
Water Demand (MGD)							
No-Action Alternative[2]	35.7	40.5		44.4		52.0	
Proposed Action		2.0	4.9	2.7	6.1	3.4	6.5
Alternative 1[3]		2.0	4.9	2.5	5.6	3.2	6.2
Alternative 2		2.1	5.2	2.8	6.3	3.5	6.7
Alternative 3		0.8	2.0	1.4	3.2	2.2	4.2
Wastewater Generation (MGD)							
No-Action Alternative[2]	30.4	34.5		37.8		44.3	
Proposed Action		1.7	4.9	2.3	6.1	2.9	6.5
Alternative 1		1.7	4.9	2.1	5.6	2.7	6.1
Alternative 2		1.8	5.2	2.4	6.3	2.9	6.5
Alternative 3		0.7	2.0	1.2	3.2	1.9	4.3
Solid Waste Generation (tons/day)							
No-Action Alternative[2]	688.0	780.3		854.4		999.2	
Proposed Action		21.8	2.8	28.5	3.3	40.2	4.0
Alternative 1		22.5	2.9	24.4	2.9	35.2	3.5
Alternative 2		26.2	3.4	32.9	3.9	42.6	4.3
Alternative 3		14.1	1.8	24.6	2.9	39.4	3.9
Electricity Demand (MWH/day)							
No-Action Alternative[2]	4,138.9	4,694.0		5,159.6		6,023.0	
Proposed Action		128.9	2.7	168.2	3.3	237.5	3.9
Alternative 1		133.3	2.8	144.3	2.8	208.3	3.5
Alternative 2		154.7	3.3	194.6	3.8	251.8	4.2
Alternative 3		83.4	1.8	145.5	2.8	233.0	3.9
Natural Gas Demand (thousand therms/day)							
No-Action Alternative[2]	223.7	253.8		278.3		325.5	
Proposed Action		7.0	2.8	9.1	3.3	12.8	3.9
Alternative 1		7.2	2.8	7.8	2.8	11.2	3.4
Alternative 2		8.3	3.3	10.5	3.8	13.6	4.2
Alternative 3		4.5	1.8	7.9	2.8	12.6	3.9

[1] Values for Proposed Action and reuse alternatives represent direct project-related demand beyond closure baseline.

[2] Represents total demand forecasted for the ROI for the years indicated, based on demand projected by local utility purveyors.

[3] Alternatives 1, 2, 3 are the Expanded Airfield/Resort-Recreation, Expanded Airfield/Resort-Commercial-Industrial, and Existing Airfield/Mixed Use Alternatives, respectively.

Sources: Projections for this study, April 1992; Santee Cooper Public Service Authority, 1992; Grand Strand Water and Sewer Authority, 1992; Horry County Division of Solid Waste, 1992; City of Myrtle Beach Water Department, 1992; South Carolina Electric and Gas Company, 1992; U.S. Department of Commerce, Bureau of The Census, Summary Tape Files 1A and 3, 1992.

The increased population and resulting increase in water demand from the Proposed Action would require the GSWSA and other water suppliers in the Myrtle Beach ROI to continue planned capacity enhancements of the surface water treatment facilities. The overall changes to their short- and long-term plans, however, would not be substantially different from their current needs assessment, which indicates the need for major changes throughout the next two decades. Water supply issues are analyzed in section 4.4.2, Water Resources.

Wastewater. Wastewater treatment within the service area of the GSWSA, which also covers much of the Myrtle Beach ROI, would increase as a result of the Proposed Action over estimated treatment levels projected for the closure baseline (Table 4.2-33). In the short term, through about 1998, the reuse-

related increase in the wastewater treatment demand would remain below an average of about 1.7 MGD. By 2013, the overall increase from the Proposed Action would be an average of about 2.9 MGD.

Additional infrastructural changes would be required throughout the Myrtle Beach ROI within the various wastewater collection districts that would experience direct and indirect population changes from this alternative. Total demand within the GSWSA service area would reach an average of 47.2 MGD by 2013, approximately 6.5 percent greater than the projection for the No-Action Alternative (44.3 MGD) for that year.

The increased population and resulting increase in wastewater treatment demand from the Proposed Action would require GSWSA and individual wastewater collection agencies in the Myrtle Beach ROI to make presently-planned long-term infrastructural improvements about one year ahead of the schedule indicated by the Wastewater Master Plan. The overall changes to their short- and long-term plans would not be substantially different from their current needs assessment, which indicates the need for major changes throughout the next two decades.

Solid Waste. Solid waste disposal at the Horry County landfill would increase from the baseline as a result of the Proposed Action (Table 4.2-33). Solid waste generation would increase by 4.0 percent over the No-Action Alternative. Although the expansion potential for the county landfill has not yet been determined, the county is presently seeking to expand its existing capacity and identify new sites that are permittable. Source reduction and recycling programs that are receiving greater legal and budgetary emphasis could extend the cumulative landfill expectancies in the Myrtle Beach ROI, depending on the actual effectiveness of such programs. Changes to the county's short- and long-term plans for landfill capacity expansion in the Myrtle Beach ROI caused by the Proposed Action would not be substantially different from current expansion plans.

Energy

Electricity. Electricity consumption would increase as a result of the Proposed Action over the estimated baseline consumption (Table 4.2-33). In the short term, through 1998, the reuse-related increase in the electricity demand would remain below an average of 128.9 megawatt hours per day (MWH/day). By 2013, the increase from this alternative would be an average of about 237.5 MWH/day. Total demand would be about 6,260 MWH/day in 2013, a 3.9 percent increase over the No-Action Alternative.

Natural Gas. Natural gas consumption would increase as a result of the Proposed Action over the estimated baseline consumption. By 1998, reuse-related short-term natural gas demand increases would be approximately 7,000 therms/day. The long-term increase from this alternative would average about 12,800 therms/day. Total demand would be about 338,500 therms/day, a 3.9 percent increase over the No-Action Alternative.

Cumulative Impacts. No cumulative impacts are expected as a result of this alternative.

Mitigation Measures. New users of the base property would have to implement mitigation measures for wastewater treatment. The type(s) and extent of mitigations cannot at present be specified, because it would be dependent on several factors. These factors include specific operating procedures established for the new uses, specific products used, and the equipment used by various reuses.

Depending on these factors, new users may have to make provisions for pretreatment of industrial wastewater. New users also would be required to obtain discharge permits in accordance with GSWSA, if they remain the wastewater discharge and treatment provider.

No mitigation measures would be necessary for the other utilities.

4.2.4.2 Expanded Airfield Resort-Recreation Alternative

Water Demand. As a result of this alternative, water demand within the upper basin of the GSWSA service area would increase over estimated closure baseline consumption (Table 4.2-33). By 1998, a short term reuse-related increase in water demand would average about 2.0 MGD. The long-term overall increase from the Expanded Airfield/Resort-Recreation Alternative would be an average of about 3.2 MGD by 2013, a 6.2 percent increase over the No-Action Alternative.

Wastewater. Wastewater treatment within the Myrtle Beach ROI would increase as a result of this alternative over estimated treatment levels projected for the closure baseline (Table 4.2-33).

By 1998, the reuse-related increase in wastewater generation would be approximately 1.7 MGD. By 2013, increase in generation would be approximately 2.7 MGD, a 6.1 percent increase over the No-Action Alternative.

Solid Waste. The Horry County landfill would increase estimated disposal levels as a result of this alternative over those projected for the closure baseline (Table 4.2-33). Solid waste generation would increase by 3.5 percent over the No-Action Alternative.

Energy

Electricity. Electricity consumption would increase as a result of this alternative over the estimated closure baseline consumption. By 1998, the reuse-related short-term increase in the electricity demand would average about 133.3 MWH/day. By 2013, the long-term increase from this alternative would average about 208.3 MWH/day, a 3.5 percent increase over the No-Action Alternative.

Natural Gas. Natural gas consumption would increase as a result of this alternative over the estimated closure baseline consumption. In the short term, through 1998, the reuse-related increase in the natural gas demand would average about 7,200 therms/day. By 2013, the reuse-related increase from this alternative would average about 11,200 therms/day, a 3.4 percent increase over the No-Action Alternative.

Cumulative Impacts. There would be no cumulative impacts for this alternative.

Mitigation Measures. New users would be required to implement mitigation measures as discussed for the Proposed Action.

4.2.4.3 Expanded Airfield/Resort-Commercial-Industrial Alternative

Water Demand. As a result of this alternative, water consumption within the GSWSA upper basin service area would increase over estimated closure baseline consumption (Table 4.2-33). By 1998, a short term reuse-related increase in water demand would average about 2.1 MGD. The long-term reuse-related increase from the Expanded Airfield/Resort-Commercial-Industrial Alternative would be an average of about 3.5 MGD by 2013, a 6.7 percent increase over the No-Action Alternative.

Wastewater. Wastewater treatment within the Myrtle Beach ROI would increase as a result of this alternative over estimated treatment levels projected for the closure baseline (Table 4.2-33).

By 1998, the reuse-related increase in wastewater generation would be approximately 1.8 MGD. By 2013, increase in generation would be approximately 2.9 MGD, a 6.5 percent increase over the No-Action Alternative.

Solid Waste. The Horry County landfill would increase estimated disposal levels as a result of this alternative over those projected for the closure baseline (Table 4.2-33). Solid waste generation would increase by 4.3 percent over the No-Action Alternative.

Energy

Electricity. Electricity consumption would increase as a result of this alternative over the estimated closure baseline consumption. By 1998, the reuse-related short-term increase in the electricity demand would average about 154.7 MWH/day. By 2013, the long-term increase from this alternative would average about 251.8 MWH/day, a 4.2 percent increase over the No-Action Alternative.

Natural Gas. Natural gas consumption would increase as a result of this alternative over the estimated closure baseline consumption. In the short term, through 1998, the reuse-related increase in the natural gas demand would average about 8,300 therms/day. By 2013, the reuse-related increase from this alternative would average about 13,600 therms/day, a 4.2 percent increase over the No-Action Alternative.

Cumulative Impacts. There would be no cumulative impacts for this alternative.

Mitigation Measures. New users would be required to implement mitigation measures as discussed for the Proposed Action.

4.2.4.4 Existing Airfield/Mixed Use

Water Demand. As a result of this alternative, water consumption within the GSWSA upper basin service area would increase over estimated closure baseline consumption (Table 4.2-33). By 1998, a short term reuse-related increase in water demand would average about 0.8 MGD. The long-term reuse-related increase from the Existing Airfield/Mixed Use Alternative would be an average of about 2.2 MGD by 2013, an increase of 4.2 percent over the No-Action Alternative.

Wastewater. Wastewater treatment within the Myrtle Beach ROI would increase as a result of this alternative over estimated treatment levels projected for the closure baseline (Table 4.2-33).

By 1998, the reuse-related increase in wastewater generation would be approximately 0.7 MGD. By 2013, increase in generation would be approximately 1.9 MGD, a 4.3 percent increase over the No-Action Alternative.

Solid Waste. The Horry County landfill would increase estimated disposal levels as a result of this alternative over those projected for the closure baseline (Table 4.2-33). Solid waste generation would increase by 3.9 percent over the No-Action Alternative.

Energy

Electricity. Electricity consumption would increase as a result of this alternative over the estimated closure baseline consumption. By 1998, the reuse-related short-term increase in the electricity demand would average about 83.4 MWH/day. By 2013, the long-term increase from this alternative would average about 233 MWH/day, a 3.9 percent increase over the No-Action Alternative.

Natural Gas. Natural gas consumption would increase as a result of this alternative over the estimated closure baseline consumption. In the short term, through 1998, the reuse-related increase in the natural gas demand would average about 4,500 therms/day. By 2013, the overall increase from this alternative would average about 12,600 therms/day, a 3.9 percent increase over the No-Action Alternative.

Restricted Second Runway Option. Impacts of this option would be the same as for the alternative with a single runway.

Cumulative Impacts. There would be no cumulative impacts for this alternative.

Mitigation Measures. New users would be required to implement mitigation measures as discussed for the Proposed Action.

4.2.4.5 No-Action Alternative (Existing Airfield/Caretaker)

Because increases in employment and population related to the No-Action Alternative are minimal, there would not be short-term or long-term reuse-related changes in utility demand (Table 4.2-33).

Cumulative Impacts. There would be no cumulative impacts under the No-Action Alternative.

Mitigation Measures. No mitigation measures would be required under this alternative.

4.3 HAZARDOUS MATERIALS AND HAZARDOUS WASTE MANAGEMENT

This section addresses the potential impacts of existing contaminated sites on the various reuse options and the potential for environmental impacts caused by hazardous materials and hazardous waste management practices associated with the reuse options. Hazardous materials, hazardous wastes, Installation Restoration Program (IRP) sites, storage tanks, asbestos, pesticides, polychlorinated biphenyls (PCBs), radon, medical/biohazardous waste, and photochemical wastes will be discussed in this section.

The U.S. Air Force is committed to the remediation of contamination at Myrtle Beach AFB due to past Air Force activities. The OL will remain after base closure to coordinate remediation activities. Delays or restrictions in disposal and reuse of property may occur due to the extent of contamination and the results of both the risk assessment and remedial designs determined for contaminated sites. Examples of conditions resulting in land use restrictions would be the capping of landfills and the constraints from methane generation and cap integrity, as well as the locations of long-term monitoring wells. These conditions would have to be considered in the layout of future development. Options to recipients include creation of parks, greenbelts, or open spaces over these areas.

The U.S. Air Force is committed to continue IRP activities under the Defense Environmental Restoration Program (DERP) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and in accordance with the Joint Management Initiative Agreements made between the U.S. Air Force, U.S. Environmental Protection Agency (USEPA), and South Carolina Department of Health and Environmental Control (SCDHEC). IRP activities will be coordinated by the OL and the aforementioned agencies.

The Air Force is now initiating remedial action planning for the existing IRP sites. This will provide a well-defined program of monitoring and site restoration, as needed, at each IRP site. Until the remedial action planning is completed, detailed and accurate assessment of land use restrictions and impacts to various reuse options cannot be determined. The following assessments have been based on potential impacts to various proposed land uses.

The type of development that is appropriate for property adjacent to or over an IRP site may be limited by the risk to human health and the environment posed by contaminants at the site. For example, residential development over an IRP

landfill generally is not appropriate. The risk posed by IRP sites is measured by a risk assessment that analyzes the types of substances present at a site and the potential means by which the public and the environment may be exposed to them. The remedial design, or blueprint for remediating the IRP site, is based on the results of the risk assessment and the geographical extent of the contamination.

Disposal and reuse of some Myrtle Beach AFB properties may be delayed or limited by the extent and type of contamination at IRP sites and by current and future IRP remediation activities. Based on the results of IRP investigations, the Air Force may, where appropriate, place limits on land reuse through deed restrictions on conveyances and use restrictions on leases. The Air Force may also retain right of access to other properties to inspect monitoring wells or conduct other remedial activities.

Regulatory standards and guidelines have been applied in determining the impacts caused by hazardous materials and hazardous waste. The following criteria were used to identify potential impacts:

- Accidental release of friable asbestos during the demolition or modification of a structure
- Generation of 100 kilograms (or more) of hazardous waste or 1 kilogram (or more) of an acutely hazardous waste in a calendar month, resulting in increased regulatory requirements
- New operational requirements or service for all underground storage tank (UST) and tank systems per state and federal regulations
- Any spill or release of a reportable quantity of a hazardous material
- Manufacturing of any compound that requires notifying the pertinent regulatory agency
- Exposure of the environment or public to any hazardous material through release or disposal practices.

A RAM for hazardous materials/hazardous waste is developed for each alternative and summarized in Table 4.3-1.

4.3.1 PROPOSED ACTION (EXPANDED AIRFIELD/RESORT-EDUCATION)

4.3.1.1 Hazardous Materials Management.

The types of hazardous materials likely to be used for activities occupying the proposed land use zones are identified in Table 4.3.2. The quantities of hazardous materials used would increase over the baseline conditions at closure. The specific chemical compositions and exact use rates are not known.

Table 4.3-1. Resource Assessment Matrix - Hazardous Materials/Waste Management, 2013

Evaluation Criteria	Unit of Measurement	Proposed Action	Alternative[1] 1	2	3	No-Action
Hazardous/petroleum waste generated	Gallons/yr.	15,300	8,300	12,300	14,500	400
Hazardous waste generators[2]						
Large quantity	Number	0	0	0	0	0
Small quantity	Number	20	14	17	15	1
IRP sites within land-use[3]	Number of Sites					
Airfield		13	27	26	2	3
Aviation Support		3	0	0	0	0
Industrial		16	9	13	32	0
Institutional (Educational)		1	0	0	5	0
Institutional (Medical)		0	1	1	0	0
Commercial		4	1	1	1	0
Residential		0	0	0	0	0
Public Facilities & Recreation		11	13	14	13	0
Caretaker Status		0	0	0	0	46
USTs	Number					
Removed		23	23	30	23	23
Reused		15	15	8	15	15[4]
Above ground storage tanks	Number					
Removed		83	83	83	13	13
Reused		61	61	61	123	123[4]
Asbestos	Number of					
Buildings to be demolished[5]	Buildings with	25	25	26	3	0
Buildings to be managed	Asbestos	36	36	35	58	61
Medical/biohazardous waste	Tons/yr.	0	7	7	0	0

[1] Alternatives 1,2,3 are the Expanded Airfield/Resort-Recreation, Expanded Airfield/Resort-Commercial-Industrial, and Existing Airfield/Mixed Use Alternatives, respectively.

[2] Small quantity generator is one that generates more than 100 kg but less than 1,000 kg of hazardous waste per month and manages the waste in accordance with 40 CFR 262.34. A large quantity generator is one that generates more than 1,000 kg of hazardous waste per month.

[3] Some IRP sites impact more than one land-use category.

[4] Assumes all USTs and above ground storage tanks closed and removed except heating oil and emergency power tanks maintained as assets; JP-4 fuel distribution system not required for any alternative; vehicle fuel, waste fuel storage also not essential for any alternative.

[5] Buildings to be demolished = buildings that were deemed incompatible with the proposed use under each alternative.

Table 4.3-2. Hazardous Materials Management - Proposed Action

Land Use Categories	Operation Process	Hazardous Materials
Airfield	Refueling, clear zones, runways, taxiways, airport terminal	Aviation fuels, propylene glycol, ethylene glycol, heating oils, pesticides
Aviation Support	General aviation use, flight line buildings, aircraft parking and industry, air cargo, aircraft maintenance	Fuels, solvents, paints, degreasers, corrosives, heavy metals, reactives, thinners, ignitables, pesticides, hydraulic fluids, glycols, heating oils
Commercial, Public Facilities & Recreation, Residential, Institutional	Building and equipment maintenance, lawn and golf course maintenance, heating	Heating oils, pesticides, fuels, solvents, corrosives, ignitables, laboratory materials
Industrial	Light industry, R&D	Fuels, solvents, corrosives, ignitables, heating oils, heavy metals, catalysts, aerosols, plating wastes, cyanides, laboratory wastes, hydrocarbon dispersants, pesticides

If the Proposed Action were implemented, each separate owner/operator would be responsible for the management of its own hazardous materials according to applicable regulations, chiefly Occupational Safety and Health Administration (OSHA). Additionally, each organization would have to comply with SARA, Section 311, Title III, which requires that local communities be informed of the use of hazardous materials. Similar requirements apply for compliance with South Carolina regulations (Title 44, R.69).

4.3.1.2 Hazardous Waste Management. The proposed land use categories would host many operations that are yet to be completely defined. The types of hazardous waste that may be generated in these land-use zones result from the use of the hazardous materials as presented in Table 4.3-2. All proposed land uses are assumed to generate at small quantity generator levels.

The responsibilities of hazardous waste management are allocated to individual owners/operators generating the wastes. Proficiency in handling those wastes and spill response capability are required by Resource Conservation and Recovery Act (RCRA), CERCLA, and OSHA regulations. Mutual aid agreements with surrounding communities may require additional scrutiny and training of emergency staff.

The presence of numerous independent owners/operators on the former base would change the regulatory requirements and probably increase the regulatory burden relative to hazardous waste management (additional small quantity generators). Activities associated with the Proposed Action would lead to an increase in the amount of hazardous and petroleum wastes generated compared to the closure baseline.

4.3.1.3 Installation Restoration Program (IRP) Sites. The IRP sites located within or affecting each land use category for this alternative are discussed below, and their locations are shown in Figure 4.3-1.

Airfield, flightline operations, and planned improvements associated with the Proposed Action might be impacted because of the overall airfield expansion (extension and expansion of runways, taxiways, and aprons) that are associated with 13 IRP sites. The runway expansion would extend adjacent to the base's preclosure central industrial area, which contains sites now under IRP investigation. These may not be cleaned up prior to base closure or its intended reuse date. Remediation facilities for the contamination plumes could delay construction of runways or cause them to be realigned depending on final remedial designs, remediation schedule, and construction schedule.

Aviation support parcels from the Proposed Action may be particularly impacted due to the proximity of the IRP sites compared with no IRP sites in the other proposed uses. Of greatest concern would be the aviation support parcel that involves IRP Site ST-02 (Myrtle Beach Pipeline Co. Spill #2), now under active remediation.

Industrial, commercial, and institutional development might be affected based on proximity to closed base landfills and base industrial areas. Development might be impacted by remediation activities associated with 21 IRP sites in these preclosure land use areas.

Educational, commercial, and public facilities and recreation areas may be impacted during remediation, by post-remedial phases, or by land use restrictions such as restriction on grading and subsurface disturbances due to the proximity to IRP sites.

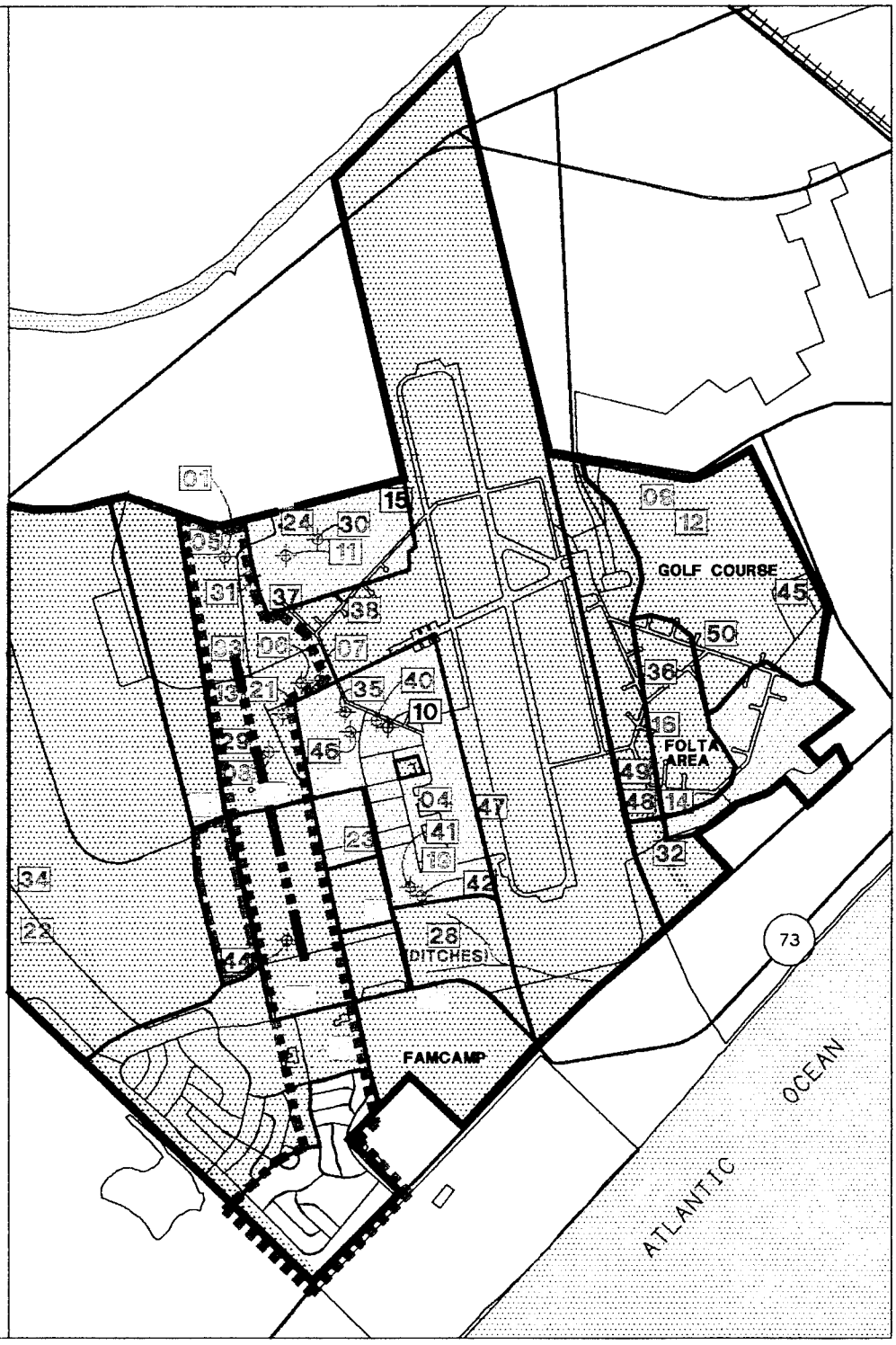
No impacts to residential areas are anticipated because of their remoteness to IRP activities.

4.3.1.4 Storage Tanks. Flight and maintenance operations associated with the Proposed Action would require both above ground storage tanks and USTs. Reused and new storage tanks that would be required by the new owner/operators would be subject to all applicable federal, state, and local regulations. These regulations include acceptable leak detection methods, spill and overfill protection, cathodic protection, secondary containment for the tank systems including the piping, and liability insurance. Regulations for hazardous substance USTs include additional requirements for secondary containment of the tank systems including the underground piping. USTs that would not support reuse activities will be closed in conformance with the appropriate federal, state, and local regulations.

Above ground fuel storage tanks that would not be used to support the reuse activities would be purged of fumes to preclude fire hazards. The Uniform Fire Code requires that tanks out of service for one year be removed from the property.

4.3.1.5 Asbestos. Renovation and demolition of existing structures with asbestos-containing material (ACM) may occur with reuse development.

SITE NO.	FACILITY
WP-01	WEATHERING PIT 2
	MB PIPELINE CO. NO. 2
	POL BULK FUEL STORAGE
SS-04	FLIGHTLINE CONTAM AREA
LF-05	LANDFILL NO. 3
FT-06	FIRE TRAINING AREA 1
FT-07	FIRE TRAINING AREA 2
WP-08	WEATHERING PIT 1
LF-09	LANDFILL NO. 4
ST-10	WASTE CHEMICAL USTS
FT-11	FIRE TRAINING AREA 3
LF-12	LANDFILL NO. 1
LF-13	LANDFILL NO. 2
LF-14	LANDFILL NO. 5
RW-15	RADIOACTIVE VAULT
FT-16	FIRE TRAINING AREA 4
17	NOT USED
	BX SERVICE STATION
SD-19	ENGINE SHOP DRAIN
	MILITARY SERVICE STATION
DP-21	DRUM DISPOSAL PIT 1
DP-22	DRUM DISPOSAL PIT 2
SD-23	CE PAINT SHOP
SD-24	OLD ENTOMOLOGY SHOP
	OLD WELL NO 2 (BLDG 103)
	LIFT STATION 1 - BLDG 122
	LIFT STATION 3 - BLDG 960
SD-28	DRAIN DITCH/STORM SEWER
SS-29	MB PIPELINE CO. NO. 1
WP-30	SEWAGE TREATMENT PLANT
OT-31	FIRING-IN BUTT
LF-32	MISQUE CONST. RUBBLE DUMP
OT-33	SMALL ARMS RANGE
OT-34	EOD PROFICIENCY RANGE
SD-35	FUEL BLADDER MAINT. AREA
SD-36	FUEL BLAD.TRAINING AREA
ST-37	WW II BULK FUEL STO. A
SS-38	OLD ENGINE TEST CELL
39	NOT USED
OT-40	BLDG. 505 STORAGE AREA
SS-41	AGE STORAGE YARD
SD-42	AGE WASHRACK
43	NOT USED
ST-44	AUTO HOBBY UST
SD-45	GOLF COURSE MAINT. AREA
ST-46	WWII OPS FUEL STO. A
ST-47	WWII OPS FUEL STO. B
ST-48	WWII OPS FUEL STO. C
ST-49	WWII BULK FUEL STO. B
ST-50	WWII OPS FUEL STO. D



EXPLANATION

- AIRFIELD
- AVIATION SUPPORT
- INDUSTRIAL
- INSTITUTIONAL (MEDICAL) ×
- INSTITUTIONAL (EDUCATIONAL)
- COMMERCIAL
- RESIDENTIAL
- PUBLIC FACILITIES & RECREATION
- AGRICULTURE ×
- VACANT LAND ×
- AIRFIELD EXPANSION
- AVIATION SUPPORT EXPANSION
- PROPOSED RUNWAY
- ROAD REALIGNMENT
- XX GROUP 1- RI OR RFI SITES
- GROUP 2- SC PETROLEUM SITES
- XX GROUP 3- CONFIRMATORY SITES
- XX NO FUTHER ACTION

× NOT APPLICABLE

0 1000 3000 feet

SOURCE: U. S. AIR FORCE, 1992

IRP SITES AND PROPOSED ACTION

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.3-1

Asbestos management would be the responsibility of property recipients and would be subject to all applicable federal, state, and local regulations.

4.3.1.6 Pesticides. Pesticide usage associated with the Proposed Action would increase from amounts used under closure baseline conditions as a result of increase in public and commercial land uses. Management practices would be subject to Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and South Carolina regulations.

4.3.1.7 PCBs. All regulated PCB equipment and PCB-contaminated equipment has been removed; therefore, these materials would not create any impacts.

4.3.1.8 Radon. Since all radon screening survey results were below the USEPA's recommended mitigation level of 4 picocuries per liter (pCi/L) of air, there would be no impact on reuse activities.

4.3.1.9 Medical/Biohazardous Waste. All of these materials will be removed prior to base closure. Under the Proposed Action, there would be no medical reuse, and therefore, no generation of medical/biohazardous waste.

4.3.1.10 Photochemical Waste. All photochemical waste would be removed and disposed of prior to base closure. Therefore, it would not present any impact. Some tenants may increase waste generation above closure baseline.

4.3.1.11 Cumulative Impacts. No cumulative impacts would result under the Proposed Action. Multiple small quantity hazardous waste generators would increase regulatory responsibility for the SCDHEC.

4.3.1.12 Mitigation Measures. A cooperative planning body for hazardous materials and waste management could be established with the support of the new individual operators on the base. Establishment of such a body could reduce the costs of environmental compliance training, health and safety training, and waste management, and could increase recycling, minimize waste, and assist in mutual spill responses.

All of the IRP sites may not need to be remediated; however, all of them must be addressed and properly closed out. Active coordination between the OL and new construction planning agencies would mitigate potential problems. The presence of IRP sites may limit certain land uses within overlying areas; options could include reuse as open space, green-belt, or parks.

Use of USTs that would remain in service would have to be coordinated with planning agencies to preclude construction of facilities that would endanger the integrity of the tanks or piping systems.

Coordination of asbestos removal or management in conjunction with construction or renovation activities could mitigate potential impacts. Compliance with National Emission Standards for Hazardous Air Pollutants (NESHAP) would mitigate impacts and preclude asbestos hazards.

4.3.2 EXPANDED AIRFIELD/RESORT-RECREATION ALTERNATIVE

4.3.2.1 Hazardous Materials Management. The types of hazardous materials likely to be used for activities occupying the proposed land use zones for this alternative are similar to those identified in Table 4.3-2 for the Proposed Action. The quantities of hazardous materials used and hazardous waste generated would increase over the baseline conditions at closure. The organizations responsible for handling hazardous materials are similar to the description in the Proposed Action.

4.3.2.2 Hazardous Waste Management. The proposed land use categories would host many operations that are yet to be completely defined. Management provisions would be similar to those described for the Proposed Action.

4.3.2.3 Installation Restoration Program (IRP) Sites. The assessment and remediation process for the IRP sites would be similar to that described for the Proposed Action. The IRP site impacts within each land use area for this alternative are discussed below and their locations are shown in Figure 4.3-2.

Airfield, flightline operations, and associated expansions with this alternative might be impacted to a greater degree than the Proposed Action because of the larger overall airfield expansion (extension and expansion of runways, taxiways, and aprons) in proximity to a larger number of IRP sites (27).

Aviation support parcels may not be particularly impacted due to the lack of IRP sites compared with the Proposed Action. Provisions for existing or new monitoring or recovery well locations required for IRP activities also may have some impact.

Commercial, industrial, and institutional parcels might be affected based on their proximity to 11 IRP sites associated with closed base landfills and base industrial areas. Development might be less impacted by cleanup activities associated with fewer IRP sites in these particular land use areas than compared to the Proposed Action.

Public, recreational, and residential land use also would be affected in a similar manner as the Proposed Action.

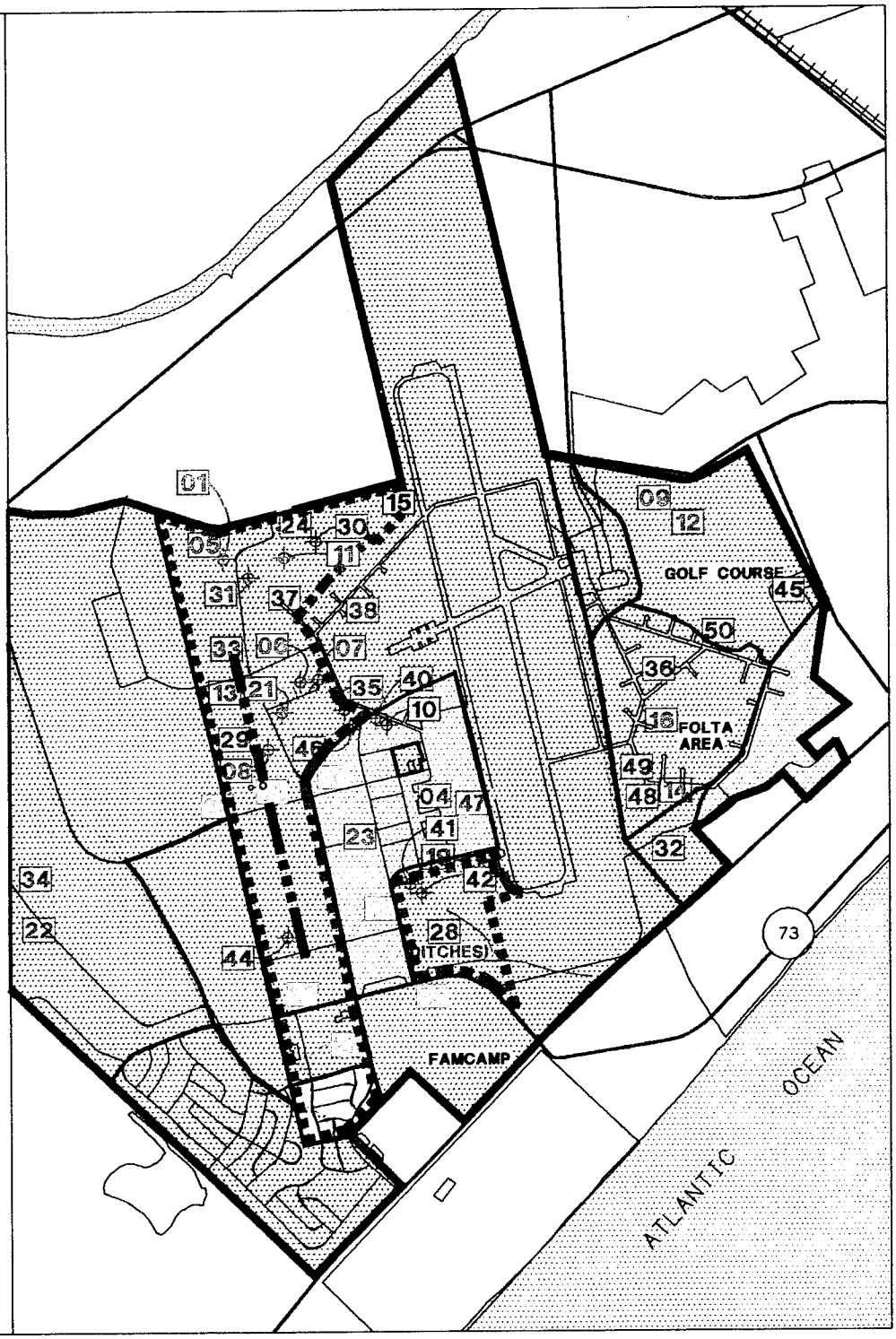
4.3.2.4 Storage Tanks. Impacts associated with storage tanks would be as described for the Proposed Action.

4.3.2.5 Asbestos. Asbestos removal and management procedures would be as discussed under the Proposed Action.

4.3.2.6 Pesticides. Pesticide usage under this alternative would increase from amounts used under closure baseline conditions as a result of an increase in public and commercial land uses. Management practices would be subject to FIFRA and South Carolina regulations.

4.3.2.7 PCBs. All regulated PCB equipment and PCB-contaminated equipment has been removed; therefore, these materials would not create any impacts.

SITE NO.	FACILITY
WP-01	WEATHERING PIT 2
[illegible]	MB PIPELINE CO. NO. 2
[illegible]	POL BULK FUEL STORAGE
SS-04	FLIGHTLINE CONTAM AREA
LF-05	LANDFILL NO. 3
FT-06	FIRE TRAINING AREA 1
FT-07	FIRE TRAINING AREA 2
WP-08	WEATHERING PIT 1
LF-09	LANDFILL NO. 4
ST-10	WASTE CHEMICAL USTS
FT-11	FIRE TRAINING AREA 3
LF-12	LANDFILL NO. 1
LF-13	LANDFILL NO. 2
LF-14	LANDFILL NO. 5
RW-15	RADIOACTIVE VAULT
FT-16	FIRE TRAINING AREA 4
17	NOT USED
[illegible]	BX SERVICE STATION
SD-19	ENGINE SHOP DRAIN
[illegible]	MILITARY SERVICE STATION
DP-21	DRUM DISPOSAL PIT 1
DP-22	DRUM DISPOSAL PIT 2
SD-23	CE PAINT SHOP
SD-24	OLD ENTOMOLOGY SHOP
[illegible]	OLD WELL NO 2 (BLDG 103)
[illegible]	LIFT STATION 1 - BLDG 122
[illegible]	LIFT STATION 3 - BLDG 960
SD-28	DRAIN DITCH/STORM SEWER
SS-29	MB PIPELINE CO. NO. 1
WP-30	SEWAGE TREATMENT PLANT
OT-31	FIRING-IN BUTT
LF-32	MISQUE CONST. RUBBLE DUMP
OT-33	SMALL ARMS RANGE
OT-34	EOD PROFICIENCY RANGE
SD-35	FUEL BLADDER MAINT. AREA
SD-36	FUEL BLAD.TRAINING AREA
ST-37	WW II BULK FUEL STO. A
SS-38	OLD ENGINE TEST CELL
39	NOT USED
OT-40	BLDG. 505 STORAGE AREA
SS-41	AGE STORAGE YARD
SD-42	AGE WASHRACK
43	NOT USED
ST-44	AUTO HOBBY UST
SD-45	GOLF COURSE MAINT. AREA
ST-46	WWII OPS FUEL STO. A
ST-47	WWII OPS FUEL STO. B
ST-48	WWII OPS FUEL STO. C
ST-49	WWII BULK FUEL STO. B
ST-50	WWII OPS FUEL STO. D



EXPLANATION

- AIRFIELD
- AVIATION SUPPORT
- INDUSTRIAL
- INSTITUTIONAL (MEDICAL)
- INSTITUTIONAL (EDUCATIONAL) ×
- COMMERCIAL
- RESIDENTIAL
- PUBLIC FACILITIES & RECREATION
- AGRICULTURE ×
- VACANT LAND ×
- AIRFIELD EXPANSION
- PROPOSED RUNWAY
- ROAD REALIGNMENT
- × NOT APPLICABLE
- XX GROUP 1- RI OR RFI SITES
- XX GROUP 2- SC PETROLEUM SITES
- XX GROUP 3- CONFIRMATORY SAMPLING SITES
- XX NO FUTHER ACTION

0 1000 3000 feet

SOURCE: U. S. AIR FORCE, 1992

IRP SITES AND EXPANDED AIRFIELD/ RESORT-RECREATION ALTERNATIVE

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.3-2

4.3.2.8 Radon. Since all radon screening survey results were below the USEPA's recommended mitigation level of 4 pCi/L of air, there would be no impact on reuse activities.

4.3.2.9 Medical/Biohazardous Waste. All of these materials generated by the Air Force will be removed prior to base closure. Under this alternative, there would be interim hospital use. Provisions for handling medical/biohazardous waste off site are currently in place since the existing incinerator is not operational. These same provisions would presumably be used.

4.3.2.10 Photochemical Waste. All photochemical waste would be removed and disposed of prior to base closure. Therefore, it would not present any impact. Some tenants may increase waste generation above closure baseline.

4.3.2.11 Cumulative Impacts. No cumulative impacts would result under the expanded aviation/resort-recreation alternative. Multiple small quantity waste generators would increase regulatory responsibility for the SCDHEC.

4.3.2.12 Mitigation Measures. The same mitigation measures applicable to the Proposed Action would be appropriate for activities associated with the Expanded Airfield/Resort-Recreation Alternative.

4.3.3 EXPANDED AIRFIELD/RESORT-COMMERCIAL-INDUSTRIAL ALTERNATIVE

4.3.3.1 Hazardous Materials Management. The types of hazardous materials likely to be used for activities occupying the proposed land use zones for this alternative are similar to those identified in Table 4.3.2 for the Proposed Action. The quantities of hazardous materials used would increase over the baseline conditions at closure. The organizations responsible for handling hazardous materials are similar to those described in the Proposed Action.

4.3.3.2 Hazardous Waste Management. The proposed land use categories would host many operations that are yet to be completely defined. Management provisions would be similar to those described for the Proposed Action.

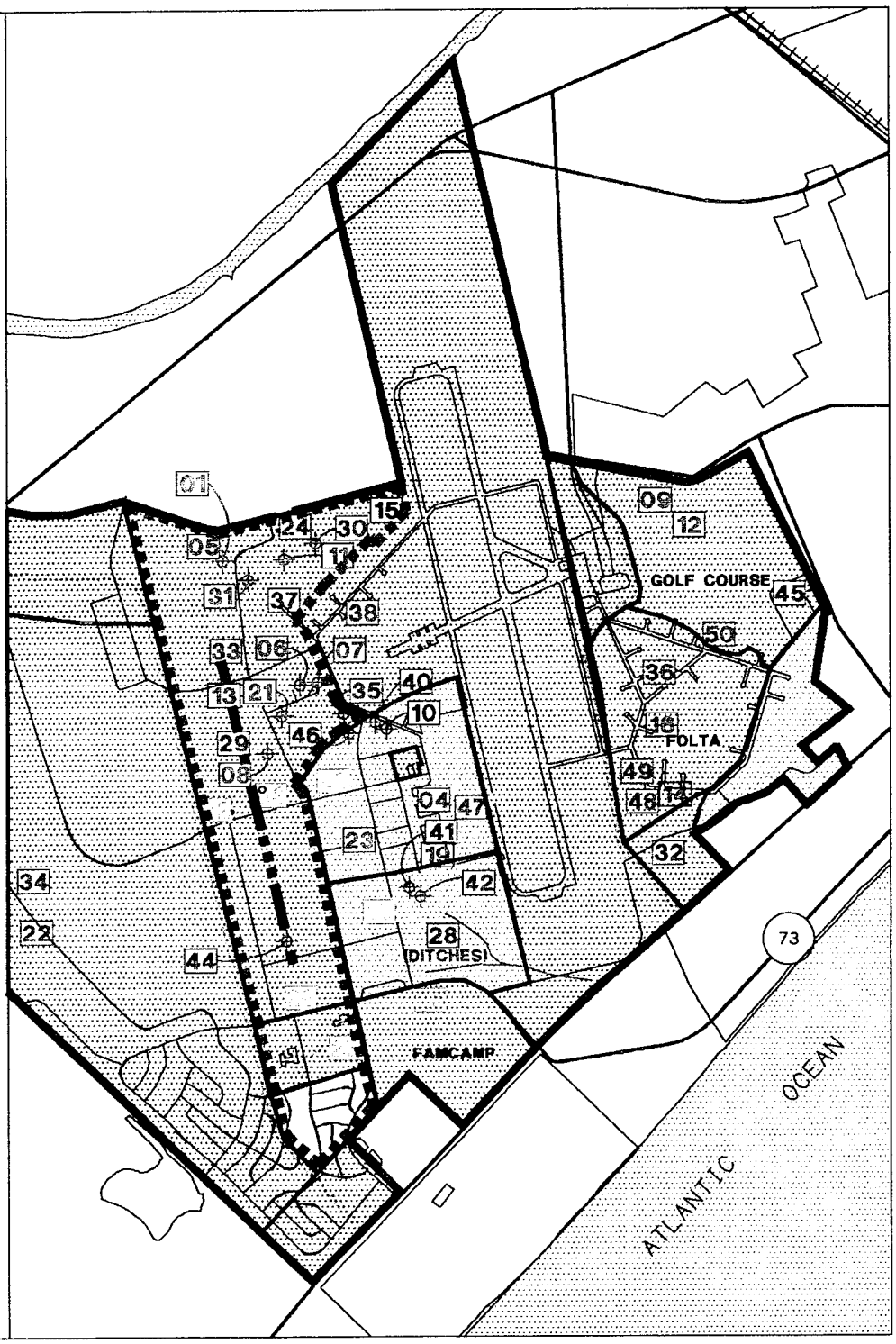
4.3.3.3 Installation Restoration Program (IRP) Sites. The assessment and remediation process for the IRP sites would be similar to that described for the Proposed Action. The IRP sites located within each land use area for this alternative are presented in Figure 4.3-3. The impacts due to IRP sites are essentially similar to the Expanded Airfield/Resort-Recreation Alternative.

4.3.3.4 Storage Tanks. Impacts associated with storage tanks would be as described for the Proposed Action.

4.3.3.5 Asbestos. Asbestos removal and management would be as discussed under the Proposed Action.

4.3.3.6 Pesticides. Pesticide usage under this alternative would increase from amounts used under closure baseline conditions as a result of increases in public and commercial land uses. Management practices would be subject to FIFRA and South Carolina regulations.

SITE NO.	FACILITY
WP-01	WEATHERING PIT 2
[illegible]	MB PIPELINE CO. NO. 2
[illegible]	POL BULK FUEL STORAGE
SS-04	FLIGHTLINE CONTAM AREA
LF-05	LANDFILL NO. 3
FT-06	FIRE TRAINING AREA 1
FT-07	FIRE TRAINING AREA 2
WP-08	WEATHERING PIT 1
LF-09	LANDFILL NO. 4
ST-10	WASTE CHEMICAL USTS
FT-11	FIRE TRAINING AREA 3
LF-12	LANDFILL NO. 1
LF-13	LANDFILL NO. 2
LF-14	LANDFILL NO. 5
RW-15	RADIOACTIVE VAULT
FT-16	FIRE TRAINING AREA 4
17	NOT USED
[illegible]	BX SERVICE STATION
SD-19	ENGINE SHOP DRAIN
[illegible]	MILITARY SERVICE STATION
DP-21	DRUM DISPOSAL PIT 1
DP-22	DRUM DISPOSAL PIT 2
SD-23	CE PAINT SHOP
SD-24	OLD ENTOMOLOGY SHOP
[illegible]	OLD WELL NO 2 (BLDG 103)
[illegible]	LIFT STATION 1 - BLDG 122
[illegible]	LIFT STATION 3 - BLDG 960
SD-28	DRAIN DITCH/STORM SEWER
SS-29	MB PIPELINE CO. NO. 1
WP-30	SEWAGE TREATMENT PLANT
OT-31	FIRING-IN BUTT
LF-32	MISQUE CONST. RUBBLE DUMP
OT-33	SMALL ARMS RANGE
OT-34	EOD PROFICIENCY RANGE
SD-35	FUEL BLADDER MAINT. AREA
SD-36	FUEL BLAD.TRAINING AREA
ST-37	WW II BULK FUEL STO. A
SS-38	OLD ENGINE TEST CELL
39	NOT USED
OT-40	BLDG. 505 STORAGE AREA
SS-41	AGE STORAGE YARD
SD-42	AGE WASHRACK
43	NOT USED
ST-44	AUTO HOBBY UST
SD-45	GOLF COURSE MAINT. AREA
ST-46	WWII OPS FUEL STO. A
ST-47	WWII OPS FUEL STO. B
ST-48	WWII OPS FUEL STO. C
ST-49	WWII BULK FUEL STO. B
ST-50	WWII OPS FUEL STO. D



EXPLANATION

- AIRFIELD
- AVIATION SUPPORT
- INDUSTRIAL
- INSTITUTIONAL (MEDICAL)
- INSTITUTIONAL (EDUCATIONAL) ×
- COMMERCIAL
- RESIDENTIAL
- PUBLIC FACILITIES & RECREATION
- AGRICULTURE ×
- VACANT LAND ×
- AIRFIELD EXPANSION
- PROPOSED RUNWAY
- ROAD REALIGNMENT
- × NOT APPLICABLE
- XX GROUP 1- RI OR RFI SITES
- XX GROUP 2- SC PETROLEUM SITES
- XX GROUP 3- CONFIRMATORY SAMPLING SITES
- XX NO FUTHER ACTION

0 1000 3000 feet

SOURCE: U. S. AIR FORCE, 1992

IRP SITES AND EXPANDED AIRFIELD/ RESORT-COMMERCIAL-INDUSTRIAL ALTERNATIVE

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.3-3

4.3.3.7 PCBs. All regulated PCB and PCB-contaminated equipment has been removed; therefore, these materials would not create any impacts.

4.3.3.8 Radon. Since all radon screening survey results were below the USEPA's recommended mitigation level of 4 pCi/L of air, there would be no impact on reuse activities.

4.3.3.9 Medical/Biohazardous Waste. All of these materials generated by the Air Force will be removed prior to base closure. Under this alternative, there would be interim hospital use until the runway is expanded. Provisions for handling medical/biohazardous wastes off site are currently in place since the existing incinerator is not operational. These same provisions would presumably be used.

4.3.3.10 Photochemical Waste. All photochemical waste would be removed and disposed of prior to base closure. Therefore, it would not present any impact. Some tenants may increase waste generation over baseline conditions.

4.3.3.11 Cumulative Impacts. No cumulative impacts would result under this alternative. Multiple small quantity waste generators would increase regulatory responsibility for the SCDHEC.

4.3.3.12 Mitigation Measures. The same mitigation measures applicable to the Proposed Action would be appropriate for activities associated with the Expanded Airfield/Resort-Commercial-Industrial Alternative.

4.3.4 EXISTING AIRFIELD/MIXED USE ALTERNATIVE

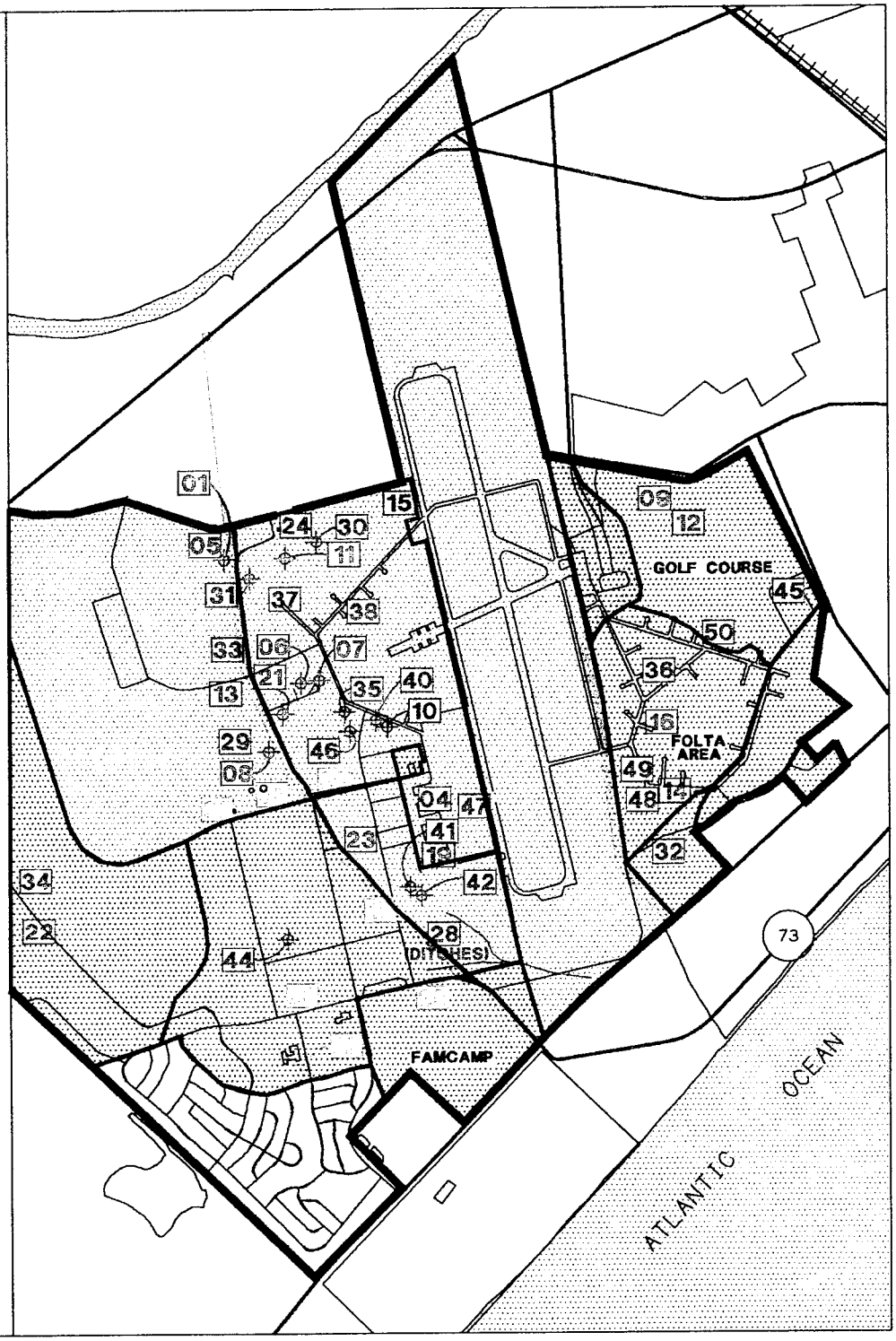
4.3.4.1 Hazardous Materials Management. The types of hazardous materials likely to be used for activities occupying the proposed land use zones for this alternative are similar to those identified in the Proposed Action. The quantities of hazardous materials used and hazardous waste generated would increase over the baseline conditions at closure. The organizations responsible for handling hazardous materials are similar to that described the Proposed Action.

4.3.4.2 Hazardous Waste Management. The proposed land use categories would host many operations that are yet to be completely defined. Management provisions would be similar to those described for the Proposed Action with the exception of a slight decrease due to no airfield expansion.

4.3.4.3 Installation Restoration Program (IRP) Sites. The assessment and remediation process for the IRP sites would be similar to that described for the Proposed Action except that fewer land uses would be impacted by proximity to IRP sites without airfield expansion. The IRP site impacts within each land use area for this alternative are discussed below, and site locations are presented in Figure 4.3-4.

Airfield and flightline operations impacts associated with IRP sites for this alternative would be minimal since very few IRP sites are believed to impact the existing airfield.

SITE NO.	FACILITY
WP-01	WEATHERING PIT 2
[illegible]	MB PIPELINE CO. NO. 2
[illegible]	POL BULK FUEL STORAGE
SS-04	FLIGHTLINE CONTAM AREA
LF-05	LANDFILL NO. 3
FT-06	FIRE TRAINING AREA 1
FT-07	FIRE TRAINING AREA 2
WP-08	WEATHERING PIT 1
LF-09	LANDFILL NO. 4
ST-10	WASTE CHEMICAL USTS
FT-11	FIRE TRAINING AREA 3
LF-12	LANDFILL NO. 1
LF-13	LANDFILL NO. 2
LF-14	LANDFILL NO. 5
RW-15	RADIOACTIVE VAULT
FT-16	FIRE TRAINING AREA 4
17	NOT USED
[illegible]	BX SERVICE STATION
SD-19	ENGINE SHOP DRAIN
[illegible]	MILITARY SERVICE STATION
DP-21	DRUM DISPOSAL PIT 1
DP-22	DRUM DISPOSAL PIT 2
SD-23	CE PAINT SHOP
SD-24	OLD ENTOMOLOGY SHOP
[illegible]	OLD WELL NO 2 (BLDG 103)
[illegible]	LIFT STATION 1 - BLDG 122
[illegible]	LIFT STATION 3 - BLDG 980
SD-28	DRAIN DITCH/STORM SEWER
SS-29	MB PIPELINE CO. NO. 1
WP-30	SEWAGE TREATMENT PLANT
OT-31	FIRING-IN BUTT
LF-32	MISQUE CONST. RUBBLE DUMP
OT-33	SMALL ARMS RANGE
OT-34	EOD PROFICIENCY RANGE
SD-35	FUEL BLADDER MAINT. AREA
SD-36	FUEL BLAD.TRAINING AREA
ST-37	WW II BULK FUEL STO. A
SS-38	OLD ENGINE TEST CELL
39	NOT USED
OT-40	BLDG. 505 STORAGE AREA
SS-41	AGE STORAGE YARD
SD-42	AGE WASHRACK
43	NOT USED
ST-44	AUTO HOBBY UST
SD-45	GOLF COURSE MAINT. AREA
ST-46	WWII OPS FUEL STO. A
ST-47	WWII OPS FUEL STO. B
ST-48	WWII OPS FUEL STO. C
ST-49	WWII BULK FUEL STO. B
ST-50	WWII OPS FUEL STO. D



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- ROAD REALIGNMENT
- XX GROUP 1- RI OR RFI SITES
- GROUP 2- SC PETROLEUM SITES
- XX GROUP 3- CONFIRMATORY SAMPLING SITES
- XX NO FUTHER ACTION

0 1000 3000 feet

SOURCE: U. S. AIR FORCE, 1992

IRP SITES AND EXISTING AIRFIELD/ MIXED USE ALTERNATIVE

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.3-4

Aviation support may be least impacted due to lack of IRP sites compared with other proposed uses. Provisions for monitoring well locations may have some impact.

Industrial and institutional development might be impacted by cleanup activities associated with a large number of IRP sites (37) in the institutional and industrial land use areas outlined in this alternative.

Public, recreation, residential, and commercial land use may be impacted in a similar manner as the Proposed Action pending IRP findings.

4.3.4.4 Storage Tanks. Impacts associated with storage tanks would be as described for the Proposed Action.

4.3.4.5 Asbestos. Asbestos removal and management would be as described under the Proposed Action.

4.3.4.6 Pesticides. Pesticide usage under this alternative would increase from amounts used under baseline conditions as a result of increases in public and commercial land uses. Management practices would be subject to FIFRA and South Carolina regulations.

4.3.4.7 PCBs. Since all regulated PCB equipment and PCB-contaminated equipment has been removed, there would be no impacts on reuse activities.

4.3.4.8 Radon. Since all radon screening survey results were below the USEPA's recommended mitigation level of 4 pCi/L of air, there would be no impact on reuse activities.

4.3.4.9 Medical/Biohazardous Waste. All of these materials will be removed prior to base closure. Under this alternative, there would be no hospital use; therefore, no medical/biohazardous wastes would be generated.

4.3.4.10 Photochemical Waste. All photochemical waste would be removed and disposed of prior to base closure. Therefore, it would not present any impact. Some tenants may increase the generation of these wastes over closure baseline conditions.

4.3.4.11 Cumulative Impacts. No cumulative impacts would result under the Existing Airfield/Mixed Use Alternative. Multiple small quantity waste generators would increase regulatory responsibility for the SCDHEC.

4.3.4.12 Mitigation Measures. The same mitigation measures applicable to the Proposed Action would be appropriate for activities associated with the Existing Airfield/Mixed Use Alternative.

4.3.5 NO-ACTION ALTERNATIVE (EXISTING AIRFIELD/CARETAKER)

The primary hazardous materials/waste issues associated with this alternative would concern the final phases of the IRP activities. Under the No-Action Alternative the OL would manage all generated hazardous and petroleum wastes under the applicable regulations. Painting and maintenance would be

the primary activities that would use hazardous materials and generate hazardous wastes.

4.3.5.1 Hazardous Materials Management. Hazardous materials would be used in preventive and regular maintenance activities and grounds maintenance. The materials used for these activities would include pesticides, fuels, paints, and corrosives. The quantities of hazardous materials used would essentially be the same as the baseline conditions at closure. The OL must be responsible for hazardous materials handling training, as well as hazardous materials communication requirements of OSHA regulations.

4.3.5.2 Hazardous Waste Management. With the exception of facilities used by OL personnel, all accumulation and satellite accumulation points would be closed and the Defense Reutilization and Marketing Office (DRMO) would dispose of all hazardous waste prior to closure. Both RCRA-permitted storage facilities would initiate closure activities when interim status lapses on November 8, 1992; closure of RCRA storage units would be complete after base closure. The small amount of hazardous waste that would be generated after base closure under the No-Action Alternative would most likely enable the OL to become a conditionally exempt, small-quantity generator. The OL would comply with all RCRA and SCDHEC hazardous waste regulations.

4.3.5.3 Installation Restoration Program (IRP) Sites. Ongoing sampling, soil cleanup, and groundwater remedial activities would be continued by the individual IRP contractors. The OL would support the utility requirements for these contractors and provide security for the IRP areas. Figure 4.3-5 shows the locations of IRP sites within the land use areas. Because the contaminant plume from IRP Site SD-19 extends beneath the taxiway, cleanup activities may impact continued airfield operations.

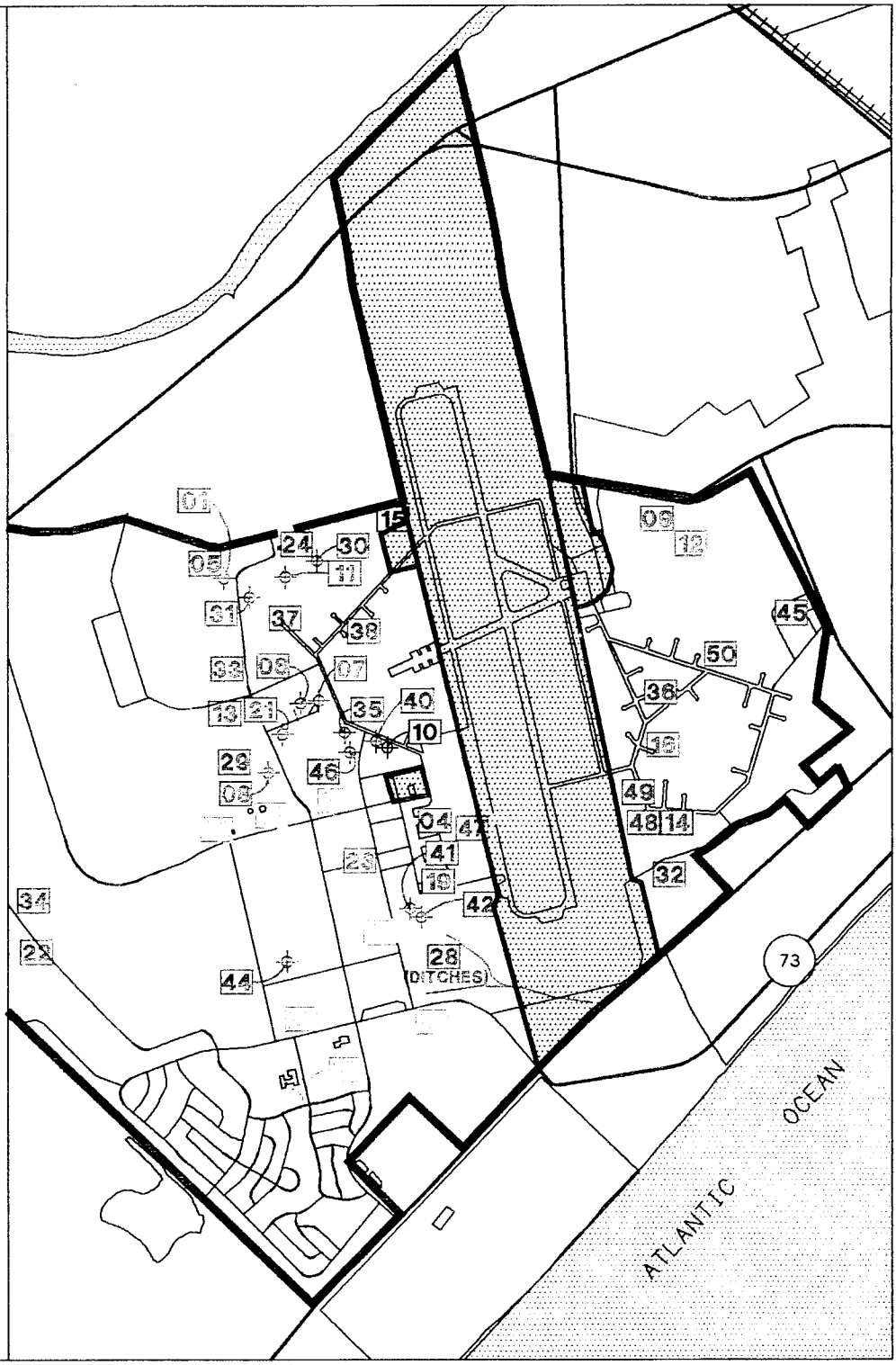
4.3.5.4 Storage Tanks. USTs remaining at Myrtle Beach AFB would be managed by the OL. Cathodic protection and leak detection systems on the USTs would be the responsibility of the OL. Federal and South Carolina regulations require the closure of USTs out of service for one year or longer.

The Air Force ceased JP-4 fuel delivery through the Myrtle Beach Pipeline Company in July 1992 and plans to consume or remove its JP-4 fuel reserves by March 1993. Any remaining fuel could be piped back to a barge on the Intracoastal Waterway and shipped to Charleston, South Carolina. Both the Air Force and the Myrtle Beach Pipeline Company tentatively plan to drain and clean their respective JP-4 lines followed by installing grout caps at all end points.

The above ground storage tanks would be purged of fuel fumes to preclude fire hazards and removed based on need. The OL would provide cathodic protection, repair, and maintenance of the above ground storage tanks and piping.

4.3.5.5 Asbestos. The impacts from the No-Action Alternative would be minimal. Vacated facilities would be secured to prevent contact with ACM if the No-Action Alternative were implemented. Upon completion of the asbestos survey, management of ACM will be accomplished to ensure a safe site environment.

SITE NO.	FACILITY
WP-01	WEATHERING PIT 2
[illegible]	MB PIPELINE CO. NO. 2
[illegible]	POL BULK FUEL STORAGE
SS-04	FLIGHTLINE CONTAM AREA
LF-05	LANDFILL NO. 3
FT-06	FIRE TRAINING AREA 1
FT-07	FIRE TRAINING AREA 2
WP-08	WEATHERING PIT 1
LF-09	LANDFILL NO. 4
ST-10	WASTE CHEMICAL USTS
FT-11	FIRE TRAINING AREA 3
LF-12	LANDFILL NO. 1
LF-13	LANDFILL NO. 2
LF-14	LANDFILL NO. 5
RW-15	RADIOACTIVE VAULT
FT-16	FIRE TRAINING AREA 4
17	NOT USED
[illegible]	BX SERVICE STATION
SD-19	ENGINE SHOP DRAIN
[illegible]	MILITARY SERVICE STATION
DP-21	DRUM DISPOSAL PIT 1
DP-22	DRUM DISPOSAL PIT 2
SD-23	CE PAINT SHOP
SD-24	OLD ENTOMOLOGY SHOP
[illegible]	OLD WELL NO 2 (BLDG 103)
[illegible]	LIFT STATION 1 - BLDG 122
[illegible]	LIFT STATION 3 - BLDG 960
SD-28	DRAIN DITCH/STORM SEWER
SS-29	MB PIPELINE CO. NO. 1
WP-30	SEWAGE TREATMENT PLANT
OT-31	FIRING-IN BUTT
LF-32	MISQUE CONST. RUBBLE DUMP
OT-33	SMALL ARMS RANGE
OT-34	EOD PROFICIENCY RANGE
SD-35	FUEL BLADDER MAINT. AREA
SD-36	FUEL BLAD.TRAINING AREA
ST-37	WW II BULK FUEL STO. A
SS-38	OLD ENGINE TEST CELL
39	NOT USED
OT-40	BLDG. 505 STORAGE AREA
SS-41	AGE STORAGE YARD
SD-42	AGE WASHRACK
43	NOT USED
ST-44	AUTO HOBBY UST
SD-45	GOLF COURSE MAINT. AREA
ST-46	WWII OPS FUEL STO. A
ST-47	WWII OPS FUEL STO. B
ST-48	WWII OPS FUEL STO. C
ST-49	WWII BULK FUEL STO. B
ST-50	WWII OPS FUEL STO. D



EXPLANATION

- AIRFIELD
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- AGRICULTURE ×
- VACANT LAND ×
- × NOT APPLICABLE
- XX GROUP 1- RI OR RFI SITES
- GROUP 2- SC PETROLEUM SITES
- XX GROUP 3- CONFIRMATORY SAMPLING SITES
- XX NO FUTHER ACTION

0 1000 3000 feet

SOURCE: U. S. AIR FORCE, 1992

IRP SITES AND NO-ACTION ALTERNATIVE

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.3-5

4.3.5.6 Pesticides. Under the No-Action Alternative, the grounds and golf course would be maintained in such a manner as to facilitate economic resumption of use. There would not be an increase in the use of pesticides from the closure baseline. Application of pesticides would be conducted in accordance with FIFRA and South Carolina regulations to assure the proper and safe handling and application of all chemicals.

4.3.5.7 PCBs. All regulated PCB-transformers and PCB-contaminated equipment have been removed; therefore, these materials would not create any impacts.

4.3.5.8 Radon. Since all radon screening survey results were below USEPA's recommended mitigation level of 4 pCi/L of air, there would be no impacts from implementation of the No-Action Alternative.

4.3.5.9 Medical/Biohazardous Waste. All existing materials would be removed prior to closure; therefore, these materials would not create an impact under the No-Action Alternative.

4.3.5.10 Photochemical Waste. All such waste would be removed prior to closure, and these materials would not create an impact.

4.3.5.11 Cumulative Impacts. No cumulative impacts would result under the No-Action Alternative.

4.3.5.12 Mitigation Measures. Under the No-Action Alternative, the OL would be responsible for the basewide management of hazardous materials and hazardous waste. Contingency plans developed to address spill response would be less extensive than those required for the Proposed Action or the other reuse alternatives. Implementation of such procedures could effectively mitigate any potential impacts associated with the No-Action Alternative.

4.4 NATURAL ENVIRONMENT

This section describes the potential effects on the natural resources of soils and geology, water resources, noise, biological resources, and cultural resources in the ROI.

4.4.1 SOILS AND GEOLOGY

This section describes the potential effects of the Proposed Action and alternatives on the local soils and geology. Soils and geology would be affected largely during the construction phase, when local soil profiles would be altered. After construction, soils would remain relatively stable because they would be overlain by facilities, pavements, or vegetation that would minimize erosion. It is assumed that all construction materials would be transported onto the base area from off-site sources and that there would be no reduction of raw materials from the base. Use of sand and gravel resources for construction material for new facilities would not be expected to reduce availability of these materials from local supplies; thus there would be no impacts from an irreversible commitment of these resources.

The RAM for soils and geology is presented in Table 4.4-1.

Table 4.4-1. Resource Assessment Matrix - Soils and Geology, 2013

Evaluation Criteria	Unit of Measurement	Proposed Action	Alternative[1] 1	2	3	3a	No-Action
Total disturbance of moderately to highly erodible soils	Acres	10	10	10	10	10	0
Total disturbance by construction/demolition	Acres	1,959	1,713	1,995	1,443	1,456	0
Removal of stabilizing vegetation	Acres	1,316	1,256	1,316	1,316	1,316	0
Erosion potential	Tons/year[2]	33,785/ 6,757	29,542/ 5,908	34,406/ 6,881	24,886/ 4,977	25,110/ 5,022	0/0

[1]Alternatives 1, 2, 3 are the Expanded Airfield/Resort-Recreation, Expanded Airfield/Resort-Commercial-Industrial, and Existing Airfield/Mixed Use Alternatives, respectively. 3a is the Restricted Second Runway Option to the Existing Airfield/Mixed Use Alternative.
[2]Numbers refer to without/with mitigation.

4.4.1.1 Proposed Action (Expanded Airfield/Resort-Education)

The effects on soils and geology would result primarily from the construction activities associated with the Proposed Action, such as grading, excavating, and recontouring the soils. These activities could alter soil profiles and the local topography. Previously undeveloped areas would be most affected by construction-related activities.

Only one soil type (Lakeland sand) is considered moderately to highly susceptible to wind erosion, and preventative measures would be required to minimize erosion. However, during construction, removal of the vegetative cover and disturbance of soils by trenching or grading activities would increase the potential for erosion by wind and water for all soil types at the base.

The majority of the soil types (83 percent of land surface) have low suitability for site development due to extreme wetness. This limiting factor is difficult to reduce by conventional means of draining and/or filling.

Many of the on-base areas that would be affected by construction activities have been previously developed and renovation of existing facilities would not likely create new impacts. However, in the northwest portion of the base, which is relatively undeveloped, the construction of the proposed destination resort would affect the soils in this area as the alteration of natural surfaces and soil conditions would occur as a result of grading, trenching, and vehicular traffic across undeveloped land surfaces.

Approximately 1,316 acres of stabilizing vegetation are estimated to be temporarily removed during construction as indicated in Table 4.4-1. Approximately 1,256 acres of vegetation would be disturbed in the northwest section of the base during construction of the proposed destination resort, aviation support facilities, and expansion of the airfield. The estimated amount of stabilizing vegetation anticipated to be removed in these areas was determined from natural resource data presented in Section 3.4.5.1.

Approximately 1,959 acres of land potentially would be disturbed under this alternative. As indicated in Table 4.4-1, only approximately 10 acres of

moderately to highly erodible soils (Lakeland sand) are expected to be affected during construction of the proposed aviation-related industry facilities.

Table 4.4-2 identifies the approximate acreages that would be disturbed under the Proposed Action in each of the three phases (1993-1998, 1998-2003, and 2003-2013) after base closure. Soils in the various land use areas, with the exception of open-space recreational areas, or in interim educational or residential areas where existing structures are to be used, have the potential of being affected by construction operations. The impacts to the soils would be considered short-term disturbances. Once construction is completed, impacts would be discontinued as the soils would be covered by facilities, pavement, or vegetation. It does not appear that there would be long-term impacts to the soils under the Proposed Action.

Table 4.4-2. Estimated Acreage to be Disturbed at 5-, 10-, and 20-Year Intervals - Proposed Action

Land Use	1993-1998	1998-2003	2003-2013	Total
Airfield (expansion)	0	0	461	461
Aviation support	169	0	48	217
Destination resort	800	0	0	800
Commercial	91	0	0	91
Aviation-related industry	290	0	0	290
Industrial expansion	100	0	0	100
Total	1,450	0	509	1,959

Construction-related activities associated with the proposed industrial expansion (100 acres), commercial areas (91 acres), aviation support (217 acres), aviation-related industry (290 acres), airport expansion including a second runway (461 acres), and the destination resort area (800 acres) have the potential to disturb the soils. Wetlands are present in the proposed 800-acre destination resort area and there is the potential that the wetlands would be disturbed during construction. However, a portion of the wetlands could be incorporated into the proposed resort golf course and left undisturbed. The proposed sports and recreation and air museum areas are not expected to impact soils as existing structures are proposed to be used and new construction is expected to be minor.

Cumulative Impacts. No cumulative effects on soils are anticipated under this alternative.

Mitigation Measures. Mitigation measures are available to minimize erosion problems associated with wind and water, especially during the construction phase when trenches and cut slopes are exposed. During construction, the length of time vegetation and other cover is absent should be minimized. The maximum loss of soil would occur during construction when soils are susceptible to erosion, especially if the soils are not protected by cover materials (mulch/straw). Based upon an analysis using the Universal Soil Loss Equation, it can be shown that with proper cover protection, the estimated annual soil loss can be reduced from approximately 0.10 inch to approximately 0.02 inch. Table 4.4-1 indicates the estimated erosion potential in tons per year without and with mitigation measures for each of the alternatives. This

differential in soil loss potential is significant and demonstrates the need for proper construction mitigation techniques that should be implemented during all planned construction phases.

When cut slopes are exposed, any of the following measures may be useful in limiting erosion.

- Add protective covering with mulch, straw, or other synthetic material (tacking would be required).
- Limit the amount of area disturbed and the length of time slopes and barren ground are left exposed.
- Construct diversion dikes and interceptor ditches to divert water away from construction areas.
- Install slope drains (conduits) and/or water velocity-control devices to reduce concentrated high velocity streams.

After the construction phase, long-term erosion control could be accomplished by keeping soils under vegetative cover and planting wind breaks. The types of vegetation used as wind breaks must comply with FAA standards in areas intended for aircraft runways. After construction, soils underlying facilities and pavements would not be subject to erosion.

Irretrievable Commitments of Resources. The Proposed Action should not cause adverse impacts due to irreversible or irretrievable commitments of resources. There are no known nonrenewable mineral resources at the base. Sand and gravel obtained in the vicinity and used for construction of the facilities in the Proposed Action are present in sufficient amounts that their commitment would not have an adverse impact.

4.4.1.2 Expanded Airfield/Resort-Recreation Alternative

Under this alternative, the effects on soils and geology would be similar to the Proposed Action, and would be the result of construction-related activities.

Approximately 1,316 acres of stabilizing vegetation are estimated to be temporarily removed during construction of the proposed destination resort and airfield expansion.

Approximately 1,713 acres of land potentially would be disturbed under this alternative. Only 10 acres of Lakeland sand are expected to be affected during the expansion of the airfield where preventative measures would be required to minimize erosion of this moderately to highly erodible soil.

Table 4.4-3 identifies the approximate acreages that would be disturbed under this alternative in each of the three phases (1993-1998, 1998-2003, and 2003-2013) after base closure. This disturbance of soils would be considered short-term and would be discontinued once construction was complete. It does not appear that there would be long-term impacts to the soils under this alternative. The assumptions are that soils have the potential to be disturbed during construction or demolition activities associated with the airfield

expansion (498 acres), destination resort (870 acres), commercial areas (260 acres), and the proposed industrial expansion (85 acres). Wetlands are present in the proposed destination resort area and could be disturbed during construction; however, a portion of the wetlands could be incorporated into the proposed resort golf course and left undisturbed. It is anticipated that no new construction would be required for aviation support and related industry facilities, medical facilities, residential areas, or recreation facilities. Construction activities associated with the air museum are expected to be relatively minor.

Table 4.4-3. Estimated Acreage to be Disturbed at 5, 10, and 20-Year Intervals - Expanded Airfield/Resort-Recreation Alternative

Land Use	1993-1998	1998-2003	2003-2013	Total
Airfield (expansion)	0	0	498	498
Destination resort	870	0	0	870
Commercial	260	0	0	260
Industrial expansion	85	0	0	85
Total	1,215	0	498	1,713

Cumulative Impacts. No cumulative effects on soils are anticipated under this alternative.

Mitigation Measures. Potential mitigation measures would be similar to those discussed in the Proposed Action.

Irretrievable Commitments of Resources. The impact on resources would be the same as the Proposed Action.

4.4.1.3 Expanded Airfield/Resort-Commercial-Industrial Alternative

The effects on soils and geology would be similar to the Proposed Action and would be the result of construction activities such as grading, excavating, and recontouring. Approximately 1,995 acres of land potentially would be disturbed under this alternative. Ten acres of moderately to highly erodible soil (Lakeland sand) are expected to be affected during the construction of the R&D complex.

Approximately 1,316 acres of stabilizing vegetation are estimated to be temporarily removed during construction. Approximately 1,256 acres of vegetation would be disturbed in the northwest part of the base during construction of the proposed destination resort and airfield expansion. Another 60 acres of vegetation are estimated to be temporarily removed during construction of the R&D complex.

Table 4.4-4 identifies the approximate acreage that would be disturbed under this alternative in each of the three phases (1993-1998, 1998-2003, and 2003-2013) after closure. This disturbance of soils would be considered short-term, and long-term impacts are not anticipated under this alternative. The assumptions are that soils have the potential to be disturbed during construction or demolition activities associated with the airfield expansion (602

acres), destination resort (915 acres), R&D complex (149 acres), commercial areas (244 acres), and the proposed industrial expansion (85 acres). Wetlands have the potential to be disturbed during construction of the destination resort commercial areas and during the airfield expansion. A portion of the wetlands could be incorporated into the resort golf course design and left undisturbed. The remaining wetland acres in the northwest portion of the base have the potential to be affected during construction of the commercial areas and airfield expansion. It is anticipated that no new construction would be required for aviation support and related industry facilities, medical facilities, residential areas, or recreational facilities. Construction activities associated with the air museum are expected to be relatively minor.

Table 4.4-4. Estimated Acreage to be Disturbed at 5, 10, and 20-Year Intervals - Expanded Airfield/Resort-Commercial-Industrial Alternative

Land Use	1993 1998	1998-2003	2003-2013	Total
Airfield (expansion)	0	0	602	602
Destination resort	915	0	0	915
R&D	149	0	0	149
Commercial	244	0	0	244
Industrial expansion	85	0	0	85
Total	1,393	0	602	1,995

Cumulative Impacts. No cumulative effects on soils are anticipated under this alternative.

Mitigation Measures. Potential mitigation measures would be similar to those discussed in the Proposed Action.

Irretrievable Commitment of Resources. The impacts on resources would be as described for the Proposed Action.

4.4.1.4 Existing Airfield/Mixed Use Alternative

The effects on soils and geology would be the result of construction activities such as grading, excavating, and recontouring. Approximately 1,443 acres of land potentially would be disturbed under this alternative. Ten acres of moderately to highly erodible soil (Lakeland sand) are expected to be disturbed during the construction of the R&D complex and the commercial area southwest of the flightline. An additional 13 acres of land could be disturbed under this alternative with the Restricted Second Runway Option.

Approximately 1,316 acres of stabilizing vegetation are estimated to be temporarily removed during construction of the proposed PGA golf course and industrial areas.

Table 4.4-5 identifies the approximate acreages that would be disturbed under this alternative in each of three phases (1993-1998, 1998-2003, 2003-2013) after closure. This disturbance of soils would be considered short-term, and long-term impacts are not anticipated under this alternative. The assumptions are that soils have the potential to be disturbed during construction or

demolition activities associated with a portion of the aviation-related industry land use (210 acres), the R&D complex (124 acres), the correctional facility (538 acres), commercial areas (86 acres), and the PGA golf course (485 acres). It is anticipated that one-half of the proposed aviation-related industry reuse would use existing facilities. Wetlands have the potential of being disturbed during construction of the PGA golf course and industrial areas in the northwest portion of the base. However, the majority of the wetlands could be incorporated into the golf course and left undisturbed. The remaining wetland acreage may or may not be affected. Aviation support areas and the existing runway would not change. Educational, recreational, and residential areas would use existing facilities. The air museum would involve relatively minor new construction.

Table 4.4-5. Estimated Acreage to be Disturbed at 5, 10, and 20-Year Intervals - Existing Airfield/Mixed Use Alternative

Land Use	1993-1998	1998-2003	2003-2013	Total
Aviation-related industry	210	0	0 (13)	210(223)
R&D	124	0	0	124
Correctional facility	538	0	0	538
Commercial	86	0	0	86
PGA golf course	485	0	0	485
Total	1,443	0	0 (13)	1,443(1,456)

(#): Acres disturbed with Restricted Second Runway Option.

Cumulative Impacts. No cumulative impacts on soils are anticipated under this alternative.

Mitigation Measures. Potential mitigation measures would be similar to those discussed in the Proposed Action.

Irretrievable Commitments of Resources. The impacts on resources would be as described for the Proposed Action.

4.4.1.5 No-Action Alternative (Existing Airfield/Caretaker)

The No-Action Alternative would not precipitate any additional impacts to the soils and geology of the base area and the surrounding region. The construction operations associated with this alternative would be minimal or non-existent and restricted to maintenance-type activities.

Cumulative Impacts. No cumulative effects on soils or geology are anticipated.

Mitigation Measures. Mitigation measures for soils or geology would not be required under this alternative.

Irretrievable Commitments of Resources. No irretrievable commitments of resources are anticipated.

4.4.2 WATER RESOURCES

The following sections describe the potential impacts on water resources as a result of the Proposed Action and alternatives. New development could alter land surface conditions and natural drainages, which, in turn, may alter surface water flow patterns and water quality. In addition, new development would increase potable water demand on public water supply systems. Groundwater conditions at Myrtle Beach AFB cannot withstand further substantial water supply development without the threat of saltwater intrusion. However, surface water supplies are available.

Projections of potable water demand are based on projected numbers of employees, visitors, residents, and other potential water consumers for each reuse alternative. Nonpotable water demands for irrigation or recreational uses were estimated based upon proposed acreages and application rates obtained from current withdrawals.

4.4.2.1 Proposed Action (Expanded Airfield/Resort-Education)

Surface Water. The RAM for surface water is presented in Table 4.4-6.

Under the Proposed Action, it is estimated that approximately 1,200 acres of undeveloped land would be subject to development activities. About 85 percent of this land is located on the northern portion of the base. Storm water runoff from this area would be discharged to the Intracoastal Waterway. Furthermore, about 500 acres of semi-improved land also would undergo construction activities. Most of this land, which drains to the Atlantic Ocean, would be occupied by proposed light industrial, and public facilities and recreation land uses.

It is estimated that additional development would result in increasing the average runoff/rainfall ratio from 0.20 at baseline conditions to about 0.27 once initial development is complete. This increase in the runoff/rainfall ratio represents an increase of 38 percent in total expected annual runoff, from 132 to 183 million cubic feet. About 51 percent of the total runoff would be drained to the Intracoastal Waterway. The remaining 49 percent would be drained to the Atlantic Ocean. Mean runoff volumes by total acreage in each land use category at development conditions prior to 2010 are shown in Table 4.4-7. Expected runoff from both the 100-year and 10-year storms would increase by about 7 and 10 percent, respectively.

After 2010, part of the area adjacent to the educational, commercial, and public facilities and recreation land uses would be converted to airfield and aviation support uses. This land conversion would result in a reduction of impermeable land at the base from the initial 1993-2010 development conditions, and consequently in a reduction of expected annual runoff. The area-weighted average runoff/rainfall ratio would then be equal to 0.26, which represents a 30 percent increase from baseline conditions. In terms of total runoff volume, the estimated increase from baseline would be 18 percent, from 132 to 173 million cubic feet. About 54 percent of this runoff would drain to the Intracoastal Waterway. Total runoff volumes by land use category are shown in Table 4.4-8. Runoff from both the 100-year and 10-year storms also

Table 4.4-6. Resource Assessment Matrix - Surface Water, 2013

Evaluation Criteria	Unit of Measurement	Proposed Action	Alternative* 1	2	3	No-Action
Hydrology						
Alteration of flow patterns and runoff volumes - average and peak flow rates	Percent change from baseline	+38%	+4%	+5%	+6%	0
Changes in sediment load, sedimentation rates, and erosion	Percent change from baseline	+48%	+12%	+15%	+35%	-50%
Changes to permeability of ground cover	Land area and percentage of impermeable cover	+325 acres +9%	+13 acres +<1%	+88 acres +2%	+850 acres +23%	0
Quality						
Changes in sediment load	Percent change	+48%	+15%	+15%	+35%	-50%
Water quality changes due to effluent discharges of USEPA's priority pollutants	Percent change from baseline	+76% metals & pesticides	+24% metals & pesticides	+35% metals & pesticides	+94% metals & pesticides	Improvements below regulated levels
Changes to physical or biological surface water parameters	Percent change from baseline	+66% conventional pollutants	+39% conventional pollutants	+30% conventional pollutants	+88% conventional pollutants	Improvements below regulated levels
Water quality changes during project construction	Acres requiring erosion control	1,000	700	750	1,800	0

*Alternatives 1, 2, 3 are the Expanded Airfield/Resort-Recreation, Expanded Airfield/Resort-Commercial-Industrial, and Existing Airfield/Mixed Use Alternatives, respectively.
Note: Mitigation cannot be quantified at this time. Developers must comply with federal, state, and local mitigation requirements.

Table 4.4-7. Mean Annual Runoff by Land Use Category - Proposed Action, Conditions Prior to 2010

Land Use	Area (Acres)	Rain/ Runoff	Runoff (1,000 cf)
Airfield	1,159	0.13	27,073
Aviation Support	231	0.80	33,206
Industrial	446	0.50	40,070
Commercial	214	0.50	19,226
Educational	234	0.62	26,069
Residential	117	0.32	6,727
Public Facilities & Recreation	1,343	0.13	31,371
Total area (acres)			3,744
Total runoff (1,000 cf)			183,742
Total rainfall (1,000 cf)			672,741
Runoff/rainfall			0.27

Table 4.4-8. Mean Annual Runoff by Land Use Category - Proposed Action, Conditions After 2010

Land Use	Area (Acres)	Rain/ Runoff	Runoff (1,000 cf)
Airfield	1,445	0.13	33,754
Aviation Support	279	0.80	40,106
Industrial	446	0.50	40,070
Commercial	91	0.50	8,176
Educational	85	0.62	20,610
Residential	0	0.32	0
Public Facilities & Recreation	1,298	0.13	30,320
Total area (acres)			3,744
Total runoff (1,000 cf)			173,036
Total rainfall (1,000 cf)			672,741
Runoff/rainfall			0.26

would be expected to increase by about 5 and 7 percent from baseline, respectively.

To avoid negative impacts of added runoff due to new development, the city of Myrtle Beach enacted its Storm Water Management Ordinance 85-35 on October 15, 1985. Since the Myrtle Beach AFB site will be under the city's jurisdiction once the base is closed, new developments would likely be required to comply with this ordinance. This ordinance establishes that the quantity and rate of runoff discharge in any 24-hour period cannot exceed pre-development conditions. These criteria would have to be met by development projects in previously undeveloped land as well as redevelopment projects. It is estimated that between 5 and 10 percent of the area to be developed would have to be set aside for runoff retention/detention facilities. New development would alter drainage patterns. It is expected that these patterns would be modified within the base site. However, since runoff conditions outside of the base would have to comply with the city's storm water guidelines, existing drainage channels and ditches transporting the runoff to the receiving water bodies would probably not require modifications to accommodate expected runoff flows.

In general, the larger degree of development in the area would increase expected flood damages due to wind-driven flooding surges and hurricanes. However, the extent of the 100-year floodplain, because it is determined by wind-driven ocean surges, is expected to remain unaltered from baseline conditions. A portion of land proposed for airfield and public facilities and recreation uses would be included in the floodplain. Flood damage impacts, which are expected to be minimum due to the nature of the land uses affected, can be controlled by proper design at the development stage.

Surface water quality impact due to new development was evaluated by estimating the change in annual pollutant loads (conventional pollutants and heavy metals and pesticides) from baseline conditions. Pollutant concentrations by land use category were obtained from the literature

(Engineering-Science, 1990; Polls, 1980; Shelley and Gaboury, 1986; USEPA, 1983; Weeks, 1982). An estimated 57 and 59 percent of the total pollutant load would be generated in the north drainage basin for development conditions prior to and after 2010, respectively. Calculations are shown in Tables 4.4-9 through 4.4-12. Ratio comparisons shown in Table 4.4-13 indicate that, on average, pollutant loads after development would increase by 66 percent from baseline conditions between 1993 and 2010. After 2010, the percent increase from baseline would be 72 percent.

Table 4.4-13. Annual Pollutant Load Ratios - Proposed Action

Chemical Parameter	Ratio 1[1]	Ratio 2[2]
BOD-5	1.75	1.72
Total suspended solids	1.48	1.58
Total nitrogen	1.74	1.62
Oil and grease	1.75	1.70
Total phosphorus	1.57	1.68
Copper	1.87	1.83
Zinc	1.75	1.82
Chromium	1.55	1.76
Lead	1.45	1.67
Nickel	1.28	1.55
Pesticides	1.77	1.94
MEAN	1.63	1.72

[1] = Ratio between Proposed Action to baseline pollutant loads at conditions before 2010.
[2] = Ratio between Proposed Action to baseline pollutant loads at conditions after 2010.

Public water supply is another issue concerning surface water resources in the area. As indicated previously, after closure, the base site is likely to obtain water from agencies using the Intracoastal Waterway for supply. According to a U.S. Geological Survey (USGS) study, the supply yield of that water body is about 50 MGD. According to the city of Myrtle Beach projections including the base's site, the water demand at built-out conditions in the city's service area is expected to be between 35 and 40 MGD. The additional expected potable water demand for this alternative is about 2 MGD. Therefore, it appears that surface water supply would not be a limitation for future development at the base.

Mitigation Measures. The city of Myrtle Beach Storm Water Management Ordinance described previously also provides for water quality protection from new development by requiring all new developments to retain at least the first inch of runoff generated in the area to control for first-flush conditions. Although no specific numerical criteria exist regarding water quality at the discharge site of the treatment facilities, it is estimated that this approach guarantees that water quality is the same before and after development. To comply with this requirement, runoff treatment facilities such as retention/detention ponds and/or subsurface exfiltration units would need to be developed.

Table 4.4-9. Estimated Concentrations and Loads of Conventional Pollutants - Proposed Action, Conditions Prior to 2010

	BOD_5[1]		Total Suspended Solids		Total Nitrogen		Oil & Grease		Total Phosphorus	
	mg/L	lbs/yr	mg/L	lbs/yr	mg/l	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr
Airfield	14	23,671	266	449,754	1.2	2,029	0.4	676	1.2	2,029
Aviation support	14	29,033	266	551,633	1.2	2,489	0.4	830	1.2	2,488
Industrial	14	35,035	99	247,745	1.4	3,502	0.4	1,001	1.2	3,003
Commercial	9	10,807	69	82,851	1.2	1,441	0.3	360	0.2	240
Educational	9	14,653	69	112,337	1.2	1,954	0.3	488	0.2	326
Residential	10	4,201	101	42,435	1.9	798	0.3	126	0.38	159
Public facilities & recreation	13	25,470	101	197,882	1.9	3,723	0.3	588	0.38	745
Total load		142,870		1,684,637		15,936		4,069		8,990
North Drainage Basin		77,317		965,772		8,163		2,152		5,372
South Drainage Basin		65,553		718,865		7,773		1,917		3,618

[1]5-day biological oxygen demand.

Table 4.4-10. Estimated Concentrations of Metals and Pesticides - Proposed Action, Conditions Prior to 2010

	Copper		Zinc		Chromium		Lead		Nickel		Pesticides	
	mg/L	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr
Airfield	0.04	68	0.66	1,116	0.58	981	0.98	1,657	0.67	1,133	4.4	7.4
Aviation support	0.04	83	0.66	1,369	0.58	1,203	0.98	2,033	0.67	1,389	4.4	9.1
Industrial	0.1	250	1.08	2,703	0.58	1,451	0.49	1,226	0.03	75	5.8	14.5
Commercial	0.029	35	0.22	264	0.04	48	0.1	120	0.03	36	3	3.6
Educational	0.029	47	0.22	358	0.04	65	0.1	163	0.03	49	3	4.9
Residential	0.033	14	0.14	59	0.02	8	0.14	59	0.03	13	3.2	1.3
Public facilities & recreation	0.033	65	0.14	274	0.02	39	0.14	274	0.03	59	3.2	6.3
Total load		561		6,143		3,796		5,532		2,754		47
North Drainage Basin		312		3,602		2,363		3,375		1,726		26
South Drainage Basin		249		2,541		1,433		2,157		1,028		21

Table 4.4-11. Estimated Concentrations and Loads of Conventional Pollutants - Proposed Action, Conditions After 2010

	BOD_5[1]		Total Suspended Solids		Total Nitrogen		Oil & Grease		Total Phosphorus	
	mg/L	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr
Airfield	14	29,512	266	560,737	1.2	2,530	0.4	843	1.2	2,530
Aviation support	14	35,066	266	666,258	1.2	3,007	0.4	1,002	1.2	3,006
Industrial	14	35,035	99	247,746	1.4	3,503	0.4	1,001	1.2	3,003
Commercial	9	4,595	69	35,231	1.2	613	0.3	153	0.2	102
Educational	9	11,584	69	88,813	1.2	1,545	0.3	386	0.2	257
Public facilities & recreation	13	24,617	101	191,252	1.9	3,598	0.3	568	0.38	720
Total load		140,410		1,790,037		14,794		3,953		9,617
North Drainage Basin		79,622		1,068,664		8,102		2,201		5,895
South Drainage Basin		60,788		721,373		6,692		1,752		3,722

[1]5-day biological oxygen demand.

Table 4.4-12. Estimated Concentrations of Metals and Pesticides - Proposed Action, Conditions After 2010

	Copper		Zinc		Chromium		Lead		Nickel		Pesticides	
	mg/L	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr
Airfield	0.04	84	0.66	1,390	0.58	1,223	0.98	2,066	0.67	1,412	4.4	9.3
Aviation support	0.04	100	0.66	1,653	0.58	1,453	0.98	2,455	0.67	1,678	4.4	11.0
Industrial	0.1	250	1.08	2,703	0.58	1,451	0.49	1,226	0.03	75	5.8	14.5
Commercial	0.029	14	0.22	112	0.04	20	0.1	51	0.03	15	3	1.5
Educational	0.029	37	0.22	283	0.04	52	0.1	129	0.03	39	3	3.9
Public facilities & recreation	0.033	62	0.14	265	0.02	38	0.14	265	0.03	57	3.2	6.1
Total load		549		6,408		4,237		6,192		3,276		46
North Drainage Basin		317		3,840		2,654		3,844		2,070		26
South Drainage Basin		232		2,568		1,583		2,348		1,206		20

Compliance with this ordinance would alleviate the impact of the pollutant load increase outside of the base site.

An important element in water quality evaluations is soil erosion and sediment discharge. Since new construction would require grading, recontouring, paving, building, and other activities, soil disturbance and corresponding erosion would be likely to occur. In addition, while construction takes place, runoff would likely be high in sediment material. These short-term uses of the environment are controlled by federal and local regulations.

Water quality impacts due to building construction are regulated through the National Pollutant Discharge Elimination System (NPDES) program, which is administered by the state of South Carolina. As of October 1, 1992, all construction covering an area of over five acres will need a storm water permit that would ensure soil erosion protection at construction sites. Furthermore, according to the South Carolina Storm Water Management and Sediment Reduction Act of 1991, all new construction started after 1993 would require development of best management practices to ensure at least an 80 percent reduction in suspended solids from runoff.

Erosion control practices such as silt fences and allocation of land for treatment facilities would be necessary. Proper development of previously undeveloped land, such as those areas planned for the destination resort and some of the aviation-related facilities, would be critical.

Groundwater. The RAM for groundwater is presented in Table 4.4-14.

Under the Proposed Action, there would be impacts to groundwater resources. Due to current overdraft conditions in the Black Creek aquifer, the projected potable water demand cannot be obtained from the groundwater resources in the area. Therefore, it is assumed that the projected potable water demand would be supplied from off-site surface water sources. Nonpotable demand, such as irrigation, could, however, be supplied from groundwater sources.

Projected water demands under the Proposed Action are shown in Table 4.4-15. Potable water demand for the preclosure year 1991 averaged about 35.8 MGD in the ROI, and nonpotable water demand on the base, according to 1990 records, averaged about 0.16 MGD. These volumes are based on pumpage records obtained from the public utilities and the South Carolina Water Resources Commission. Projected potable water use attributable to the Proposed Action is expected to increase to 3.42 MGD by the year 2013, and nonpotable production is expected to increase to 1.55 MGD. The projected surface water (potable) use for the Proposed Action and the alternatives was estimated using projected numbers of employees, visitors, residents, and other potential consumers under each reuse alternative. Nonpotable uses include irrigation and recreational activities such as theme park water rides. It is assumed that 100 percent of the water obtained from surface water sources for potable use would be consumed, 100 percent of the water from the Black Creek aquifer for large-scale irrigation use would be consumed, and 50 percent of the water produced from the surficial and Peedee aquifers would be consumed. Water consumption is defined as permanent loss of water from the aquifer.

Table 4.4-14. Resource Assessment Matrix - Groundwater Hydrology, 2013

Evaluation Criteria	Unit of Measurement	Alternative*				
		Proposed Action	1	2	3	No-Action
Hydrology						
Changes to groundwater gradients - Black Creek aquifer	Increase in slope (ft/ft)	0.0011	0.0010	0.0009	0.0018	0
Increase in flow velocity from Atlantic Ocean	Feet per day	0.007	0.007	0.0072	0.014	0
Post-construction groundwater withdrawal rates - Peedee aquifer	Million gallons/day (MGD)	0.49	0.58	0.73	0.57	0
Post-construction groundwater withdrawal rates - Black Creek aquifer	MGD	1.06	0.90	0.62	1.20	0.01
Post-construction drawdown - Surficial/Peedee aquifer	Feet	62	72	90	82	0
Post-construction drawdown - Black Creek aquifer	Feet	42	39	33	54	0
Contribution to overdraft conditions - Black Creek aquifer	Percent	153	142	122	171	0

*Alternatives 1, 2, 3 are the Expanded Airfield/Resort-Recreation, Expanded Airfield/Resort-Commercial-Industrial, and Existing Airfield/Mixed Use Alternatives, respectively.

Table 4.4-15. Projected Water Demand - Proposed Action

Year	Surface Water (Potable) Use			Groundwater (Nonpotable) Use		
	ROI Production[1] (MGD)	Consumption (acre-ft/yr)	Increase over Preclosure ROI Use	ROI Production[2] (MGD)	Consumption (acre-ft/yr)	Increase over Preclosure Base Use
1998	2.0	2,184	5.5%	1.55	1,461	97.7%
2003	2.7	2,980	7.5%	1.55	1,461	97.7%
2013	3.4	3,031	9.6%	1.55	1,461	97.7%

[1]Surface water use in the ROI attributable to the Proposed Action.
[2]Groundwater use on the base site.

The 2013 projected water use indicates a 9.6 percent increase in surface water (potable) consumption, and a 97.7 percent increase in groundwater (nonpotable) consumption over the preclosure production for water supply. Nonpotable water consumption is not expected to vary over the three phases (1998, 2003, 2013) as full build-out is assumed by 1998 and irrigation needs would not vary. Large-scale irrigation requirements for the proposed resort and water rides, and recreational and educational areas would likely be supplied from the Black Creek aquifer. Small-scale irrigation needs could be supplied from the surficial and Peedee aquifer. The impacts to groundwater resources used for nonpotable needs would be the result of long-term uses of these resources, and based on current overdraft conditions, could result in continued loss of resources. However, this loss of resource may be acceptable since groundwater use in the ROI has decreased considerably in the last few years, and the projected nonpotable demand would still be less than regional groundwater withdrawals that have occurred in the past. In addition, the quality of the groundwater would not be a major concern at the base since the

intended use is for nonpotable purposes. Permitting of additional groundwater withdrawals would be the main issue to resolve.

Projected drawdown values for the Proposed Action and the alternatives are indicated on Table 4.4-14. Drawdown estimations were performed using the USGS modular, three-dimensional, finite-difference, groundwater flow model (MODFLOW). The projected drawdown values were attributed to groundwater usage for nonpotable demands such as irrigation and recreational activities, including water rides. These values represent maximum drawdown at the point of groundwater withdrawal.

Projected drawdown values from Table 4.4-14 indicate that 62 feet of drawdown would occur in the surficial and Peedee aquifers and 42 feet of drawdown would occur in the Black Creek aquifer if these groundwater resources were used for nonpotable supply for the Proposed Action. This would contribute a 153 percent net increase in drawdown to the current overdraft condition in the Black Creek aquifer. As indicated in Chapter 3, current drawdowns, based on regional groundwater modeling, are approximately 40 feet.

Cumulative Impacts. No cumulative impacts have been identified with the Proposed Action.

Mitigation Measures. The South Carolina Water Resources Commission has been investigating ways to reduce groundwater demand in the Black Creek Aquifer of coastal South Carolina for many years. Current water conservation measures either in operation or under investigation include:

- Creation of the Waccamaw Capacity Use Area designation, which defines a monitoring program and regulates water use in the Myrtle Beach area
- Conducting an aquifer recharge and recovery investigation in association with the city of Myrtle Beach
- Blending poor quality groundwater with surface water sources
- Water reuse programs that encourage the use of treated effluent for golf course irrigation.

Studies resulting from the creation of the Waccamaw Capacity Use Area were instrumental in the conversion of the city of Myrtle Beach and the GSWSA water supply systems to surface water. Therefore, it is expected that future investigations will show that regional groundwater levels in the Black Creek Aquifer will recover from the 160+ feet of drawdown that occurred in the 1970s and 1980s. Unpublished data from the South Carolina Water Resources Commission indicate that water levels in the Black Creek aquifer have rebounded by approximately 10 feet within Myrtle Beach AFB since the GSWSA and city of Myrtle Beach conversion to surface water sources. In addition, reuse of treated effluent for irrigation purposes has been shown to completely eliminate the need for groundwater withdrawals.

Irretrievable Commitments of Resources. Based on the current overdraft conditions present in the Black Creek aquifer, there is the potential for irreversible or irretrievable commitments of groundwater resources if used for nonpotable supply under the proposed action. Mitigation measures such as water reuse or other mitigation programs should be considered to reduce the use of the Black Creek aquifer for large-scale irrigation needs.

4.4.2.2 Expanded Airfield/Resort-Recreation Alternative

Surface Water. Under the Expanded Airfield/Resort-Recreation Alternative, new development also would result in alterations to the hydrologic characteristics of the land surface. It is estimated that additional development would result in increasing the average runoff/rainfall ratio from 0.20 at baseline conditions to about 0.21 once the initial development is complete. This increase in the runoff/rainfall ratio represents an increase of 4 percent in total expected annual runoff, from 132 to 138 million cubic feet. About 45 percent of this runoff would drain to the Intracoastal Waterway. The remaining 55 percent would be discharged to the Atlantic Ocean. Mean runoff volumes by total acreage in each land use category are shown in Table 4.4-16. Expected runoff from both the 100-year and 10-year storms would increase by less than one percent.

Table 4.4-16. Mean Annual Runoff by Land-Use Category - Expanded Airfield/Resort-Recreation Alternative, Conditions Prior to 2010

Land Use	Area (Acres)	Rain/ Runoff	Runoff (1,000 cf)
Airfield	1,540	0.13	35,973
Aviation support	62	0.80	8,912
Industrial	305	0.50	27,402
Commercial	260	0.50	23,359
Residential	41	0.32	5,894
Public Facilities & Recreation	1,503	0.13	35,109
Total (acres)			3,744
Total runoff (1,000 cf)			136,649
Total rainfall (1,000 cf)			672,741
Runoff/rainfall			0.21

After 2010, new development would result in a reduction of impermeable land at the base from the initial 1993-2010 development conditions, and consequently in a reduction of expected annual runoff. The area-weighted average runoff/rainfall ratio would then be equal to 0.20, which represents no increase from baseline conditions.

In terms of flood hazards, the extent of the 100-year floodplain is expected to remain unaltered from baseline conditions. A portion of land proposed for airfield and public facilities and recreation uses would be included in the floodplain. However, impacts can be controlled by proper design at the development stage.

Surface water quality impact due to new development was evaluated by estimating the change in annual pollutant loads (conventional pollutants and heavy metals and pesticides) from baseline conditions. As estimated 53 and 54 percent of the total pollutant load would be generated in the north drainage basin for development conditions prior to and after 2010, respectively. Calculations are shown in Tables 4.4-17 through 4.4-20. Ratio comparisons shown in Table 4.4-21 indicate that, on average, pollutant loads after development would increase by 22 and 23 percent from baseline conditions between 1993 and 2010 and after 2010, respectively.

Table 4.4-21. Annual Pollutant Load Ratios - Expanded Airfield/Resort Recreation Alternative

Chemical Parameter	Ratio 1[1]	Ratio 2[2]
BOD-5	1.36	1.30
Total suspended solids	1.13	1.11
Total nitrogen	1.36	1.29
Oil and grease	1.31	1.27
Total phosphorus	1.16	1.17
Copper	1.37	1.34
Zinc	1.26	1.25
Chromium	1.12	1.17
Lead	1.07	1.14
Nickel	0.95	1.01
Pesticides	1.31	1.52
MEAN	1.22	1.23

[1] = Ratio between the alternative to baseline pollutant loads at conditions before 2010.
[2] = Ratio between the alternative to baseline pollutant loads at conditions after 2010.

Surface potable water supply conditions would not be a limitation for future development.

Mitigation Measures. Compliance with NPDES storm water permitting, the South Carolina Storm Water Management and Sediment Reduction Act, and the city of Myrtle Beach Storm Water Management Ordinance would be as described for the Proposed Action.

Groundwater. Under this alternative, there would be impacts to groundwater resources. Projected water demands under this alternative are shown in Table 4.4-22. Projected surface (potable) use attributable to this alternative is expected to increase to 3.15 MGD in the ROI by the year 2013 and groundwater (nonpotable) production on the base site is expected to increase to 1.48 MGD. Large-scale irrigation requirements for the proposed resort and other recreational areas would likely be supplied from the Black Creek aquifer. Small-scale irrigation needs could be supplied from the surficial and Peedee aquifers. The impacts to groundwater resources would be the result of long-term uses of these resources, and based on current overdraft conditions, could result in continued loss of resource.

Table 4.4-17. Estimated Concentrations and Loads of Conventional Pollutants - Expanded Airfield/Resort-Recreation Alternative, Conditions Prior to 2010

	BOD_5[1]		Total Suspended Solids		Total Nitrogen		Oil & Grease		Total Phosphorus	
	mg/L	lbs/yr	mg/L	lbs/yr	mg/l	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr
Airfield	14	31,453	266	597,602	1.2	2,696	0.4	899	1.2	2,696
Aviation support	14	7,792	266	148,057	1.2	668	0.4	223	1.2	667
Industrial	14	23,959	99	169,423	1.4	2,396	0.4	684	1.2	2,054
Commercial	9	13,130	69	100,660	1.2	1,751	0.3	438	0.2	292
Medical	14	5,153	99	36,440	1.4	515	0.3	110	0.2	74
Residential	10	1,185	101	11,969	1.9	225	0.3	35	0.38	45
Public facilities & recreation	13	28,504	101	221,457	1.9	4,166	0.3	658	0.38	833
Total load North Drainage Basin South Drainage Basin		111,176 53,535 57,641		1,285,608 681,871 603,736		12,417 5,817 6,600		3,047 1,433 1,614		6,661 3,595 3,066

[1]5-day biological oxygen demand.

Table 4.4-18. Estimated Concentrations of Metals and Pesticides - Expanded Airfield/Resort-Recreation Alternative, Conditions Prior to 2010

	Copper		Zinc		Chromium		Lead		Nickel		Pesticides	
	mg/L	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr
Airfield	0.04	90	0.66	1,483	0.58	1,303	0.98	2,202	0.67	1,505	4.4	9.9
Aviation support	0.04	23	0.66	367	0.58	323	0.98	544	0.67	373	4.4	2.4
Industrial	0.1	171	1.08	1,848	0.58	993	0.49	839	0.03	51	5.8	9.9
Commercial	0.029	42	0.22	321	0.04	58	0.1	146	0.03	44	3	4.4
Medical	0.029	11	0.22	81	0.04	15	0.1	37	0.03	11	3	1.1
Residential	0.033	4	0.14	17	0.02	2	0.14	17	0.03	4	3.2	0.4
Public facilities & recreation	0.033	72	0.14	307	0.02	44	0.14	307	0.03	66	3.2	7.0
Total load North Drainage Basin South Drainage Basin		413 197 216		4,424 2,230 2,194		2,738 1,516 1,222		4,092 2,301 1,791		2,054 1,233 821		35 17 18

Table 4.4-19. Estimated Concentrations and Loads of Conventional Pollutants - Expanded Airfield/Resort-Recreation Alternative, Conditions After 2010

	BOD_5[1]		Total Suspended Solids		Total Nitrogen		Oil & Grease		Total Phosphorus	
	mg/L	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr
Airfield	14	32,964	266	626,318	1.2	2,825	0.4	942	1.2	2,825
Aviation support	14	7,792	266	148,057	1.2	668	0.4	223	1.2	668
Industrial	14	23,959	99	169,423	1.4	2,396	0.4	684	1.2	2,054
Commercial	9	13,130	69	100,660	1.2	1,751	0.3	437	0.2	292
Medical	14	0	99	0	1.4	0	0.3	0	0.2	0
Residential	10	0	101	0	1.9	0	0.3	0	0.38	0
Public facilities & recreation	13	28,504	101	221,457	1.9	4,166	0.3	658	0.38	833
Total load		106,349		1,265,915		11,806		2,944		6,672
North Drainage Basin		53,535		681,871		5,817		1,433		3,595
South Drainage Basin		52,814		584,044		5,989		1,512		3,077

[1]5-day biological oxygen demand.

Table 4.4-20. Estimated Concentrations of Metals and Pesticides - Expanded Airfield/Resort-Recreation Alternative, Conditions After 2010

	Copper		Zinc		Chromium		Lead		Nickel		Pesticides	
	mg/L	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr
Airfield	0.04	94	0.66	1,554	0.58	1,366	0.98	2,307	0.67	1,578	4.4	10.4
Aviation support	0.04	22	0.66	368	0.58	323	0.98	545	0.67	373	4.4	2.4
Industrial	0.1	171	1.08	1,848	0.58	994	0.49	839	0.03	50	5.8	9.9
Commercial	0.029	42	0.22	321	0.04	58	0.1	146	0.03	44	3	4.4
Medical	0.029	0	0.22	0	0.04	88	0.1	0	0.03	0	3	0.0
Residential	0.033	0	0.14	0	0.02	0	0.14	0	0.03	0	3.2	0.0
Public facilities & recreation	0.033	72	0.14	307	0.02	44	0.14	307	0.03	66	3.2	7.0
Total load		402		4,398		2,783		4,144		2,111		34
North Drainage Basin		197		2,230		1,516		2,301		1,233		17
South Drainage Basin		205		2,167		1,267		1,843		878		17

Table 4.4-22. Projected Water Demand - Expanded Airfield/Resort-Recreation Alternative

Year	Surface Water (Potable) Use			Groundwater (Nonpotable) Use		
	ROI Production[1] (MGD)	Consumption (acre-ft/yr)	Increase over Preclosure ROI Use	Base Site Production[2] (MGD)	Consumption (acre-ft/yr)	Increase over Preclosure Base Use
1998	2.0	2,229	5.6%	1.48	1,331	80.3%
2003	2.5	2,744	6.9%	1.48	1,331	80.3%
2013	3.2	3,529	8.8%	1.48	1,331	80.3%

[1]Surface water use in the ROI attributable to this alternative.
[2]Groundwater use on the base site.

The 2013 projected water use indicates an 8.8 percent increase in surface water (potable) consumption, and a 80.3 percent increase in groundwater (nonpotable) water consumption over preclosure production for water supply.

Under the Existing Airfield/Resort-Recreation Alternative, it is anticipated that 72 feet of drawdown would occur in the surficial/Peedee aquifers and 39 feet of drawdown would occur in the Black Creek aquifer if these groundwater resources are used for irrigation and water rides. This would contribute a 142 percent net increase in drawdown to the existing overdraft condition in the groundwater basin.

Cumulative Impacts. No cumulative impacts associated with this alternative are expected.

Mitigation Measures. The mitigation measures associated with this alternative are similar to those discussed for the Proposed Action.

Irretrievable Commitments of Resources. Irretrievable commitments of resources associated with this alternative are similar to those discussed for the Proposed Action.

4.4.2.3 Expanded Airfield/Resort-Commercial-Industrial Alternative

Surface Water. Under the Expanded Airfield/Resort-Commercial-Industrial Alternative, total development of vacant land would be similar to the Expanded Airfield/Resort-Recreation Alternative. It is estimated that additional development would result in increasing the average runoff/rainfall ratio from 0.20 at baseline conditions to about 0.22 once the initial development is complete. This increase in the runoff/rainfall ratio represents an increase of 10 percent in total expected annual runoff, from 132 to 146 million cubic feet. About 50 percent of the runoff volume would drain to the Intracoastal Waterway and 50 percent to the Atlantic Ocean. Mean runoff volumes by total acreage in each land use category are shown in Table 4.4-23. Expected runoff from both the 100-year and 10-year storms would increase by about 11 percent.

Table 4.4-23. Mean Annual Runoff by Land-Use Category - Expanded Airfield/Resort-Commercial-Industrial Alternative, Conditions Prior to 2010

Land Use	Area (Acres)	Rain/ Runoff	Runoff (1,000 cf)
Airfield	1,510	0.13	35,272
Aviation Support	62	0.80	8,912
Industrial	416	0.50	37,374
Commercial	244	0.50	21,922
Medical	50	0.80	7,187
Residential	45	0.32	2,587
Public Facilities & Recreation	1,417	0.13	33,100
Total (acres)			3,744
Total runoff (1,000 cf)			146,354
Total rainfall (1,000 cf)			672,741
Runoff/rainfall			0.22

After 2010, land use conversions would result in a reduction of impermeable land at the base from the initial 1993-2010 development conditions, and consequently in a reduction of expected annual runoff. The area-weighted average runoff/rainfall ratio would then be equal to 0.21. In terms of total runoff volume, the estimated increase from baseline would be 5 percent, from132 to 138 million cubic feet. The percent of total runoff drainage to the Intracoastal Waterway would increase from 50 to 52 percent. Total runoff volumes by land use category are shown in Table 4.4-24. Runoff from both the 100-year and 10-year storms also would be expected to increase by less than 1 percent from baseline.

Table 4.4-24. Mean Annual Runoff by Land-Use Category - Expanded Airfield/Resort-Commercial-Industrial Alternative, Conditions After 2010

Land Use	Area (Acres)	Rain/ Runoff	Runoff (1,000 cf)
Airfield	1,605	0.13	37,491
Aviation Support	62	0.80	8,912
Industrial	416	0.50	37,374
Commercial	244	0.50	21,922
Medical	0	0.80	0
Residential	0	0.32	0
Public Facilities & Recreation	1,417	0.13	33,100
Total (acres)			3,744
Total runoff (1,000 cf)			138,799
Total rainfall (1,000 cf)			672,741
Runoff/rainfall			0.21

In terms of flood hazards, the extent of the 100-year floodplain is expected to remain unaltered from baseline conditions. A portion of land proposed for airfield and public facilities and recreation uses would be included in the floodplain. However, impacts can be controlled by proper design at the development stage.

Surface water quality impact analyses indicate that 49 and 51 percent of the total pollutant load would be generated in the north drainage basin for development conditions prior to and after 2010, respectively. Calculations are shown in Tables 4.4-25 through 4.4-28. Ratio comparisons shown in Table 4.4-29 indicate that, on average, pollutant loads after development would increase by 32 and 33 percent from baseline conditions between 1993 and 2010 and after 2010, respectively.

Table 4.4-29. Annual Pollutant Load Ratios - Expanded Airfield Resort-Commercial-Industrial Alternative

Chemical Parameter	Ratio 1[1]	Ratio 2[2]
BOD-5	1.45	1.38
Total suspended solids	1.17	1.15
Total nitrogen	1.43	1.35
Oil and grease	1.40	1.34
Total phosphorus	1.28	1.28
Copper	1.56	1.52
Zinc	1.44	1.43
Chromium	1.26	1.31
Lead	1.14	1.21
Nickel	0.95	1.01
Pesticides	1.43	1.62
MEAN	1.32	1.33

[1] = Ratio between the alternative to baseline pollutant loads at conditions before 2010.
[2] = Ratio between the alternative to baseline pollutant loads at conditions after 2010.

Public water supply conditions also would be the same as described for the Proposed Action.

Mitigation Measures. Compliance with NPDES storm water permitting, the South Carolina Storm Water Management and Sediment Reduction Act, and the city of Myrtle Beach Storm Water Management Ordinance would be as described for the Proposed Action.

Groundwater. Under this alternative, there would be impacts to groundwater resources. Projected water demands under this alternative are indicated in Table 4.4-30. Projected surface water (potable) use attributable to this alternative is anticipated to increase to 3.47 MGD in the ROI by the year 2013 and groundwater (nonpotable) production on the base site is anticipated to increase to 1.35 MGD.

Table 4.4-25. Estimated Concentrations and Loads of Conventional Pollutants - Expanded Airfield/Resort-Commercial-Industrial Alternative, Conditions Prior to 2010

	BOD_6[1]		Total Suspended Solids		Total Nitrogen		Oil & Grease		Total Phosphorus	
	mg/L	lbs/yr	mg/L	lbs/yr	mg/l	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr
Airfield	14	30,840	266	585,960	1.2	2,643	0.4	881	1.2	2,643
Aviation support	14	7,792	266	148,057	1.2	668	0.4	222	1.2	668
Industrial	14	32,678	99	231,081	1.4	3,268	0.4	934	1.2	2,801
Commercial	9	12,322	69	94,466	1.2	1,643	0.3	411	0.2	274
Medical	14	6,284	99	44,439	1.4	628	0.3	135	0.2	90
Residential	10	1,616	101	16,321	1.9	307	0.3	48	0.38	61
Public facilities & recreation	13	26,873	101	208,786	1.9	3,928	0.3	620	0.38	786
Total load		118,406		1,329,110		13,085		3,251		7,323
North Drainage Basin		58,629		729,993		6,380		1,632		3,791
South Drainage Basin		59,777		599,117		6,705		1,619		3,532

[1]5-day biological oxygen demand.

Table 4.4-26. Estimated Concentrations of Metals and Pesticides - Expanded Airfield/Resort-Commercial-Industrial Alternative, Conditions Prior to 2010

	Copper		Zinc		Chromium		Lead		Nickel		Pesticides	
	mg/L	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr
Airfield	0.04	88	0.66	1,454	0.58	1,278	0.98	2,159	0.67	1,476	4.4	9.7
Aviation support	0.04	22	0.66	367	0.58	323	0.98	545	0.67	373	4.4	2.4
Industrial	0.1	234	1.08	2,521	0.58	1,354	0.49	1,144	0.03	70	5.8	13.5
Commercial	0.029	40	0.22	301	0.04	55	0.1	137	0.03	41	3	4.1
Medical	0.029	13	0.22	99	0.04	18	0.1	45	0.03	13	3	1.3
Residential	0.033	5	0.14	23	0.02	3	0.14	23	0.03	5	3.2	0.5
Public facilities & recreation	0.033	68	0.14	289	0.02	41	0.14	289	0.03	62	3.2	6.6
Total load		470		5,054		3,072		4,342		2,040		38
North Drainage Basin		219		2,468		1,613		2,431		1,292		19
South Drainage Basin		251		2,586		1,459		1,911		748		19

Table 4.4-27. Estimated Concentrations and Loads of Conventional Pollutants - Expanded Airfield/Resort-Commercial Industrial Alternative, Conditions After 2010

	BOD_5[1]		Total Suspended Solids		Total Nitrogen		Oil & Grease		Total Phosphorus	
	mg/L	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr
Airfield	14	32,780	266	622,825	1.2	2,810	0.4	937	1.2	2,810
Aviation support	14	7,792	266	148,057	1.2	668	0.4	223	1.2	668
Industrial	14	32,678	99	231,081	1.4	3,268	0.4	934	1.2	2,801
Commercial	9	12,322	69	94,466	1.2	1,643	0.3	411	0.2	274
Medical	14	0	99	0	1.4	0	0.3	0	0.2	0
Residential	10	0	101	0	1.9	0	0.3	0	0.38	0
Public facilities & recreation	13	26,873	101	208,786	1.9	3,928	0.3	620	0.38	786
Total load		112,446		1,305,215		12,316		3,124		7,338
North Drainage Basin		58,629		729,993		6,380		1,632		3,791
South Drainage Basin		53,817		575,222		5,936		1,492		3,547

[1]5-day biological oxygen demand.

Table 4.4-28. Estimated Concentrations of Metals and Pesticides - Expanded Airfield/Resort-Commercial-Industrial Alternative, Conditions After 2010

	Copper		Zinc		Chromium		Lead		Nickel		Pesticides	
	mg/L	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr
Airfield	0.04	94	0.66	1,545	0.58	1,358	0.98	2,295	0.67	1,569	4.4	10.3
Aviation support	0.04	22	0.66	367	0.58	323	0.98	545	0.67	373	4.4	2.4
Industrial	0.1	233	1.08	2,521	0.58	1,354	0.49	1,144	0.03	70	5.8	13.5
Commercial	0.029	40	0.22	301	0.04	55	0.1	137	0.03	41	3	4.1
Medical	0.029	0	0.22	0	0.04	0	0.1	0	0.03	0	3	0.0
Residential	0.033	0	0.14	0	0.02	0	0.14	0	0.03	0	3.2	0.0
Public facilities & recreation	0.033	68	0.14	289	0.02	41	0.14	289	0.03	62	3.2	6.6
Total load		457		5,024		3,131		4,410		2,115		37
North Drainage Basin		219		2,468		1,613		2,431		1,292		19
South Drainage Basin		238		2,556		1,518		1,979		823		18

Table 4.4-30. Projected Water Demand - Expanded Airfield/Resort-Commercial-Industrial Alternative

	Surface Water (Potable) Use			Groundwater (Nonpotable) Use		
Year	ROI Production[1] (MGD)	Consumption (acre-ft/yr)	Increase over Preclosure ROI Use	Base Site Production[2] (MGD)	Consumption (acre-ft/yr)	Increase over Preclosure Base Use
1998	2.1	2,364	5.9%	1.35	1,097	49.2%
2003	2.8	3,159	7.9%	1.35	1,097	49.2%
2013	3.5	3,887	9.7%	1.35	1,097	49.2%

[1]Surface water use in the ROI attributable to this alternative.
[2]Groundwater use on the base site.

The 2013 projected water use indicates a 9.7 percent increase in surface water (potable) consumption, and a 49.2 percent increase in groundwater (non-potable) water consumption over the preclosure production for water supply.

Large-scale irrigation requirements for the proposed resort and water rides would likely be supplied from the Black Creek aquifer. Small-scale irrigation needs would likely be supplied from the surficial and Peedee aquifers. The impacts to groundwater resources would be the result of long-term usage, and could result in continued resource loss.

Projected drawdown values from Table 4.4-14 indicate that 90 feet of drawdown would occur in the surficial/Peedee aquifers and 33 feet of drawdown would occur in the Black Creek aquifer under this alternative if these groundwater resources are used for irrigation and water rides. This would contribute a 122 percent net increase in drawdown to the current overdraft condition in the groundwater basin.

Cumulative Impacts. No cumulative impacts associated with this alternative are expected.

Mitigation Measures. The mitigation measures associated with this alternative are similar to those discussed for the Proposed Action.

Irretrievable Commitments of Resources. Irretrievable commitments of resources associated with this alternative are similar to those discussed for the Proposed Action.

4.4.2.4 Existing Airfield/Mixed Use Alternative

Surface Water. Development under the Existing Airfield/Mixed Use Alternative also would result in alterations to the hydrologic characteristics of the land surface. It is estimated that additional development would result in increasing the average runoff/rainfall ratio from 0.20 at baseline conditions to about 0.32 once development is complete. This increase in the runoff/rainfall ratio represents an increase of 60 percent in total expected annual runoff, from 132 to 212 million cubic feet. An estimated 62 percent of the total runoff would drain to the Intracoastal Waterway. The remaining 38 percent would drain to the Atlantic Ocean. Mean runoff volumes by total acreage in each land use

category are shown in Table 4.4-31. Expected runoff from both the 100-year and 10-year storms would increase by about 12 percent.

In terms of flood hazards, the extent of the 100-year floodplain is expected to remain unaltered from baseline conditions. The proposed commercial area south of the airfield would be located within the 100-year floodplain. This would increase expected flood damages.

Surface water quality impact calculations are shown in Tables 4.4-32 and 4.4-33. An estimated 62 percent of the total pollutant load would be generated in the north drainage basin. Ratio comparisons shown in Table 4.4-34 indicate that, on average, pollutant loads after development would increase by 91 percent from baseline conditions.

Due to the relatively small amount of added impermeable area compared to the extent of the entire airfield land use category, runoff and water quality estimates for the Restricted Second Runway Option would be the same as for the alternative with a single runway. Public water supply would not be a limiting factor for development.

Mitigation Measures. Compliance with NPDES storm water permitting, the South Carolina Storm Water Management and Sediment Reduction Act, and the city of Myrtle Beach Storm Water Management Ordinance would be as described for the other alternatives.

Groundwater. There would be impacts to groundwater resources under this alternative. Projected water demands under this alternative are indicated on Table 4.4-35. Projected surface water (potable) use attributable to this alternative is anticipated to increase to 2.18 MGD in the ROI by the year 2013 and groundwater (nonpotable) production on the base site is anticipated to increase to 1.77 MGD.

The year 2013 projected water use indicates a 6.1 percent increase in surface water (potable) consumption and a 124 percent increase in groundwater (nonpotable) consumption over the preclosure production for water supply. Large-scale irrigation requirements for the proposed PGA golf course and industrial and educational areas would likely be supplied from the Black Creek aquifer. Small-scale irrigation needs would likely be supplied from the surficial and Peedee aquifers. The impacts to groundwater resources would be the result of long-term usage, and could result in continued resource loss.

Projected drawdown values from Table 4.4-14 indicate that 54 feet of drawdown would occur in the Black Creek aquifer under this alternative if used for irrigation needs. Approximately 82 feet of drawdown would occur in the surficial/Peedee aquifers. This would contribute a 171 percent net increase in drawdown to the current overdraft condition in the groundwater basin.

Table 4.4-32. Estimated Concentrations and Loads of Conventional Pollutants - Existing Airfield/Mixed Use Alternative

	BOD_5[1]		Total Suspended Solids		Total Nitrogen		Oil & Grease		Total Phosphorus	
	mg/L	lbs/yr	mg/L	lbs/yr	mg/l	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr
Airfield	14	17,871	266	339,547	1.2	1,532	0.4	511	1.2	1,532
Aviation support	14	7,792	266	148,057	1.2	668	0.4	223	1.2	668
Industrial	14	84,995	99	601,034	1.4	8,499	0.4	2,428	1.2	7,284
Commercial	9	4,343	69	33,295	1.2	579	0.3	145	0.2	97
Educational	9	22,543	69	172,826	1.2	3,006	0.3	751	0.2	501
Residential	10	8,259	101	83,419	1.9	1,569	0.3	248	0.38	314
Public facilities & recreation	13	19,894	101	154,563	1.9	2,908	0.3	459	0.38	582
Total load		165,697		1,532,741		18,761		4,765		10,978
North Drainage Basin		108,486		942,494		11,425		3,102		8,110
South Drainage Basin		57,211		590,247		7,336		1,663		2,868

[1] 5-day biological oxygen demand.

Table 4.4-33. Estimated Concentrations of Metals and Pesticides - Existing Airfield/Mixed Use Alternative

	Copper		Zinc		Chromium		Lead		Nickel		Pesticides	
	mg/L	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr	mg/L	lbs/yr
Airfield	0.04	51	0.66	842	0.58	740	0.98	1,251	0.67	855	4.4	5.6
Aviation support	0.04	22	0.66	367	0.58	323	0.98	545	0.67	374	4.4	2.4
Industrial	0.1	607	1.08	6,558	0.58	3,521	0.49	2,976	0.03	182	5.8	35.2
Commercial	0.029	14	0.22	106	0.04	19	0.1	48	0.03	14	3	1.4
Educational	0.029	73	0.22	551	0.04	100	0.1	250	0.03	75	3	7.5
Residential	0.033	27	0.14	116	0.02	17	0.14	116	0.03	25	3.2	2.6
Public facilities & recreation	0.033	51	0.14	214	0.02	31	0.14	214	0.03	46	3.2	4.9
Total load		845		8,754		4,751		5,400		1,571		60
North Drainage Basin		633		6,799		3,740		3,801		870		41
South Drainage Basin		212		1,955		1,011		1,599		701		19

Table 4.4-31. Mean Annual Runoff by Land-Use Category - Existing Airfield/Mixed Use Alternative

Land Use	Area (Acres)	Rain/ Runoff	Runoff (1,000 cf)
Airfield	875	0.13	20,439
Aviation Support	62	0.80	8,912
Industrial	1,082	0.50	97,210
Commercial	86	0.50	7,726
Educational	360	0.62	40,106
Residential	230	0.32	13,225
Public Facilities & Recreation	1,049	0.13	24,504
Total (acres)			3,744
Total runoff (1,000 cf)			212,122
Total rainfall (1,000 cf)			672,741
Runoff/rainfall			0.32

Table 4.4-34. Annual Pollutant Load Ratios - Existing Airfield/Mixed Use Alternative

Chemical Parameter	Ratio*
BOD-5	2.03
Total suspended solids	1.35
Total nitrogen	2.05
Oil and grease	2.05
Total phosphorus	1.92
Copper	2.81
Zinc	2.49
Chromium	1.94
Lead	1.41
Nickel	0.73
Pesticides	2.24
MEAN	1.91

* = Ratio between the alternative to baseline pollutant loads.

Table 4.4-35. Projected Water Demand - Existing Airfield/Mixed Use Alternative

	Surface Water (Potable) Use			Groundwater (Nonpotable) Use		
Year	ROI Production[1] (MGD)	Consumption (acre-ft/yr)	Increase over Preclosure ROI Use	Base Site Production[2] (MGD)	Consumption (acre-ft/yr)	Increase over Preclosure Base Use
1998	0.8	896	2.2%	1.77	1,662	124%
2003	1.4	1,557	3.9%	1.77	1,662	124%
2013	2.2	2,442	6.1%	1.77	1,662	124%

[1]Surface water use in the ROI attributable to this alternative.
[2]Groundwater use on the base site.

The impacts of the Restricted Second Runway Option would be the same as for the alternative with a single runway.

Cumulative Impacts. No cumulative impacts associated with this alternative are expected.

Mitigation Measures. The mitigation measures associated with this alternative are similar to those discussed for the Proposed Action.

Irretrievable Commitments of Resources. Irretrievable commitments of resources associated with this alternative are similar to those discussed for the Proposed Action.

4.4.2.5 No-Action Alternative (Existing Airfield/Caretaker)

Surface Water. Surface water hydrology is largely dependent on land uses. As the No-Action Alternative would result in no changes in the land use configuration at the base, no impacts to surface water hydrology would be expected.

In terms of surface water quality, since the No-Action Alternative considers no future development as well as a discontinuation in the use of existing Air Force facilities, there would be general improvements in the quality of surface water discharges compared to preclosure conditions. However, these improvements would be at levels below applicable ambient water quality standards. A 50 percent reduction in sediment loads would result from the reduction in human activity and the corresponding contributing solids loads. Since the OL would continue maintaining the base, the possibility of a spill from one of the IRP sites would still exist.

Mitigation Measures. No mitigation measures would be necessary.

Groundwater. Myrtle Beach AFB uses groundwater from the Black Creek aquifer as the water supply source for base personnel, whereas the surrounding areas of the GSWSA and the city of Myrtle Beach use surface water for water supply purposes. Closure of Myrtle Beach AFB and vacating 2,985 base personnel would reduce the use of potable on-base groundwater by approximately 0.45 MGD and have a beneficial impact on this resource. Groundwater consumption would be limited to approximately 60 OL employees for security and maintenance activities.

The effects of base closure on groundwater quality also would be positive. With limited operations, inflow of new hazardous materials would be eliminated. Also, exposure to existing groundwater contamination at Myrtle Beach AFB would be reduced by limiting base access.

Cumulative Impacts. No cumulative impacts would be caused by the No-Action Alternative.

Mitigation Measures. No mitigation measures would be required.

Irretrievable Commitments of Resources. No irretrievable commitments of resources would be caused by the No-Action Alternative.

4.4.3 AIR QUALITY

Air quality impacts could occur during construction and operations associated with the Proposed Action and alternatives for the reuse of Myrtle Beach AFB. Intermittent construction-related impacts could result from fugitive dust (particulate matter) and construction equipment emissions. Operational impacts could occur from: (1) mobile sources such as aircraft, aircraft operation support equipment, commercial transport vehicles, and personal vehicles; (2) point sources such as heating/power plants, generators, incinerators, and storage tanks; and (3) secondary emission sources associated with a general population increase, such as residential heating.

The methods selected to analyze air quality impacts depend upon the type of air emission source being examined. Air quality analytical methods are summarized here and presented in detail in Appendix E, Methods of Analysis. The primary emission source categories associated with the Proposed Action and the alternatives include construction, aircraft operations, and vehicle traffic (including vehicle traffic associated with indirect sources such as shopping centers, sports complexes, resorts, amusement centers, and residential development that generate significant mobile source activity). Because construction phase emissions are generally considered temporary, analysis is limited to estimating the amount of uncontrolled fugitive dust that may be emitted from disturbed areas, and the amounts of combustive emissions that may be emitted from construction equipment. Analysis for mobile source emissions (aircraft operations, vehicle activity) consists of quantifying the emissions during the operations phase and evaluating how those emissions would affect progress toward maintenance of the National Ambient Air Quality Standards (NAAQS) and state ambient air quality standards.

A fundamental step in the evaluation of environmental impacts on air quality is to identify the sources of the impacts, identify the quantitative measures for evaluating the extent of the impacts, and develop formulas for computing and assessing those measures. These formulations are based on the types of data that are generally available or can be easily collected for the anticipated land use scenarios.

For the purpose of the Proposed Action and alternatives, those emission sources anticipated to significantly contribute to ambient air quality impacts have been targeted for analysis: construction activity, aircraft operations, and vehicle traffic. It should be noted that SCDHEC Regulation 62.6 (Control of Fugitive Particulate Matter) specifically addresses the release of fugitive particulate matter to the ambient environment. Since the project site is not in a nonattainment or problem area (ambient levels of particulate matter at or near the primary NAAQS) as defined in the regulation, the regulatory requirement is limited to preventing any release that could contribute to an undesirable level of air pollution. This regulation also prohibits the use of volatile organic compounds or oil treatment for dust control.

South Carolina has developed a state implementation plan (SIP) as required by Section 110 of the Clean Air Act (CAA) to provide for the implementation, maintenance, and enforcement of the NAAQS for each air quality control region within the state. The SIP is the primary vehicle used by USEPA for the

enforcement of federal air pollution legislation. The implementation plan addresses the following principle areas:

- Emission limitations, schedules, and timetables for the attainment of the primary and secondary standards, including but not limited to, transportation controls, air quality maintenance plans, and preconstruction review of direct sources;

- Provisions for the establishment, maintenance, and operation of appropriate devices, systems, methods, and procedures necessary to monitor, correlate, and analyze ambient air quality data;

- Programs (permitting, enforcement, etc.) to provide for the enforcement of emission limitations and regulation of construction, alteration, modification, addition, and operation of any stationary source of emissions;

- Provisions prohibiting any stationary source from emitting any air pollution in amounts that will prevent attainment of any ambient air quality standards;

- Provisions prohibiting construction or modification of a major stationary source in any nonattainment area if the emissions from such facility will contribute to concentrations of any pollutant for which a NAAQS is exceeded in such area;

- Provisions for the incorporation of Prevention of Significant Deterioration (PSD) regulations in those areas meeting the NAAQS.

Thus the SIP is a collection of regulations, provisions, procedures, strategies, policies, and data.

As discussed above, the SIP incorporates regulations that prohibit new or modified sources, which would prevent the attainment or maintenance of NAAQS by either direct or indirect means. "Indirect" means that emissions caused by associated activities (i.e., traffic, support facilities) may be sufficient grounds to deny construction, modification, or operation. The regulations detailed in the CAA and embodied in the SIP are known as Review of New Sources and Modifications, or commonly referred to as New Source Review (NSR).

Under the NSR regulations, states are required to determine whether the construction or modification of a facility, building, structure, or installation, or combination of these would result in a violation of applicable portions of a control strategy; or interfere with the attainment or maintenance of a national standard in the state in which the proposed source or modification is located or in an adjoining state. There are two principle features of NSR: requirements that apply to nonattainment areas and PSD.

In areas that have not achieved the attainment of any regulated pollutant, NSR regulations contain a special set of rules that govern the construction of new sources and the modification of existing ones. Sources covered under these rules are ones with potential to emit 100 tons per year or more of sulfur dioxide (SO_2), oxides of nitrogen (NO_x), volatile organic compounds (VOCs), or carbon monoxide (CO). Modifications to these sources are subject to review if they result in significant increases, as under the PSD program described below. The intent of the rules is to: require that new sources (and modifications) install the state of the art in control technology; and provide additional reductions (offsets) in emissions from neighboring sources to more than offset any emissions from the new source (modification) even after application of the best pollution control equipment. The applicable controls mandated under these rules are collectively known as the Lowest Achievable Emission Rate or LAER and must reflect the most stringent emission limitation contained in any SIP and the most stringent emission limitation achieved in practice within the industrial category, whichever is more stringent. Offsets must incorporate legally enforceable reductions in emissions from other sources. Offsets can be traded on the market and can be "banked" for future use.

The regulations for PSD apply to those areas that already satisfy air quality standards, as is the case in the area surrounding Myrtle Beach AFB. The intent of these regulations is to prevent unlimited industrial growth from degrading air quality in areas meeting NAAQS. Sources subject to PSD review include facilities within 28 specified industrial categories if potential emissions would exceed 100 tons per year of any pollutant subject to regulation under the CAA. PSD review also includes other facilities if their potential to emit exceeds 250 tons per year of any pollutant subject to regulation under the CAA. Modifications to major sources that result in a "significant net emissions increase" of any regulated pollutant also are subject to PSD review. Significant levels vary for the regulated pollutants: an increase of 40 tons per year for sulfur oxides (SO_x), NO_x, and VOCs; an increase of 100 tons per year for CO; an increase of 25 tons per year for particulates (15 tons per year for particulate matter smaller than 10 micrometers [PM-10]); and an increase of 0.6 tons per year for lead.

PSD includes technology standards to assure that each new major facility or modification incorporates the Best Available Control Technology (BACT), an ambient air quality increment system to prevent any single source from having undue impacts on air quality, and a set of procedural and technical requirements to assure compliance with control technology and air quality increments.

All new sources and modifications subject to PSD must install BACT. BACT is determined on a case-by-case basis by USEPA under a "top-down" approach by which the agency first identifies the best state-of-the-art control technology and then places the burden on the proponent of the project to justify any variations from such controls. After the applicant has satisfied the BACT requirements, the project will not be allowed to proceed unless the remaining emissions can be accommodated within an available increment of air quality for that particular pollutant. The air quality increment limitations are based on an area classification system. This system is explained and the increments defined in Section 3.4.3.2. Subsequent emissions from the source must not degrade the pre-existing air quality beyond the amount of the allowable increment. It should be noted that increments have only been established for

total suspended particulates (TSP), SO_x, and NO_x. Procedural and technical requirements include providing extensive monitoring data to establish the baseline against which the increment will be calculated; and providing comprehensive dispersion modeling data to demonstrate the projected impacts of emissions from the source.

To thoroughly analyze impacts from both stationary and mobile sources, an emissions inventory was compiled and dispersion modeling was conducted to estimate ambient air quality impacts to critical receptors. The emissions inventory is an estimate of total mass emissions of pollutants generated from a source or sources over a period of time, normally a year. Accurate inventories are needed for estimating the interrelationship between emission sources and air quality. Dispersion models simulate the relationship between air pollutant emissions and the resulting impact on air quality. These models mathematically represent pollutant emissions, dilution, transportation, and mixing in the ambient atmosphere.

The ambient effects of aircraft and mobile source emissions are analyzed using emission inventories and dispersion modeling. The model used for analysis was the Emissions and Dispersion Modeling System (EDMS), a combined emissions/dispersion model for assessing pollution at civilian airports and military air bases (Segal, 1991). The model was jointly developed by the FAA and the U.S. Air Force. EDMS incorporates an emissions model to calculate an emissions inventory of all airport sources and a dispersion model to calculate ambient pollutant concentrations produced by these sources at specified receptors. The dispersion model is run in a screening mode utilizing an array of 1-hour worst-case meteorological conditions. The following assumptions were made in estimating the effects of the Proposed Action and alternatives:

- Emission inventory model calculations for VOCs, NO_x, TSP, SO_2, and CO were based on: (1) aircraft activity and fleet mix projections described in Section 4.2.3 and (2) vehicle activity projections described in Section 4.2.3.

- Daily, weekly, and yearly hourly activity (temporal activity) for commercial and cargo aircraft were based on jetport records and current airline schedules. This temporal activity was assumed to apply to all out years of the study for the Proposed Action and alternatives. Peak hour source activity (landing/takeoff cycles - LTOs) was calculated using associated temporal factors and projected yearly LTOs.

- Future general aircraft temporal activity was assumed to equal that experienced at Grand Strand Airport during 1991. This temporal activity was assumed to apply to all out years of the study for the Proposed Action and alternatives. Peak hour source activity was calculated using associated temporal factors and projected yearly LTOs.

- Future daily, weekly, and yearly temporal activity for aircraft arriving for maintenance was assumed to be constant (100 percent activity) with the exception that no activity occurred from 6:00 P.M. to 6:00 A.M. each day. This temporal activity

was assumed to apply to all out years of the study for the Proposed Action and alternatives. Peak hour source activity was calculated using associated temporal factors and projected yearly LTOs.

- It was assumed that ground-based aircraft service vehicles were not available and aircraft used auxiliary power units (APUs - small jet turbines on the aircraft) to supply power and preconditioned air. An APU was assumed to operate 30 minutes at the terminal gate for each aircraft LTO cycle. APU exhaust emissions were modeled accordingly.

- Vehicle temporal activity for proposed roads in the project area was based on 1991 data for U.S. 501 and assumed to apply to the projected vehicle traffic in the project area for the out years of this study for the Proposed Action and alternatives. U.S. 501 was used because it is the only major road in the area with a permanent count station for peak hour and peak season traffic. U.S. 501 is a major thoroughfare near the base and should be representative of local and tourist traffic activity. Peak hour source activity was based on traffic studies as described in Section 4.2.3. The estimates of vehicle emissions were calculated using EDMS and are based on emission factors generated by Mobile4.1, USEPA's vehicle emission factor model supplied as part of EDMS. Mobile4.1 contains emission rate files for 1990, 1995, 2000, and 2010 vehicle fleet mixes. Since there are only four vehicle emission factor option years when using Mobile4.1 under EDMS, the following Mobile4.1 option year/project year matchups were used: 1990/1993, 1995/1998, 2000/2003, 2010/2013. EDMS uses the emission factors produced by Mobile4.1 (based on vehicle-associated operational parameters such as ambient temperature, speed, percent cold starts) and vehicle peak hour activity to produce an emissions inventory report for vehicle activity.

- The estimates of aircraft emissions are based on USEPA aircraft emission factors provided as part of the built-in data base of the EDMS model and user-supplied factors needed to supplement the data base to account for additional commercial jet and turboprop aircraft. These additional emission factors were obtained from a FAA aircraft engine database (FAA, 1991) and a draft USEPA mobile source emissions inventory document (USEPA, 1991b). The EDMS model uses the emission factors and information on peak and annual LTO cycles (includes takeoff, runway climb and approach, runway queuing, taxi-in and taxi-out, and idling) to produce an emissions inventory report for the aircraft operations. EDMS was run with four different wind directions to provide wind angles parallel and perpendicular to the runways and major roads along with a wind speed of one meter per second, a temperature of 79 degrees Fahrenheit (F) (average peak season temperature for Myrtle Beach) and a stability class of D. The meteorological parameters used for the screening dispersion model reflect the

pollution conditions expected during the hours of the day when the jetport would be active.

- It was assumed that the average amount of land area disturbed (construction activities) at any one time is five percent of the estimated acreage to be disturbed over the 20-year build out of the project.

The RAM for air quality is presented as a summary of the results of the air quality modeling analysis in Table 4.4-36. The table includes the forecast emissions concentrations from each reuse alternative, the background concentration, and the limiting standard.

4.4.3.1 Proposed Action (Expanded Airfield/Resort-Education)

The Proposed Action would result in the expansion and operation of the existing jetport and development of a destination resort and an educational center. Other proposed land uses would include an air museum, golf course, and additional industrial, commercial, and residential land development. Total estimated emissions of the Proposed Action are presented in Table 4.4-37 for the years 1993, 1998, 2003, and 2013. The reuse-related emissions would be an increase with regard to the Air Quality Control Region (AQCR) and Horry County.

The estimates of aircraft emissions in Table 4.4-37 are based on USEPA aircraft emission factors provided in the built-in database of EDMS. The estimates of vehicle emissions were calculated using EDMS and are based on emission factors generated by Mobile4.1, USEPA's vehicle emission factor model supplied as part of EDMS. This analysis is similar for all reuse alternatives. Emissions for all other source categories were calculated as described in Appendix E.

Note that Table 4.4-37 and similar emission inventory tables for the other alternatives provide particulate emissions in terms of TSP. These emission inventories are provided in terms of TSP for the following reasons:

- The AQCR, Horry County, and Myrtle Beach AFB particulate inventories are provided in TSP; and

- The emission inventories calculated (emissions inventory modeling) for the Proposed Action and other alternatives are based on TSP emission factors.

Even though emission inventories and dispersion modeling are in terms of TSP, it is still possible to determine or make an estimation as to whether the PM-10 standard is being met. SCDHEC 1990 ambient air quality monitoring data (co-located PM-10 and TSP monitors at two sites in Georgetown) indicate that PM-10 is approximately 50 percent of the TSP total. Therefore, if the TSP concentration is equal to or less than the PM-10 standard, the standard will not be exceeded for particles less than 10 microns in diameter. In addition, the TSP concentration can exceed the PM-10 standard by approximately 50 percent and still not exceed the standard for PM-10.

Table 4.4–36. Air Quality Modeling Analysis for the Proposed Action and Alternatives (ug/m3)

Pollutant	Averaging Time	Proposed Action				Expanded Airfield/ Resort–Recreation Alternative				Expanded Airfield/Resort–Commercial–Industrial Alternative				Existing Airfield/ Mixed Use Alternative				Existing Airfield/Mixed Use Alternative – Restricted Second Runway Option (a)	No–Action Alternative				Background Concentration b	Limiting Standard c,d
		1993	1998	2003	2013	1993	1998	2003	2013	1993	1998	2003	2013	1993	1998	2003	2013	2013	1993	1998	2003	2013		
CO	8–hour	15.00	218.00	231.00	258.00	15.00	148.00	146.00	155.00	15.00	184.00	174.00	174.00	15.00	115.00	142.00	193.00	181.00	15.00	19.90	19.40	22.70	--- f	10,000
	1–hour	21.40	311.00	330.00	368.00	21.40	212.00	209.00	221.00	21.40	263.00	249.00	248.00	21.40	164.00	203.00	274.00	259.00	21.40	28.40	27.70	32.40	--- f	40,000
NO2	Annual	0.7170	4.2900	5.2600	6.0500	0.7170	2.9200	3.3400	3.6300	0.7170	3.6300	3.9700	4.0800	0.7170	2.2600	3.2400	4.5200	4.2500	0.7170	1.1700	2.1100	2.6100	--- f	100
SO2	Annual	0.0338	0.0647	0.0796	0.0933	0.0338	0.0576	0.0646	0.0941	0.0338	0.0649	0.0796	0.0940	0.0338	0.0576	0.0644	0.0950	0.0865	0.0338	0.0612	0.0766	0.0944	5 g	80
	24–hour	0.1350	0.2590	0.3180	0.3730	0.1350	0.2300	0.2580	0.3760	0.1350	0.2600	0.3180	0.3760	0.1350	0.2300	0.2580	0.3800	0.3460	0.1350	0.2450	0.3060	0.3780	36 g	365
	3–hour	0.3040	0.5820	0.7160	0.8400	0.3040	0.5180	0.5810	0.8470	0.3040	0.5840	0.7160	0.8460	0.3040	0.5180	0.5800	0.8550	0.779	0.3040	0.5510	0.6890	0.8500	174 g	1300
PM–10 d	Annual	0.0078	0.0383	0.0568	0.0683	0.0078	0.0261	0.0361	0.0410	0.0078	0.0324	0.0429	0.0461	0.0078	0.0202	0.0350	0.0510	0.048	0.0078	0.0045	0.0059	0.0056	36 h	50
	24–hour	0.0312	0.1530	0.2270	0.2730	0.0312	0.1040	0.1440	0.1640	0.0312	0.1300	0.1720	0.1840	0.0312	0.0808	0.1400	0.2040	0.192	0.0312	0.0182	0.0235	0.0225	ND h,i,j	150
TSP	Annual (geometric)	0.0078	0.0383	0.0568	0.0683	0.0078	0.0261	0.0361	0.0410	0.0078	0.0324	0.0429	0.0461	0.0078	0.0202	0.0350	0.0510	0.048	0.0078	0.0045	0.0059	0.0056	ND k	75

a Data for 1993, 1998, and 2003 would be the same as for the Existing Airfield/Mixed Use Alternative with a single runway.

b Maximum concentration for 1990 from SCDHEC ambient monitoring data.

c Limiting standard is equal to the more stringent value of the NAAQS or the South Carolina standard.

d Arithmetic average except in the case of TSP.

e Emission factors used for input to EDMS are in terms of TSP; therefore, EDMS provides ambient particulate concentrations in terms of TSP. PM–10 is a portion of the total particulate. The TSP concentrations for the Proposed Action and all alternatives are less than the PM–10 standard; therefore, the PM–10 concentrations for the Proposed Action and all alternatives are less than the standard.

f SCDHEC does not monitor CO or NOx.

g Georgetown Continuous Monitoring Station.

h Georgetown Howard High School

i ND = non–detect

j Georgetown County Health Department

k Myrtle Beach County Health Department

Table 4.4-37. Pollutant Emissions Associated with the Proposed Action (tons/day)

Pollutant	Source Type	1991 Emissions Inventory			Reuse-Related Emissions			
		Georgetown Intrastate AQCR[1,3]	Horry County[1,3]	Myrtle Beach AFB[2]	1993	1998	2003	2013
TSP	Stationary	4.81	0.24	0.007	4.950	4.950	4.950	4.950
	Mobile	---	---	0.013	0.002	0.008	0.012	0.015
CO	Stationary	26.40	0.42	0.028	---	---	---	---
	Mobile	---	---	1.403	0.231	6.362	7.395	8.408
SO_x	Stationary	71.49	11.79	0.089	---	---	---	---
	Mobile	---	---	0.023	0.008	0.016	0.020	0.024
NO_x	Stationary	82.84	4.50	0.015	---	---	---	---
	Mobile	---	---	0.267	0.106	0.871	1.188	1.378
VOC	Stationary	0.51	0.13	0.224	0.006	0.008	0.008	0.010
	Mobile	---	---	0.990	0.057	0.570	0.653	0.744

[1]Data obtained from USEPA Region IV.
[2]1989 emissions data.
[3]Georgetown Intrastate AQCR and Horry County emission inventories include only stationary sources.

Construction. Fugitive dust (particulate matter or TSP) and construction vehicle exhaust emissions would be generated during development, including existing facility demolition and new facility construction, for each land use under the Proposed Action. This includes construction of a general aviation runway at the jetport after the year 2002, expansion of the existing jetport terminal, and new facilities to support the proposed airfield expansion; renovation of existing buildings for industrial and R&D usage; new building construction for R&D uses; and development of an educational facility, an air museum, and a destination resort. Fugitive dust is generated by (1) the pulverization and abrasion of surface materials through mechanical force such as land clearing, equipment traffic, excavation, and demolition/construction of the facilities themselves; and (2) entrainment of dust particles by the action of the wind on exposed surfaces (minor compared to construction). These emissions would be greatest during site clearing and grading activities, blasting, cut and fill operations, and equipment operation. Emissions would vary significantly from day to day depending on the type of operation, level of activity, and the prevailing weather conditions. A large amount of dust would be generated by equipment travel over temporary roads.

The quantity of fugitive dust emissions from a construction site is proportional to the land being worked and the level of construction activity. USEPA had estimated that uncontrolled fugitive dust emissions from ground-disturbing activities would be emitted at a rate of 110 pounds per acre per working day or 1.2 tons per acre of construction per month of activity (USEPA, 1985a). A more recent USEPA report (USEPA, 1988b) allows calculations of PM-10 emissions from some open dust sources based on the PM-10/TSP emission factor ratio. The PM-10/TSP ratios range from 0.22 to 0.27. For this analysis, it is assumed that the PM-10 fraction of the fugitive dust emissions from construction activities is 0.27 (27 percent) or 0.32 tons per acre per month (29 pounds per acre per working day).

It is estimated that demolition of 1,127,000 square feet of floor space, retention of 3,959,000 square feet of floor space, and new runway and facility construction would disturb a total of approximately 1,784 acres over the 20-year period of project development. The average amount of land that would be disturbed at any one time during these construction activities is estimated to be approximately 5 percent or 90 acres. The average unmitigated or uncontrolled amount of particulate emissions would therefore be 4.95 tons per day (1.31 tons per day of PM-10). The impact of these emissions would cause elevated short-term concentrations of particulates at receptors close to the construction areas. However, the elevated concentrations would be a temporary effect that would fall off rapidly with distance.

Pollutants from construction equipment and vehicle engine exhausts are NO_x, SO_2, CO, PM-10, and VOCs. Combustion engine exhausts would be temporary and, like the fugitive dust emissions, would not be expected to result in significant long-term impacts. Construction of site buildings may include field painting of ferrous and nonferrous metal and wood; however, this would be on a limited basis and should pose no significant impact.

Operations. Potential impacts to air quality as a result of air emissions from the operations under the Proposed Action were evaluated in terms of two spatial scales: subregional and local. The subregional-scale analysis considered the potential for project emissions to cause or contribute to a nonattainment condition in the Horry County portion of the Georgetown AQCR. The local-scale analysis evaluated the potential impact to ambient air quality concentrations in the immediate vicinity of the Proposed Action. The following sections present the results of these analyses and provide a comparison of the potential air quality effects of the Proposed Action to the various project alternatives.

Regional Scale. Since the Georgetown AQCR is in attainment for all air quality standards, the SIP does not currently provide for any additional or special programs or strategies (other than those established under present state regulations), for maintenance of the air quality standards in the region. In addition, there are no ambient monitoring stations in the Georgetown AQCR for CO, NO_2 or ozone (O_3). The only monitoring stations in the vicinity of the project are a lead monitor in Myrtle Beach and a TSP monitor in Conway. The remaining monitors are located in Georgetown. However, SCDHEC Regulation 61-62, Air Pollution Control Regulations and Standards and the CAA Amendments of 1990 establish a variety of air emission management and control requirements that will affect both existing and future sources of air pollution in South Carolina. Regulation 61-62, in some respects, is more restrictive than the CAA in that Regulation 61-62 requires all AQCRs in South Carolina to achieve and maintain the South Carolina ambient air quality standards (AAQS), which contain a TSP standard and a gaseous fluoride standard in addition to the NAAQS. As a result, the evaluation of regional-scale impacts from the Proposed Action has considered the effect any new air emissions would have on the air quality attainment status of the Georgetown Intrastate AQCR.

As stated above, the Georgetown Intrastate AQCR currently meets the NAAQS and South Carolina AAQS for all criteria pollutants. Because the area is in attainment for these pollutants, SCDHEC has not made detailed estimates of

future emissions of these pollutants, and has not been required to establish specific emission reduction measures. Also, SCDHEC does not consider this type development a threat to the attainment status of the ambient air quality in the Georgetown AQCR. The process by which emissions of these pollutants are prevented from creating a nonattainment condition is through a number of permitting strategies applied to stationary sources:

- Prevention of Significant Deterioration (PSD). This process limits the allowable ambient air quality impact of emissions from new major stationary sources or a major modification to a stationary source to specific increments so that the source will not affect the attainment status of the area where the it is located. The PSD process only applies to SO_2, NO_x, and TSP. In addition, USEPA has proposed PSD increments for PM-10. The PSD process does not provide any means for dealing with mobile sources such as aircraft and motor vehicles.

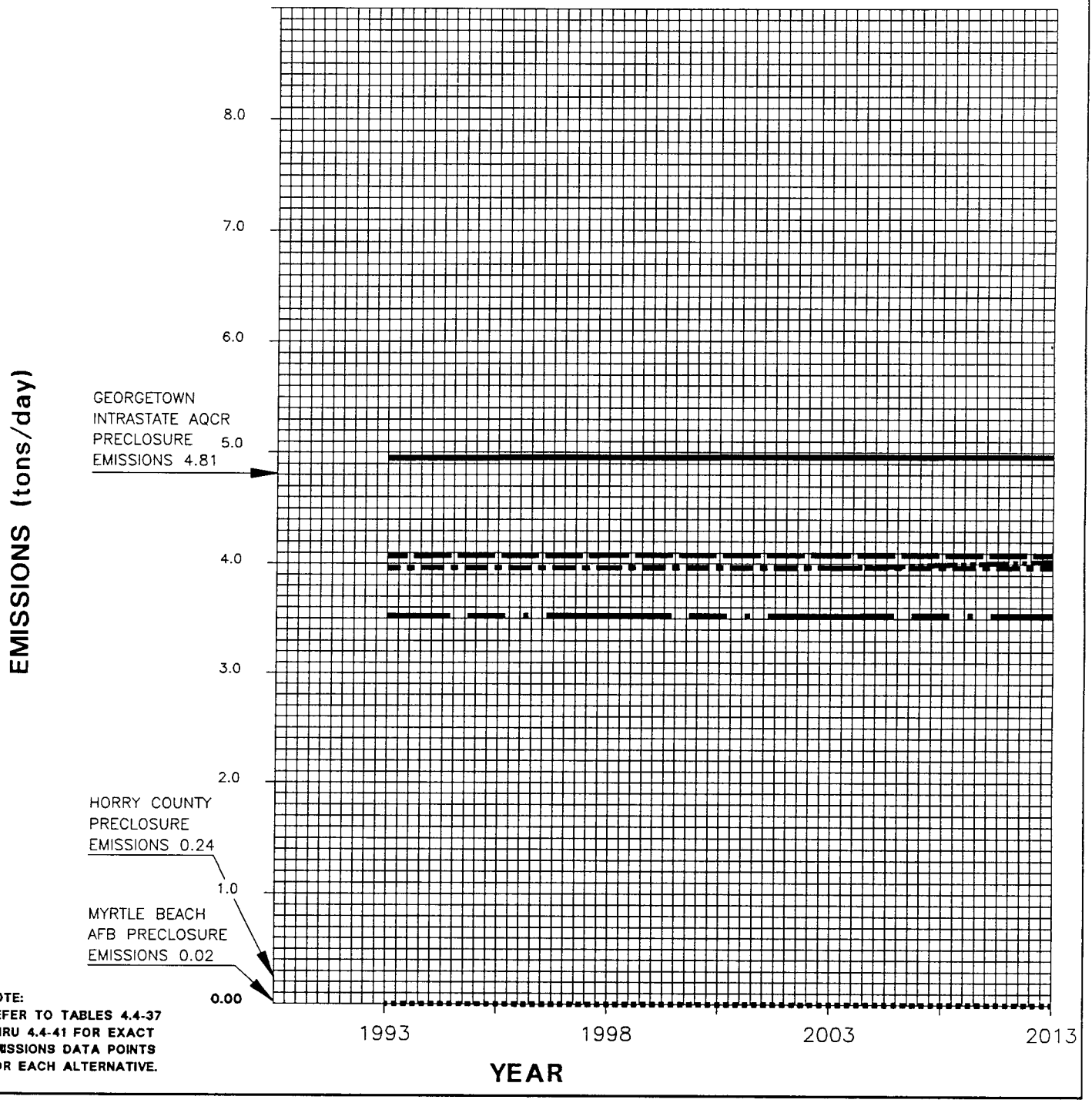
- New Source Performance Standards (NSPS). These are special standards for more than 60 categories of sources promulgated to require new industrial plants and existing modified ones to satisfy more stringent requirements.

- New Source Review (NSR). Major industrial growth projects in both attainment areas and nonattainment areas must be approved through this review. NSR includes the PSD requirements described above to prevent growth from causing a significant deterioration of air quality. In nonattainment areas it is used to ensure that air quality improves.

There are no state programs in place at this time to address emissions from mobile sources. However, there is a movement within SCDHEC to develop a mobile source program.

Total estimated emissions associated with operations under the Proposed Action are included with construction emissions, and jetport rental car agency vehicle refueling operations in Table 4.4-37 for 1993, 1998, 2003, and 2013. This table also provides a comparison of the magnitude of the reuse emissions in relation to the emissions inventory for the Georgetown AQCR, Horry County, and the preclosure emission level of Myrtle Beach AFB. Figures 4.4-1 through 4.4-5 illustrate the relative level of TSP, CO, SO_x, NO_x, and VOC emissions respectively for the Proposed Action and each alternative in comparison to the basin-wide, county, and Myrtle Beach AFB preclosure emission levels. Emissions from the Proposed Action and the other alternatives are due mostly to the high level of vehicle activity and the relatively low level of aircraft operations. TSP emissions are mainly from construction activities. The emission inventory for each pollutant takes into account the higher percentage use of emissions control throughout the vehicle fleet as well as the implementation of more stringent tailpipe exhaust standards.

- Particulate emissions for each alternative would show a steady emission rate over the out years of the project. The steady rate of emissions is due to the inclusion in the emission inventory of fugitive dust emissions from construction activities. Fugitive



NOTE:
REFER TO TABLES 4.4-37 THRU 4.4-41 FOR EXACT EMISSIONS DATA POINTS FOR EACH ALTERNATIVE.

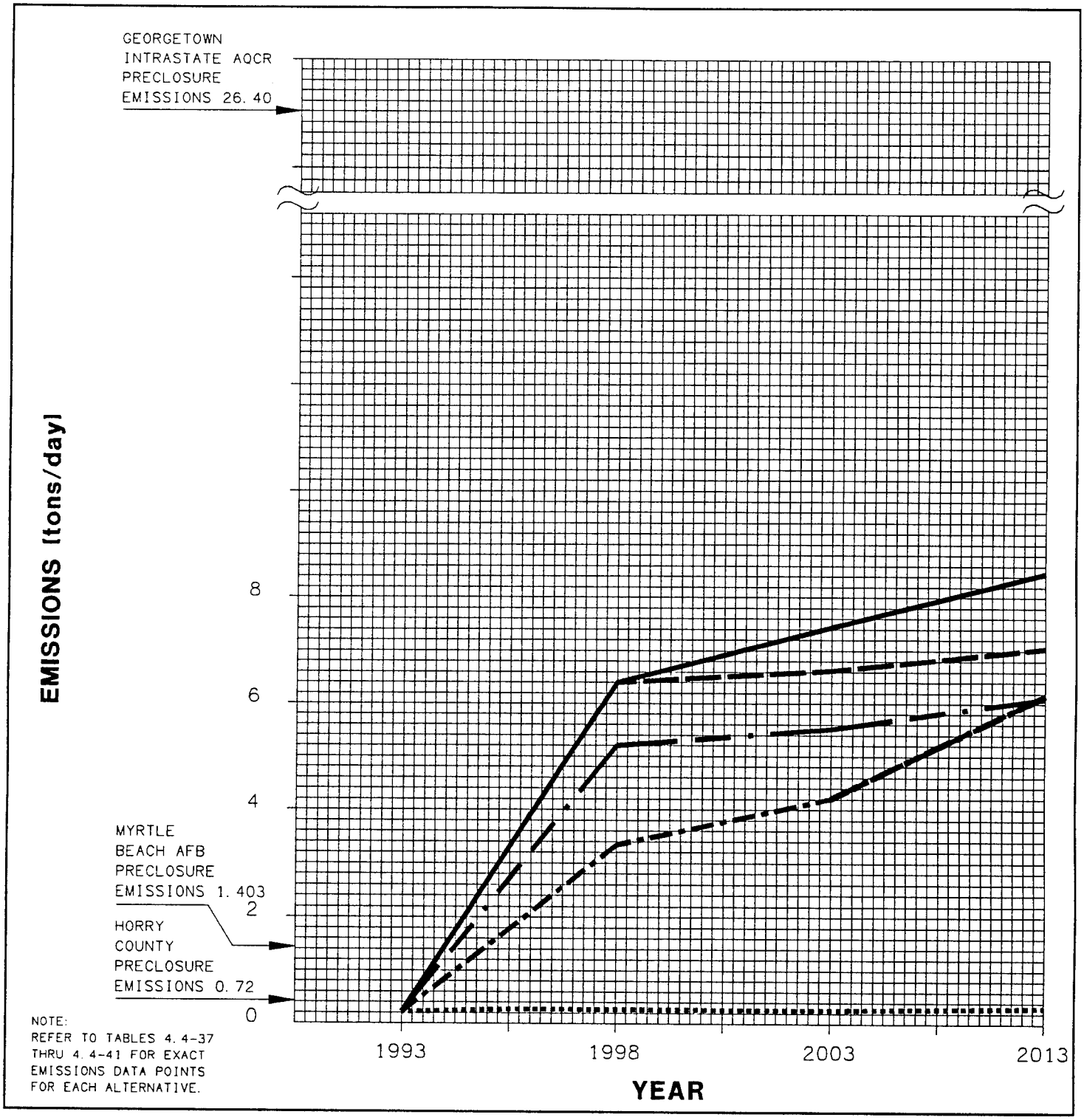
EXPLANATION

- PROPOSED ACTION
- EXPANDED AIRFIELD/RESORT – RECREATION ALTERNATIVE
- EXPANDED AIRFIELD/RESORT – COMMERCIAL–INDUSTRIAL ALTERNATIVE
- EXISTING AIRFIELD/MIXED USE ALTERNATIVE
- EXISTING AIRFIELD/MIXED USE ALTERNATIVE– RESTICTED SECOND RUNWAY OPTION
- NO–ACTION ALTERNATIVE

TSP EMISSIONS FROM REUSE ALTERNATIVES

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.4-1



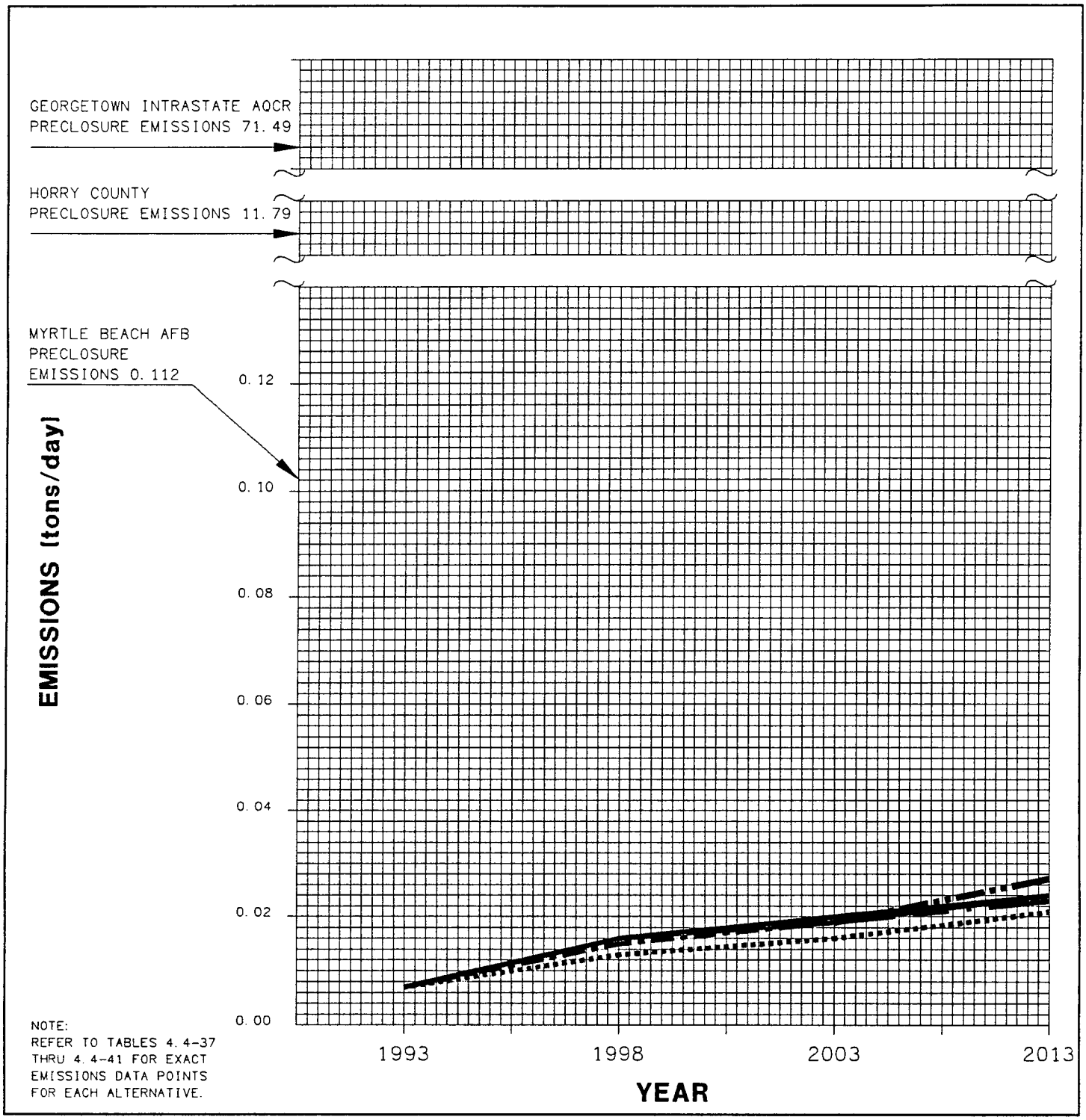
EXPLANATION

- PROPOSED ACTION
- EXPANDED AIRFIELD/RESORT – RECREATION ALTERNATIVE
- EXPANDED AIRFIELD/RESORT – COMMERCIAL–INDUSTRIAL ALTERNATIVE
- EXISTING AIRFIELD/MIXED USE ALTERNATIVE
- EXISTING AIRFIELD/MIXED USE ALTERNATIVE– RESTICTED SECOND RUNWAY OPTION
- NO–ACTION ALTERNATIVE

CO EMISSIONS FROM REUSE ALTERNATIVES

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.4-2



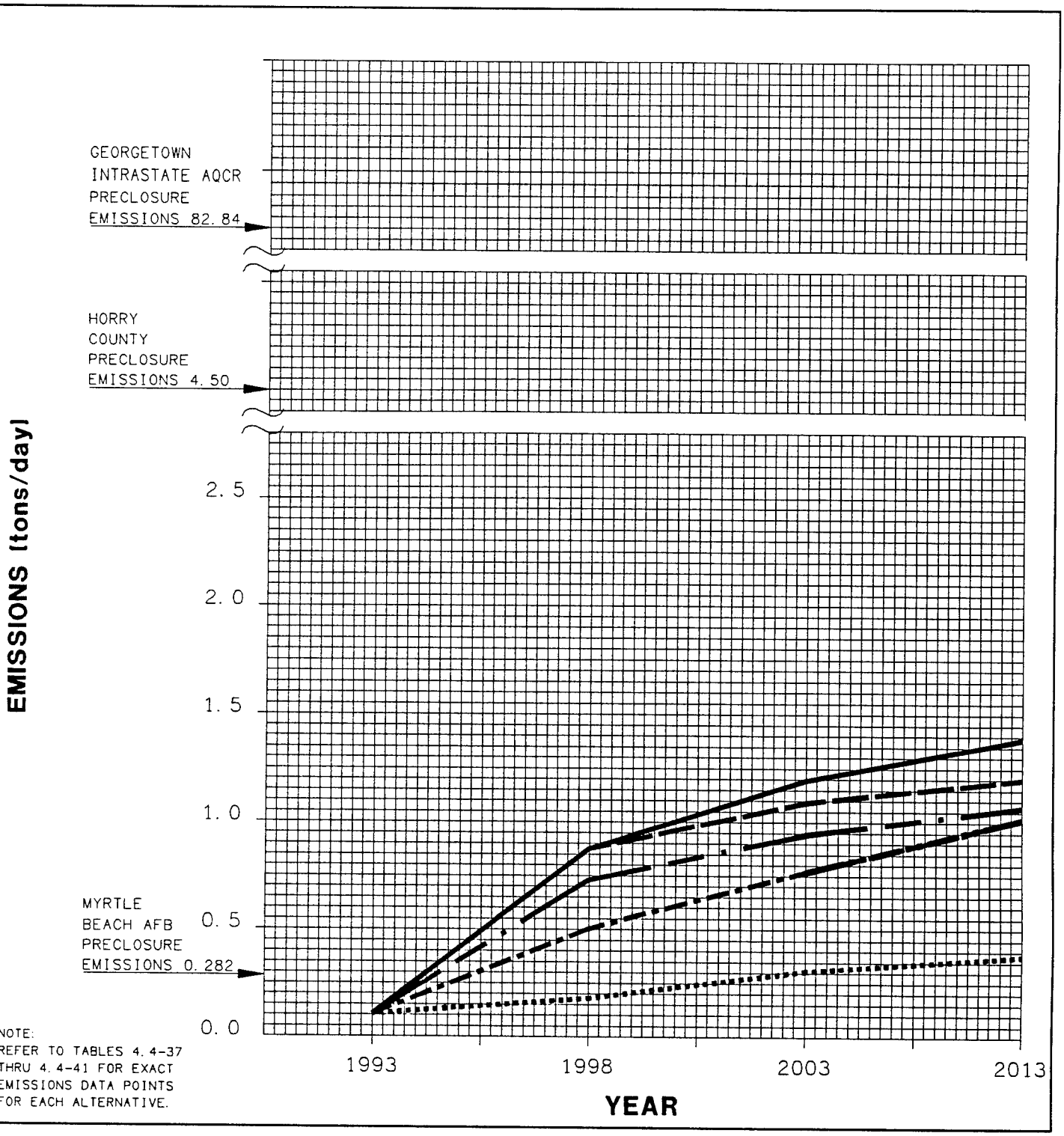
EXPLANATION

- PROPOSED ACTION
- EXPANDED AIRFIELD/RESORT – RECREATION ALTERNATIVE
- EXPANDED AIRFIELD/RESORT – COMMERCIAL–INDUSTRIAL ALTERNATIVE
- EXISTING AIRFIELD/MIXED USE ALTERNATIVE
- EXISTING AIRFIELD/MIXED USE ALTERNATIVE– RESTICTED SECOND RUNWAY OPTION
- NO–ACTION ALTERNATIVE

SO_X EMISSIONS FROM REUSE ALTERNATIVES

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.4-3



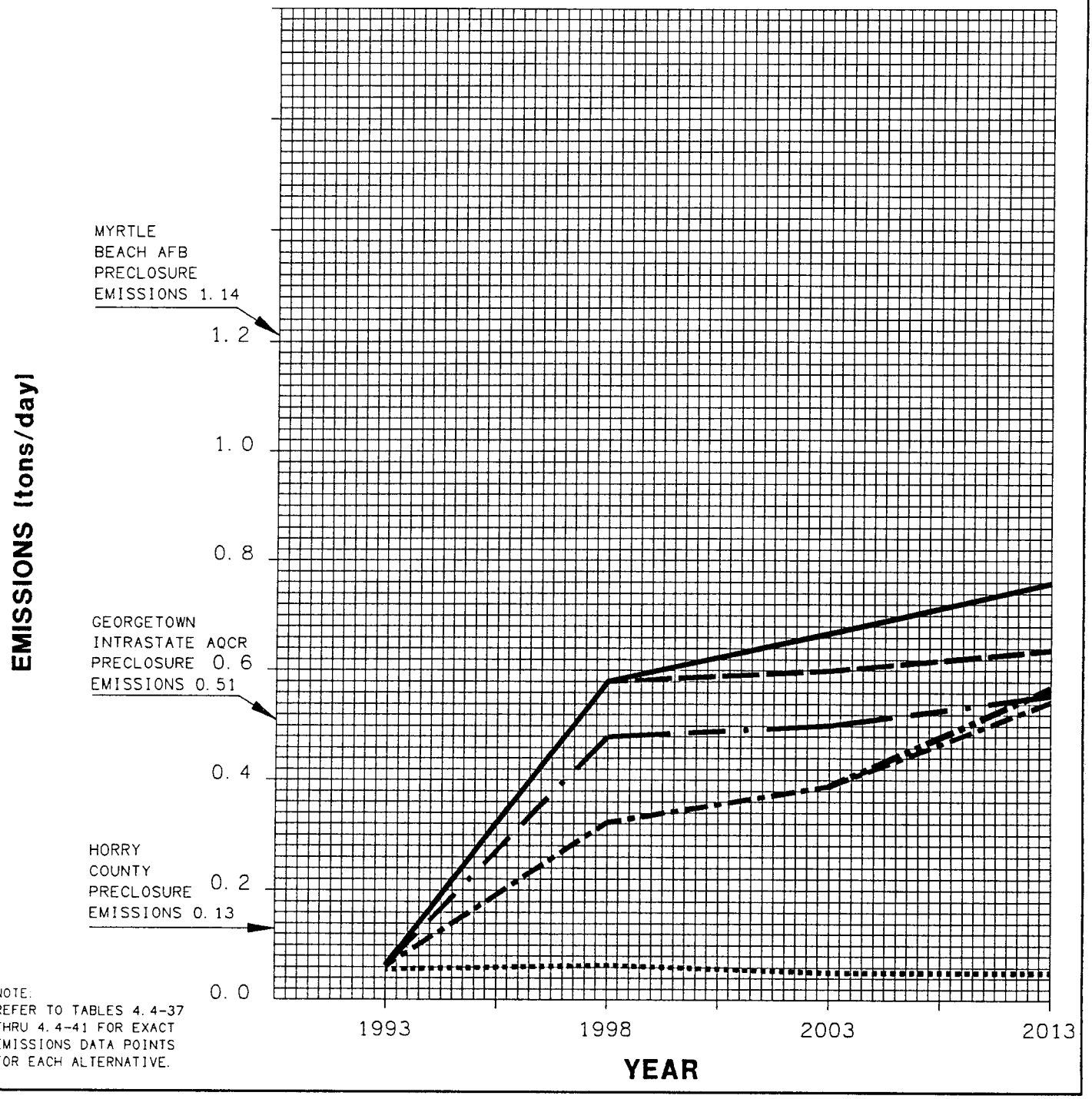
EXPLANATION

- PROPOSED ACTION
- EXPANDED AIRFIELD/RESORT – RECREATION ALTERNATIVE
- EXPANDED AIRFIELD/RESORT – COMMERCIAL–INDUSTRIAL ALTERNATIVE
- EXISTING AIRFIELD/MIXED USE ALTERNATIVE
- EXISTING AIRFIELD/MIXED USE ALTERNATIVE– RESTICTED SECOND RUNWAY OPTION
- NO–ACTION ALTERNATIVE

NOx EMISSIONS FROM REUSE ALTERNATIVES

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.4-4



EXPLANATION

- PROPOSED ACTION
- EXPANDED AIRFIELD/RESORT – RECREATION ALTERNATIVE
- EXPANDED AIRFIELD/RESORT – COMMERCIAL–INDUSTRIAL ALTERNATIVE
- EXISTING AIRFIELD/MIXED USE ALTERNATIVE
- EXISTING AIRFIELD/MIXED USE ALTERNATIVE– RESTICTED SECOND RUNWAY OPTION
- NO–ACTION ALTERNATIVE

VOLATILE ORGANIC COMPOUND EMISSIONS FROM REUSE ALTERNATIVES

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.4-5

dust emissions are based on the assumption that the acreage under construction for each alternative (with the exception of the No-Action Alternative) would be different, but that particular value would remain constant throughout the life of the project construction phase. Other sources contribute to the TSP emissions inventory; however, they are insignificant when compared to the average daily estimated emissions from construction activities. Thus a steady TSP emission rate is seen. The particulate emissions from the Proposed Action would be greater than the other alternatives for each year analyzed, as well as the preclosure levels for Myrtle Beach AFB, Horry County, and Georgetown AQCR. The remaining alternatives, with the exception of the No-Action Alternative, would be greater than the preclosure levels of Horry County and Myrtle Beach AFB. The emission level for the No-Action Alternative would be less than any of the three preclosure inventories. It should be noted that once a project is completed, the construction related fugitive dust emissions would be eliminated.

- CO emissions would show an increase over the out years of the project. CO emissions from the Proposed Action would be equal to or greater than the other alternatives for each year analyzed. Final CO emissions for all alternatives, with the exception of the No-Action Alternative, would exceed the preclosure levels for MBAFB and Horry County, but remain well below the preclosure level for the AQCR.

- SO_x emissions would show a gradual increase over the out years of the project. SO_x emissions for the Proposed Action would be equal to or greater than emissions from the other alternatives. Final SO_x emissions for the Proposed Action, as well as the other alternatives, would be less than preclosure emissions from MBAFB, Horry County, and the AQCR.

- NO_x emissions show an increase over the analysis period of the project. NO_x emissions from the Proposed Action would be equal to or greater than emissions from the other alternatives. Final NO_x emissions for all alternatives would exceed the preclosure level for MBAFB, but would be lower than the preclosure levels for Horry County and the AQCR.

- Hydrocarbon emissions would show an increase over the out years of the project. VOC emissions from the Proposed Action would be equal to or greater than levels for all other alternatives. Final VOC emission levels for all alternatives would exceed the preclosure level for Horry County, would be equal to or greater than the level for the AQCR, and would be below the preclosure level for MBAFB. It must be emphasized that the Horry County and AQCR emissions inventories do not include emissions from mobile sources.

Local Scale. The impacts of emissions associated with operation of the commercial airport and vehicle activity associated with the Proposed Action were assessed by use of the EDMS. The EDMS was developed by the FAA and the Air Force specifically to prepare airport or air base emission inventories, and to calculate the concentrations caused by these emissions as they disperse downwind. Peak-hour scenarios for emissions from both aircraft operations and vehicle traffic serving the airport and various projected land uses were modeled. A variety of worst-case meteorological conditions that combined a 1 meter per second windspeed with a D stability class were used as input in conjunction with wind directions both parallel and perpendicular to the runways and major terminal roadways. Ambient temperature was assumed to be 79 degrees F, and traffic on the roadways was assumed to be operating in a 20 percent cold start mode, while traffic in the parking areas was assumed to be 80 percent cold start. USEPA conversion factors were used to convert model-predicted 1-hour impact results to conservative screening-level estimates of longer averaging period concentrations (USEPA, 1977). The actual long-term averages would be less than the values produced by use of the conversion factors.

A summary of the EDMS analysis is presented in Table 4.4-36. Receptors were analyzed around the property boundary and within the projected area of development. No ambient air quality standard was exceeded for this screening analysis. The results show that for a peak-hour airport operation and traffic activity scenario, the maximum concentrations of CO, NO_2 and particulates would occur at a receptor in line with and south of the runway at the property line. The primary contribution to the impact at this location is from vehicle exhausts. The maximum concentration of SO_2 would occur at a receptor in line with and north of the runway at the property line. The primary contribution to the impact at this location is from aircraft operations. The maximum concentrations would occur during 2013. Modeling results are presented in Table 4.4-36.

Cumulative Impacts. One outside action that could have a cumulative impact on ambient air quality with regard to the Proposed Action is the construction of the Carolina Bays Parkway and Conway Bypass. However, fugitive dust impacts from construction activities are temporary and fall off rapidly with distance. With the application of SCDHEC Regulation 62.6 (Control of Fugitive Particulate Matter) and proper mitigation measures, no cumulative air quality impacts from fugitive dust are anticipated.

Mitigation Measures. Mitigation for potential air quality impacts would be directed at reducing the overall emission inventory and the pollutant concentrations at selected receptor locations. Abatement strategies to mitigate air pollutant impacts can be implemented during both the construction phase and operational phase of the Proposed Action.

Air quality impacts during construction would occur from (1) fugitive dust emissions from ground-disturbing activities and (2) combustive emissions from construction equipment. The future reuse proponent would have the responsibility for mitigating these impacts. Abatement strategies implemented during the construction phase are straight-forward and, as a rule, a matter of enforcement. It should be noted that abatement actions are not mandatory as

long as air quality rules and regulations are being met. Numerous methods are available to mitigate fugitive dust emissions during construction activities:

- Implement a watering program during cut and fill operations and excavation. This is the most common method (water and equipment are usually available at the site) and twice-a-day water application can reduce emissions by at least 50 percent (USEPA, 1985a). Watering for dust control should only be done as conditions dictate, such as when a nuisance is being created off site. It is anticipated that the use of watering for dust control would be minimal compared to water use in the area and would not cause any problems with regard to groundwater drawdown. Other methods of dust suppression could be employed to limit the use of water, such as chemical stabilization, soil binders, or compaction of fill material.

- Apply water or chemical stabilization to dirt roads and heavily traveled primary haul route sections as necessary.

- Clear areas on a selective basis to reduce exposed soil to windy conditions.

- Treat disturbed areas after clearing, grading, earth moving, or excavation is completed by watering, revegetation, spreading soil binders, or compacting fill material until areas are paved or developed.

- Decrease the time period during which newly graded sites are exposed to the elements. This further mitigates fugitive dust emissions by some factor directly related to the reduction in exposure time.

- Sod, seed, mulch, or landscape areas as soon as possible after clearing or grading.

- Maintain reduced vehicle/equipment traffic and speed on temporary roads.

- Develop asphalt roads as soon as possible.

- Clean (sweep) paved roads adjacent to sites as necessary.

- Terminate activities during high wind conditions.

- Remove dust-producing materials as soon as possible.

Combustive emissions from construction vehicles/equipment could be mitigated by efficient scheduling of equipment use, implementing a phased construction schedule to reduce the number of units operating simultaneously, and performing regular vehicle engine maintenance. The amount of emission reduction provided by these measures is not known with certainty because of the potential variables in scheduling. However, it is estimated that implementation of these measures would substantially reduce combustive

emissions and air quality effects from construction activities associated with the Proposed Action by 10 to 25 percent. In addition, all aviation development during the construction phase would comply with measures contained in the FAA Standards for Specifying Construction of Airports (FAA, 1990).

Air quality operational mitigation measures would be necessary to eliminate any interference with maintenance of the NAAQS and state air quality standards due to increased emissions from the Proposed Action. Mitigation measures would have to be developed by the jetport operator. These measures would have to be coordinated with the SCDHEC in order to ensure consistency with local and/or regional air quality maintenance plans.

Abatement strategies applied to the operational phase of an airport are somewhat more sophisticated and require a more complicated set of strategies. The primary source of emissions, the aircraft engine, can best be controlled by redesign or modification; however, this is out of the control of the planners. Engine replacement or modification usually comes about as the aircraft fleet is upgraded through attrition; airlines acquire newer aircraft (and newer engines), gradually phasing out older models. As newer aircraft are added to the fleet, the older aircraft are gradually retired and the effect is one of replacing older, dirtier engines with newer engines that produce less emissions. The only abatement strategies that can be used during airport operation are modifications of ground operations. Such procedures would include increasing idle speed, use of a minimal number of engines for taxiing (reduced engine taxiing), reducing the length of taxiing, minimizing time waiting to park, and reducing the queuing time at departure. A final option may be to implement derated take-off if feasible. This is a procedure where the throttle is set at less than 100 percent for takeoff under certain circumstances.

Potential mitigation measures to reduce motor vehicle pollution would most likely focus on various types of land use or transportation planning and management measures. The purpose of the measures would be to reduce vehicle miles travelled, vehicle trips, peak hour travel, moving at a low rate of speed, and excessive idle time. These reductions would, therefore, reduce both regional and localized vehicle-related emissions of CO, NO_x, VOCs, and PM-10.

The types of operational mitigation measures that could be implemented include: (1) development of a comprehensive shuttle system to serve anticipated development and the airport in order to reduce personal vehicle use; (2) use of off-site parking and parking lot shuttles for long-term parking needs; (3) development of a light rail or trolley (electric) transportation system to service the development and the airport; (4) promotion of carpools and vanpools by providing a rider matching service, preferential parking and financial incentives; (5) financial incentives to encourage the use of public transit; (6) improvements such as bicycle lanes, storage facilities, and showers to increase the use of cycling as a mode of transportation; (7) on-site location of facilities that would reduce the need for off-site travel (e.g., childcare facilities, cafeterias, postal machines, automated tellers, etc.); (8) roadways designed to restrict the number of signal-controlled intersections and to maintain constant travel speeds; and (9) parking lots located and designed to reduce congestion and waiting times. The amount of emission reduction achieved would depend on the particular mitigation measures selected.

4.4.3.2. Expanded Airfield/Resort-Recreation Alternative

The primary differences between this alternative and the Proposed Action are increased acreage in airfield and public facilities and recreation use; decreased acreage in aviation support, industrial and residential use; elimination of the educational facility; and inclusion of a medical facility. The projected vehicle trips per day associated with this alternative are less than those estimated for the Proposed Action and would decrease the amount of transportation and population-related emissions. Total estimated emissions for this alternative are presented in Table 4.4-38 for the years 1993, 1998, 2003, and 2013. The reuse-related emissions would be an increase with regard to the AQCR and Horry County.

Table 4.4-38. Pollutant Emissions Associated with the Expanded Airfield/Resort-Recreation Alternative (tons/day)

		1991 Emissions Inventory			Reuse-Related Emissions			
Pollutant	Source Type	Georgetown Intrastate AQCR[1,3]	Horry County[1,3]	Myrtle Beach AFB[2]	1993	1998	2003	2013
TSP	Stationary	4.81	0.24	0.007	3.520	3.520	3.520	3.520
	Mobile	---	---	0.013	0.002	0.007	0.009	0.011
CO	Stationary	26.40	0.42	0.028	---	---	---	---
	Mobile	---	---	1.403	0.231	5.168	5.485	6.060
SO_x	Stationary	71.49	11.79	0.089	---	---	---	---
	Mobile	---	---	0.023	0.008	0.016	0.020	0.023
NO_x	Stationary	82.84	4.50	0.015	---	---	---	---
	Mobile	---	---	0.267	0.106	0.726	0.936	1.063
VOC	Stationary	0.51	0.13	0.224	0.006	0.008	0.008	0.010
	Mobile	---	---	0.990	0.057	0.469	0.490	0.543

[1]Data obtained from USEPA Region IV.
[2]1989 emissions data.
[3]Georgetown Intrastate AQCR and Horry County emission inventories include only stationary sources.

Construction. The description and impacts of construction activities are similar to the Proposed Action with the following exceptions. Construction impacts from this alternative would be less than the Proposed Action because of the decreased amount of development required. It is estimated that demolition of 1,561,000 square feet of floor space, retention of 2,690,000 square feet of floor space, and new facility construction would disturb a total of approximately 1,289 acres over the 20-year period of development. The average amount of land that would be disturbed at any one time during these construction activities is 64 acres. The average unmitigated amount of particulate matter emissions would therefore be 3.52 tons per day (0.92 tons per day of PM-10). The impact of these emissions would cause elevated short-term concentrations of particulates at receptors close to the construction areas. However, the elevated concentrations would be a temporary effect that would fall off rapidly with distance.

Operations. Impacts, both on the regional and local scales for the Expanded Airfield/Resort-Recreation Alternative are similar to the Proposed Action with the following exceptions.

Regional Scale. Total estimated emissions associated with operations under the Expanded Airfield/Resort-Recreation Alternative are included with construction and jetport rental car agency vehicle refueling operations emissions in Table 4.4-38 for 1993, 1998, 2003, and 2013. This table also provides a comparison of the magnitude of the reuse emissions in relation to the emissions inventory for the Georgetown AQCR, Horry County, and the preclosure emission levels of Myrtle Beach AFB. Figures 4.4-1 through 4.4-5 illustrate the relative level of TSP, CO, SO_x, NO_x, and VOC emissions, respectively, for each alternative in comparison to the basin-wide, county, and Myrtle Beach AFB preclosure emission levels. Emissions from all alternatives are due mostly to the high level of vehicle activity and the relatively low level of aircraft operations. The emission inventory for each pollutant takes into account the higher percentage use of emissions control throughout the vehicle fleet as well as the implementation of more stringent tailpipe exhaust standards. An analysis of the pollutant trend over the out years of the project is similar to that presented in the Proposed Action.

Local Scale. A summary of the EDMS modeling analysis is presented in Table 4.4-36. Receptors were analyzed around the property boundary and within the projected area of development. No ambient air quality standard was exceeded for this screening analysis. The results show that for a peak-hour airport operation and traffic scenario, the maximum concentrations of CO, NO_2, and particulates would occur at a receptor in line with and south of the runway at the property line. The primary contribution to the impact at this location is from vehicle exhausts. The maximum concentration of SO_2 would occur at a receptor in line with and north of the runway at the property line. The primary contribution to the impact at this location is from aircraft operations. The maximum concentrations would occur during 2013. Modeling results are presented in Table 4.4-36.

Cumulative Impacts. Impacts of the Expanded Airfield/Resort-Recreation Alternative would be similar to the Proposed Action.

Mitigation Measures. Mitigation measures for the Expanded Airfield/Resort-Recreation Alternative would be similar to the Proposed Action.

4.4.3.3. Expanded Airfield/Resort-Commercial-Industrial Alternative

The differences between this alternative and the Proposed Action are increased acreage in the airfield, commercial, and public facilities and recreation use; decreased acreage in aviation support, industrial, and residential use; elimination of the educational facility; and inclusion of a medical facility. The projected vehicle trips per day associated with this alternative are fewer than those estimated for the Proposed Action and would decrease the amount of transportation and population-related emissions.

Construction. Construction impacts from this alternative would be less than the Proposed Action because of the decreased amount of development required. It is estimated that demolition of 1,540,000 square feet of floor space, retention of 2,797,000 square feet of floor space, and new construction would disturb a total of approximately 1,489 acres over the 20-year period of development. The average amount of land that would be disturbed at any one time during these construction activities is 74 acres. The average unmitigated

amount of particulate matter emissions would therefore be 4.07 tons per day (1.10 tons per day of PM-10). The impact of these emissions would cause elevated short-term concentrations of particulates at receptors close to the construction areas. However, the elevated concentrations would be a temporary effect that would fall off rapidly with distance.

Operations. Impacts, both on the regional and local scales for the Expanded Airfield/Resort-Commercial-Industrial Alternative are similar to the Proposed Action with the following exceptions.

Regional Scale. Total estimated emissions associated with operations under the Expanded Airfield/Resort Commercial-Industrial Alternative are included with construction emissions and jetport rental car agency vehicle refueling operations in Table 4.4-39 for 1993, 1998, 2003, and 2013. This table also provides a comparison of the magnitude of the reuse emissions in relation to the emissions inventory for the Georgetown AQCR, Horry County, and the preclosure emission levels of Myrtle Beach AFB. The reuse-related emissions would be an increase with regard to the AQCR and Horry County. Figures 4.4-1 through 4.4-5 illustrate the relative level of TSP, CO, SO_x, NO_x, and VOC emissions, respectively, for each alternative in comparison to the basin-wide, county, and Myrtle Beach AFB preclosure emission levels. Emissions from all alternatives are due mostly to the high level of vehicle activity and the relatively low level of aircraft operations. The emission inventory for each pollutant takes into account the higher percentage use of emissions control throughout the vehicle fleet as well as the implementation of more stringent tailpipe exhaust standards. An analysis of the pollutant trend over the out years of the project is similar to that presented under the Proposed Action.

Table 4.4-39. Pollutant Emissions Associated with the Expanded Airfield/Resort-Commercial-Industrial Alternative (tons/day)

Pollutant	Source Type	1991 Emissions Inventory			Reuse-Related Emissions			
		Georgetown Intrastate AQCR[1,3]	Horry County[1,3]	Myrtle Beach AFB[2]	1993	1998	2003	2013
TSP	Stationary	4.81	0.24	0.007	4.070	4.070	4.070	4.070
	Mobile	---	---	0.013	0.002	0.008	0.011	0.012
CO	Stationary	26.40	0.42	0.028	---	---	---	---
	Mobile	---	---	1.403	0.220	6.361	6.584	6.999
SO_x	Stationary	71.49	11.79	0.089	---	---	---	---
	Mobile	---	---	0.023	0.008	0.016	0.020	0.024
NO_x	Stationary	82.84	4.50	0.015	---	---	---	---
	Mobile	---	---	0.267	0.105	0.872	1.085	1.192
VOC	Stationary	0.51	0.13	0.224	0.006	0.008	0.008	0.010
	Mobile	---	---	0.990	0.056	0.570	0.588	0.624

[1]Data obtained from USEPA Region IV.
[2]1989 emissions data.
[3]Georgetown Intrastate AQCR and Horry County emission inventories include only stationary sources.

Local Scale. A summary of the EDMS analysis is presented in Table 4.4-36. Receptors were analyzed around the property boundary and within the

projected area of development. No ambient air quality standard was exceeded for this screening analysis. The results show that for a peak-hour airport operation and traffic activity scenario, the maximum concentrations of CO, NO_2, and particulates would occur at a receptor in line with and south of the runway at the property line. The primary contribution to the impact at this location is from vehicle exhausts. The maximum concentration of SO_2 would occur at a receptor in line with and north of the runway at the property line. The primary contribution to the impact at this location is from aircraft operations. The maximum concentrations of CO, NO_2, and particulates would occur during 1998 and the maximum concentrations of SO_x would occur during 2013. Modeling results are presented in Table 4.4-36.

Cumulative Impacts. Impacts of the Expanded Airfield/Resort-Commercial-Industrial Alternative would be similar to the Proposed Action.

Mitigation Measures. Mitigation measures for the Expanded Airfield/Resort-Commercial-Industrial Alternative would be similar to the Proposed Action.

4.4.3.4. Existing Airfield/Mixed Use Alternative

This alternative differs from the Proposed Action in that expansion of the jetport is limited to additional commercial aviation operations on the existing runway; there is increased acreage in residential, industrial, and educational development; and there is decreased acreage in aviation support, commercial, and public/recreation use. The projected vehicle trips per day associated with this alternative are less than those estimated for the Proposed Action and would decrease the amount of transportation and population-related emissions.

Construction. Construction impacts from this alternative would be less than the Proposed Action because of the decreased amount of development required. It is estimated that demolition of 14,000 square feet of floor space, retention of 2,264,000 square feet of floor space, and new construction would disturb a total of approximately 1,443 acres over the 20-year period of development. The average amount of land that would be disturbed at any one time during these construction activities is 72 acres. The average unmitigated amount of particulate matter emissions would therefore be 3.96 tons per day (1.07 tons per day of PM-10). The impact of these emissions would cause elevated short-term concentrations of particulates at receptors close to the construction areas. However, the elevated concentrations would be a temporary effect that would fall off rapidly with distance.

Operations. Impacts, both on the regional and local scales, for the Existing Airfield/Mixed Use Alternative are similar to the Proposed Action with the following exceptions.

Regional Scale. Total estimated emissions associated with operations under the Existing Airfield/Mixed Use Alternative are included with construction and jetport rental car agency vehicle refueling operations emissions in Table 4.4-40. This table also provides a comparison of the magnitude of the reuse emissions in relation to the emissions inventory for the Georgetown AQCR, Horry County, and the preclosure emission levels of Myrtle Beach AFB. The reuse-related emissions would be an increase with regard to the AQCR and Horry County. Figures 4.4-1 through 4.4-5 illustrate the relative level of TSP, CO, SO_x, NO_x,

and VOC emissions respectively for each alternative in comparison to the basin-wide, county, and Myrtle Beach AFB preclosure emission levels. Emissions from all alternatives are due mostly to the high level of vehicle activity and the relatively low level of aircraft operations. The emission inventory for each pollutant takes into account the higher percentage use of emissions control throughout the vehicle fleet as well as the implementation of more stringent tailpipe exhaust standards. An analysis of the pollutant trend over the out years of the project is similar to that presented under the Proposed Action.

Table 4.4-40. Pollutant Emissions Associated with the Existing Airfield/Mixed Use Alternative (tons/day)

		1991 Emissions Inventory			Reuse-Related Emissions				
Pollutant	Source Type	Georgetown Intrastate AQCR[1,3]	Horry County[1,3]	Myrtle Beach AFB[2]	1993	1998	2003	2013	2013[(4)]
TSP	Stationary	4.81	0.24	0.007	3.960	3.960	3.960	3.960	4.015
	Mobile	---	---	0.013	0.002	0.005	0.008	0.010	0.011
CO	Stationary	26.40	0.42	0.028	---	---	---	---	---
	Mobile	---	---	1.403	0.220	3.317	4.185	6.149	5.877
SO_x	Stationary	71.49	11.79	0.089	---	---	---	---	---
	Mobile	---	---	0.023	0.008	0.016	0.019	0.024	0.027
NO_x	Stationary	82.84	4.50	0.015	---	---	---	---	---
	Mobile	---	---	0.267	0.106	0.502	0.764	1.015	1.033
VOC	Stationary	0.51	0.13	0.224	0.006	0.008	0.008	0.010	0.010
	Mobile	---	---	0.990	0.056	0.313	0.379	0.535	0.056

[1]Data obtained from USEPA Region IV.
[2]1989 emissions data.
[3]Georgetown Intrastate AQCR and Horry County emission inventories include only stationary sources.
[4]Restricted Second Runway Option.

Local Scale. A summary of the EDMS analysis is presented in Table 4.4-36. Receptors were analyzed around the property boundary and within the projected area of development. No ambient air quality standard was exceeded for this screening analysis. The results show that for a peak-hour airport operation and traffic activity scenario, the maximum concentrations of CO, NO_2, and particulates would occur at a receptor in line with and south of the runway at the property line. The primary contribution to the impact at this location is from vehicle exhausts. The maximum concentration of SO_2 would occur at a receptor in line with and north of the runway at the property line. The primary contribution to the impact at this location is from aircraft operations. The maximum concentrations would occur during 2013. Modeling results are presented in Table 4.4-36.

Restricted Second Runway Option. This option would add a second runway after the year 2010. Construction would disturb an additional 13 acres over the 1,443 acres for the alternative with a single runway. The average amount of land that would be disturbed at any one time during construction activities is 73 acres. The average unmitigated amount of particulate emissions would, therefore, be 4.02 tons per day (1.09 tons per day of PM-10).

Pollutant emissions associated with this option would differ from emissions under the alternative with a singe runway only in the forecast year 2013. Data for the option are shown in Tables 4.4-36 and 4.4-40 and Figures 4.4-1 through 4.4-5.

Cumulative Impacts. Impacts from the Existing Airfield/Mixed Use Alternative would be similar to the Proposed Action.

Mitigation Measures. Mitigation measures for the Existing Airfield/Mixed Use Alternative would be similar to the Proposed Action.

4.4.3.5. No-Action Alternative (Existing Airfield/Caretaker)

Total estimated emissions associated with the No-Action Alternative are included with the jetport rental car agency vehicle refueling operations emissions in Table 4.4-41 for 1993, 1998, 2003, and 2013. The No-Action Alternative is predicated upon continued operation of the jetport with the remainder of the base in caretaker status. This alternative would have a small impact on air quality due to present and predicted growth in commercial aircraft activity at the jetport. However, with the elimination of Air Force ground (stationary and mobile sources) and flight activities, the area should experience

Table 4.4-41. Pollutant Emissions Associated with the No-Action Alternative (tons/day)

Pollutant	Source Type	1991 Emissions Inventory			Reuse-Related Emissions			
		Georgetown Intrastate AQCR[1,3]	Horry County[1,3]	Myrtle Beach AFB[2]	1993	1998	2003	2013
TSP	Stationary	4.81	0.24	0.007	---	---	---	---
	Mobile	---	---	0.013	0.002	0.001	0.001	0.001
CO	Stationary	26.40	0.42	0.028	---	---	---	---
	Mobile	---	---	1.403	0.220	0.272	0.263	0.308
SO_x	Stationary	71.49	11.79	0.089	---	---	---	---
	Mobile	---	---	0.023	0.008	0.014	0.017	0.021
NO_x	Stationary	82.84	4.50	0.015	---	---	---	---
	Mobile	---	---	0.267	0.105	0.179	0.307	0.376
VOC	Stationary	0.51	0.13	0.224	0.006	0.008	0.008	0.010
	Mobile	---	---	0.990	0.056	0.064	0.051	0.051

[1]Data obtained from USEPA Region IV.
[2]1989 emissions data.
[3]Georgetown Intrastate AQCR and Horry County emission inventories include only stationary sources.

a positive air quality impact compared to preclosure conditions as well as the Proposed Action or other proposed alternatives.

Cumulative Impacts. Cumulative impacts would be similar to the Proposed Action.

Mitigation Measures. Air quality mitigation measures would not be required for the No-Action Alternative since continued operation at present levels and future restricted growth (jetport operations capped under this alternative) in flight activities would have only minimal impacts on air quality. Dispersion modeling has shown minimum impacts for the Proposed Action and other alternatives,

even though the number of flight operations would be greater than for the No-Action Alternative. However, if mitigation measures are needed in the future, measures similar to the ones discussed under the Proposed Action could be implemented.

4.4.4 NOISE

Environmental impact analysis related to noise includes the potential effects on the local human and animal populations. This analysis will estimate the extent and magnitude of noise levels generated by the Proposed Action and alternatives, using the predictive models discussed below. The baseline noise conditions and predicted noise levels will then be assessed with respect to potential annoyance, speech interference, sleep disturbance, hearing loss, health, and land-use impacts. The metrics used to evaluate noise are day-night average sound level (DNL) and energy equivalent sound level (L_{eq}), which are supplemented occasionally by sound exposure level (SEL) and maximum instantaneous sound level (L_{max}). See Appendix K for an expanded discussion of these metrics.

Methods used to quantify the effects of noise such as annoyance, speech interference, sleep disturbance, health effects, and hearing loss have undergone extensive scientific development during the past several decades. The most reliable measures at present are noise-induced hearing loss and annoyance. Extra-auditory effects (those not directly related to hearing capability) are also important, although they are not as well understood. The current scientific consensus is that "evidence from available research reports is suggestive, but it does not provide definitive answers to the question of health effects, other than to the auditory system, of long-term exposure to noise" (National Academy of Sciences, 1981). The effects of noise are summarized within this section and a detailed description is provided in Appendix K.

Annoyance. Noise annoyance is defined by the USEPA as any negative subjective reaction to noise on the part of an individual or group. Table 4.4-42 presents the results of over a dozen studies of transportation modes, including airports, investigating the relationship between noise and annoyance levels. This relationship has been suggested by the National Academy of Sciences (NAS, 1977) and recently re-evaluated (Fidell et al., 1988) for use in describing people's reaction to semi-continuous (transportation) noise. These data are shown to provide a perspective on the level of annoyance that might be anticipated. For example, 15 to 25 percent of persons exposed to a DNL of 65 to 70 dB would be highly annoyed by the noise.

Table 4.4-42. Percentage of Population Highly Annoyed by Noise Exposure

DNL Interval in dB	Percentage of Persons Highly Annoyed
<65	<15
65-70	15-25
70-75	25-37
75-80	37-52

Source: Adapted from National Academy of Sciences, 1977.

Speech Interference. One of the ways that noise affects daily life is by prevention or impairment of speech communication. In a noisy environment, understanding speech is diminished when speech signals are masked by intruding noises. Reduced intelligibility of speech may also have other effects; for example, if the understanding of speech is interrupted, performance may be reduced, annoyance may increase, and learning may be impaired. Research suggests that aircraft flyover noises that exceed approximately L_{max} of 60 dBA interfere with speech communication (Pearsons and Bennett, 1974; Crook and Langdon, 1974). Increasing the level of the flyover noise maximum to 80 dB will reduce the intelligibility to zero, even if the person speaks in a loud voice. This interference lasts as long as the event, which is momentary for a flyover.

Sleep Interference. The effects of noise on sleep are of concern, primarily in assuring suitable residential environments. DNL incorporates consideration of sleep disturbance by assigning a 10 dB penalty to nighttime noise levels. SEL may be used to supplement DNL in evaluating sleep disturbance. When evaluating sleep disturbance, studies have correlated SEL values with the percent of people awakened. The relationships between percent awakened and SEL are presented in Appendix K. Most of these relationships, however, do not reflect habituation and, therefore, would not address long-term sleep disturbance effects. SEL takes into account an event's sound intensity, frequency content, and time duration, by measuring the total A-weighted sound energy of the event and incorporating it into a single number. Unlike DNL, which describes the daily average noise exposure, SEL describes the normalized noise from a single flyover, called an event.

Studies (Lukas, 1975; Goldstein and Lukas, 1980) show great variability in the percentage of people awakened by exposure to noise. A recent review (Pearsons et al., 1989) of the literature related to sleep disturbance, including field as well as laboratory studies, suggests that habituation may reduce the effect of noise on sleep. The authors point out that the relationship between noise exposure and sleep disturbance is complex and affected by the interaction of many variables. The large differences between the findings of the laboratory and field studies make it difficult to determine the best relationship to use. The method developed by Lukas would estimate seven times more awakenings than the field results reported by Pearsons.

Hearing Loss. Hearing loss is measured in decibels and refers to a permanent auditory threshold shift of an individual's hearing. The USEPA (USEPA, 1974) has recommended a limiting daily energy value of L_{eq} of 70 dBA to protect against hearing impairment over a period of 40 years. This daily energy average would translate into a DNL value of approximately 75 dBA or greater. Based on USEPA recommendations (USEPA, 1974), hearing loss is not expected in people exposed to DNL of 75 dBA or less. The potential for hearing loss involves direct exposure, on a regular, continuing long-term basis, to DNLs above 75 dBA. The Federal Interagency Committee on Urban Noise (U.S. Department of Transportation, 1980) states that hearing loss due to noise: (1) may begin to occur in people exposed to long-term noise at or above DNL of 75 dBA, (2) will not likely occur in people exposed to noise between a DNL of 70 and 75 dBA, and (3) will not occur in people exposed to noise less than a DNL of 70 dBA.

Health. Research investigating the relationship between noise and adverse extra-auditory health effects has been inconclusive. Alleged extra-auditory health consequences of noise exposure that have been studied include birth defects, psychological illness, cancer, stroke, hypertension and cardiac illnesses. Although hypertension appears to be the most biologically plausible of these consequences, studies addressing this issue have failed to provide adequate support. Studies that have found negative consequences have failed to be replicated, thereby questioning the validity of those studies (Frerichs et al., 1980; Anton-Guirgis et al., 1986). Studies that have controlled for multiple factors have shown no, or very weak, associations between noise exposure and extra-auditory effects (Thompson and Fidell, 1989). The current state of technical knowledge cannot support inference of a causal or consistent relationship, nor a quantitative dose-response, between residential aircraft noise exposure and health consequences.

Animals. The literature concerning the effects of noise on animals is not large, and most of the studies have focused on the relation between dosages of continuous noise and effects (Belanovskii and Omel'yanenko, 1982; Ames, 1974). A literature survey (Kull and Fisher, 1986) found that the literature is inadequate to document long-term or subtle effects of noise on animals. No controlled study has documented any serious accident or mortality in livestock despite extreme exposure to noise.

Land Use Compatibility. Estimates of total noise exposure resulting from aircraft operations, as expressed using DNL, can be interpreted in terms of the compatibility with designated land uses. The Federal Interagency Committee on Urban Noise developed land-use compatibility guidelines for noise (U.S. Department of Transportation, 1980). Based upon these guidelines, suggested compatibility guidelines for evaluating land uses in aircraft noise exposure areas were developed by the FAA and are presented in Section 3.4.4. The land use compatibility guidelines are based on annoyance and hearing loss considerations previously described. Part 150 of the FAA regulations describes the procedures, standards and methodology governing the development, submission and review of airport noise exposure maps and airport noise compatibility programs. It prescribes use of yearly DNL in the evaluation of airport noise environments. It also identifies those land-use types that are normally compatible with various levels of exposure. Compatible or incompatible land use is determined by comparing the predicted DNL level at a site with the recommended land uses.

Noise Modeling. In order to define the noise impacts from aircraft operations at Myrtle Beach AFB, the FAA aircraft noise model (Integrated Noise Model - INM) version 3.9 was used to predict DNL of 65 and 70 dBA noise contours and SEL values for noise-sensitive receptors. Appendix K defines these descriptors. The contours were generated for the Proposed Action and alternatives for three future year projections. These contours were overlaid on a map of the base and vicinity. Input data to INM version 3.9 include information on aircraft types; runway use; takeoff and landing flight tracks; aircraft altitude, speeds, and engine power settings; and number of daytime (7 A.M. to 10 P.M.) and nighttime (10 P.M. to 7 A.M.) operations.

Surface vehicle traffic-noise levels for roadways in the vicinity of Myrtle Beach AFB were analyzed using the Federal Highway Administration's (FHWA's)

Highway Noise Model (FHWA, 1978). This model incorporates vehicle mix, traffic volume projections, and speed to generate DNL. Major roads leading to or around the base were analyzed. Traffic data used to project future noise levels were derived from information gathered in the traffic analysis presented in Section 4.2.3. Traffic data used in this analysis are presented in Appendix K.

Major Assumptions. Half of all aircraft operations were assumed to be takeoffs and half were landings. Flight tracks (incoming and outgoing), aircraft operations, and mix are included in Appendix K. Vicinity flight tracks assumed for modeling are shown in Figure 4.4-6. All operations were assumed to follow standard glide slopes and takeoff profiles provided by the FAA's INM version 3.9.

According to new national legislation, after December 31, 1999, no person may operate a civil subsonic turbojet airplane certified at more than 75,000 pounds unless that airplane meets Stage 3 noise levels (14 CFR Part 91, 1991). Stage 3 noise levels are those specified in 14 CFR Part 36. Provisions of this legislation are considered for preparing the 2003 and 2013 noise contours.

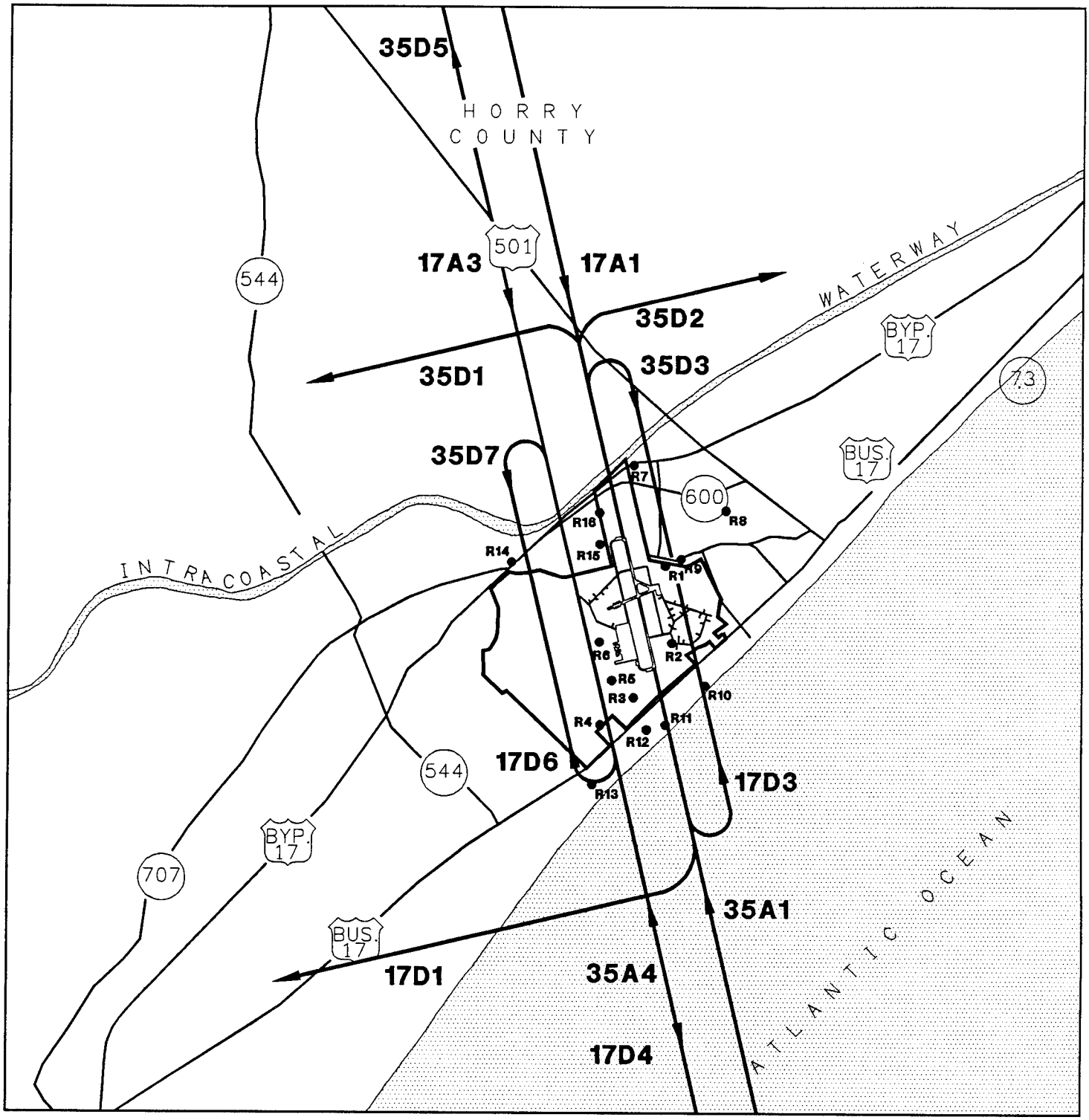
Runway use is dependent upon wind and weather characteristics. Since weather patterns are assumed not to change, the 1987 runway utilization was used for all future cases. In 1987, runway 17 of the airport was used 65 percent of the time, and runway 35 the remaining 35 percent of the time (LPA Group, Inc., 1989). In other words, the airport operates in a "south flow" 65 percent of the time and in a "north flow" the rest of the time.

Air carriers from the jetport provide service to Raleigh, North Carolina; Charlotte, North Carolina; and Atlanta, Georgia. All three of these cities are within 500 nm of the jetport. All aircraft for 1998 were modeled to represent a typical fuel requirement of such a short flight. It was assumed, however, that in 2003 and 2013, there would be some flights to cities farther away.

The closure of Myrtle Beach AFB would result in the withdrawal of all Air Force A-10 aircraft and transient military flights. The current limitation on civil operations of 46 per day between the hours of 6:00 A.M. and 12:00 P.M. with a complete restriction of all general aviation and business jet operations, would no longer be necessary since the Joint Use Agreement was intended to prevent interference with military operations. According to the Jetport Master Plan (LPA Group, Inc., 1992), general aviation and business jet service may be initiated after the base closure since there is a current desire for jetport access by aircraft operating out of Grand Strand, Conway/Horry County, and Georgetown Airports. However, for the No-Action Alternative, operations were assumed to remain at 1991 levels and mixes.

4.4.4.1 Proposed Action (Expanded Airfield/Resort-Education)

Noise impacts have been determined for the Proposed Action for the years 1998, 2003, and 2013. Since the Proposed Action, like the other alternatives, includes the closure of the base, it would result in a substantial noise reduction. Commercial aircraft operations would be the primary sources of noise in the



EXPLANATION

17D1 — FLIGHT TRACKS

R13 — RECEPTOR LOCATIONS

0 1/2 1 2 MILES

FLIGHT TRACKS AND RECEPTOR LOCATIONS

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.4-6

vicinity of the jetport, followed by commuter turboprops, and general aviation aircraft.

Aircraft noise, surface traffic noise, and construction noise impacts are discussed in the following sections.

Aircraft Noise. Noise level contours, developed using INM version 3.9 for jetport operations for the year 1998, 2003, and 2013, are presented in Figures 4.4-7, 4.4-8, and 4.4-9. The contours for 2013 are based on an additional 5,400-foot by 100-foot parallel runway for general aviation use only. Noise contours also include an increase of air carrier, general aviation, and business jet operations. Appendix K provides the aircraft operations that were used in the noise model for 1998, 2003, and 2013.

Figure 4.4-6 shows the flight tracks used for generating the noise contours. Flight tracks related to the new runway were used only for generating 2013 noise contours.

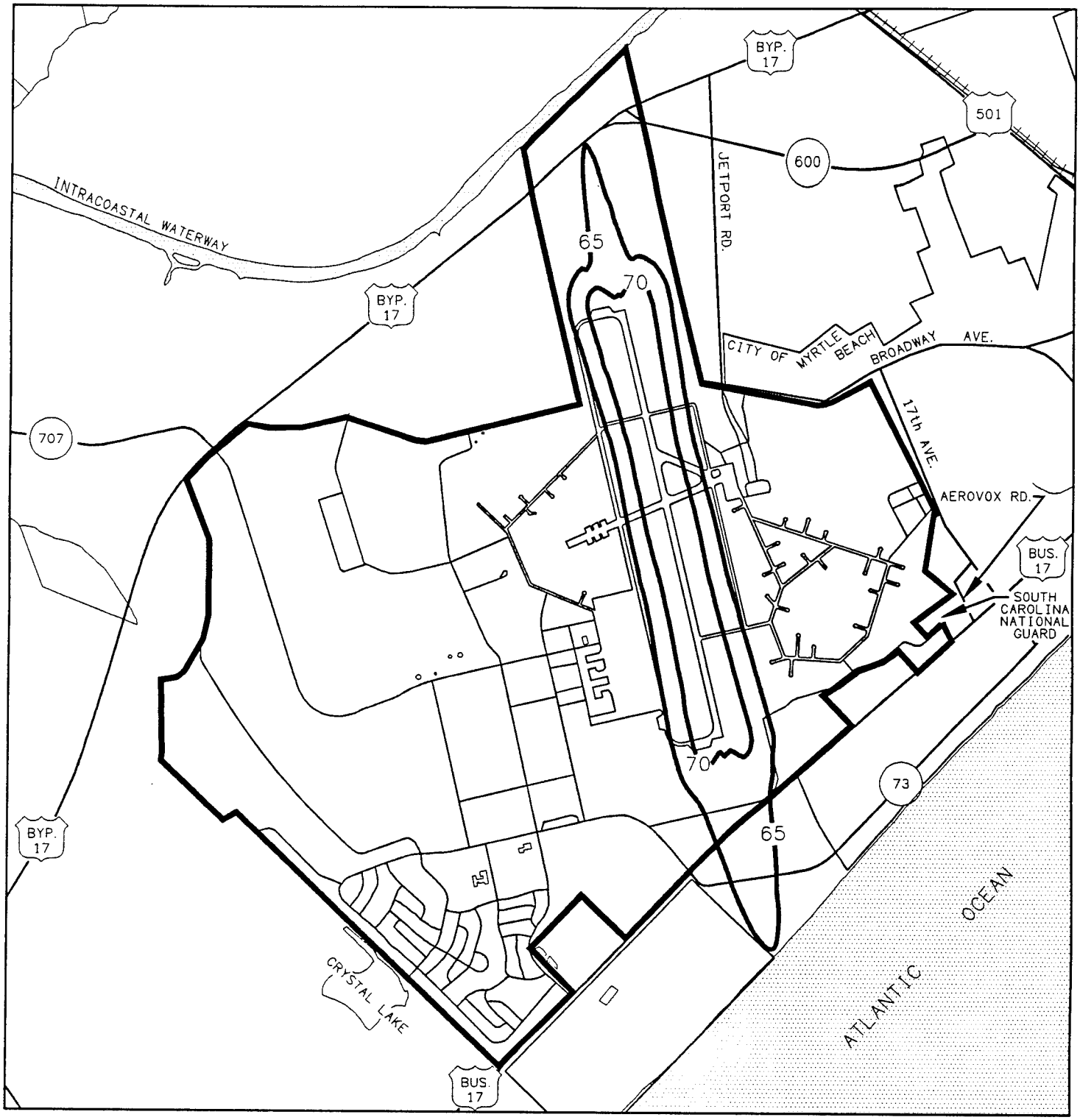
Table 4.4-43 presents the approximate number of acres within each DNL range for each of the study years. Compared to the preclosure reference, this represents a decrease of 3,766 acres within the DNL of 65 dBA in 1998, 3,990 acres in 2003, and 3,882 acres in 2,013. The maximum exposure is projected for 1998, after which the FAA-required conversion of Stage 2 to quieter Stage 3 aircraft would result in reduced noise exposure even though the numbers of aircraft operations would continue to increase.

The criteria that define Stage 2 and Stage 3 aircraft are described in FAA Part 36 (FAA, 1988) and summarized in Appendix K. Noise limits are defined for takeoff, approach, and sideline measurements. The modeled aircraft operations reflect this phaseout by replacing the B727-200, B737-200, and B737-300 (all Stage 2) with B737-400 and B747-400 (Stage 3).

No residential areas would be exposed to a DNL of 65 dBA or higher for this alternative. During 1998, parts of the Springmaid Beach resort areas would be within the DNL contour of 65 dBA. Contours for 2003 and 2013 show that after the Stage 2 aircraft are replaced by Stage 3 aircraft, the Springmaid Beach resort would not be within the DNL contour of 65 dBA.

After construction of the second runway, the educational facilities would be exposed to additional aircraft noise, especially from touch-and-go operations. The noise impact could be disruptive to educational activities.

SEL was calculated at representative sensitive receptor locations for operations of the noisiest and most common aircraft. The results are presented in Tables 4.4-44a, 4.4-44b, and 4.4-44c. The analysis suggests that, for the Proposed Action, some aircraft overflights could affect the sleep of some residents and guests in the area and at Springmaid Beach Resort. After construction of the second runway, sleep disturbance would increase at Beachwood At The Heritage (Site No. 4).



EXPLANATION

—65— DNL NOISE CONTOURS (dBA)

NOTE: ALTERNATIVE 1 = RESORT-RECREATION ALTERNATIVE
ALTERNATIVE 2 = RESORT-COMMERCIAL-INDUSTRIAL ALTERNATIVE
ALTERNATIVE 3 = MIXED USE ALTERNATIVE

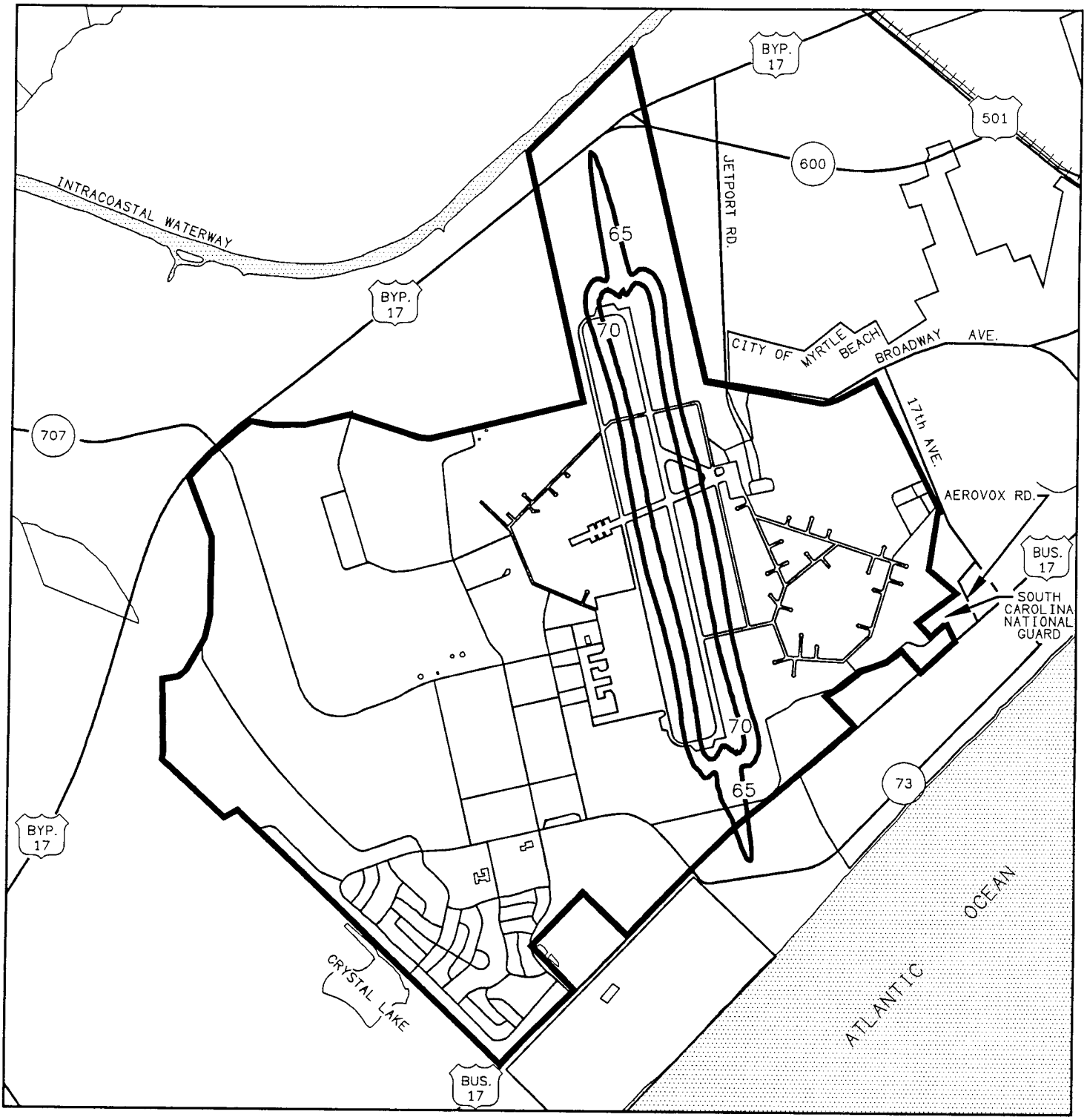
0 1000 3000 feet

N W E S

NOISE CONTOURS PROPOSED ACTION & ALTERNATIVES 1-3 1998

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.4-7



EXPLANATION

—65— DNL NOISE CONTOURS (dBA)

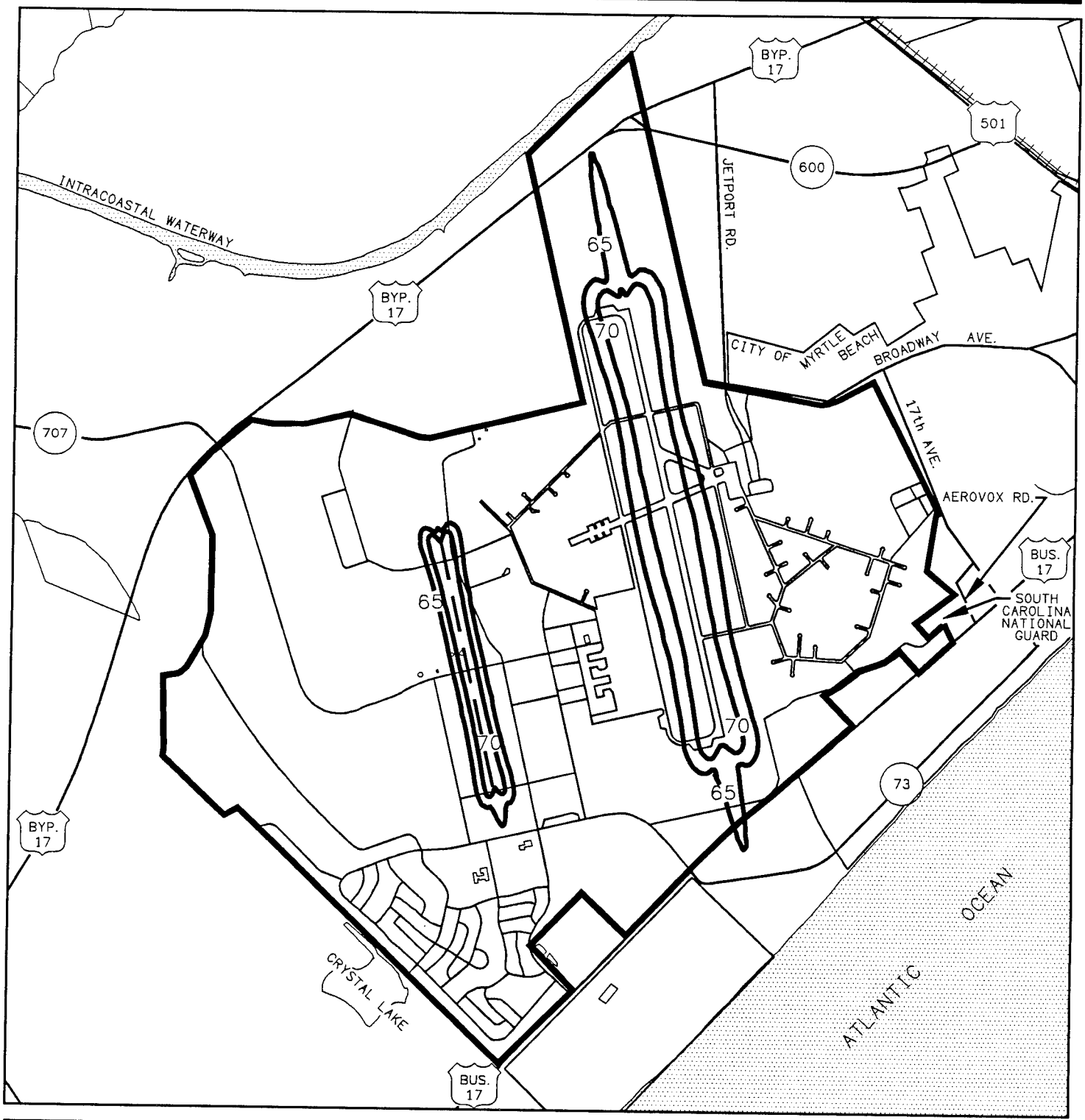
NOTE: ALTERNATIVE 1 = RESORT-RECREATION ALTERNATIVE
ALTERNATIVE 2 = RESORT-COMMERCIAL-INDUSTRIAL ALTERNATIVE
ALTERNATIVE 3 = MIXED USE ALTERNATIVE

0 1000 3000 feet

NOISE CONTOURS PROPOSED ACTION & ALTERNATIVES 1-3 2003

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.4-8



EXPLANATION

65 — DNL NOISE CONTOURS (dBA)

— — PROPOSED RUNWAY

NOTE: ALTERNATIVE 1 = RESORT-RECREATION ALTERNATIVE
ALTERNATIVE 2 = RESORT-COMMERCIAL-INDUSTRIAL ALTERNATIVE

0 1000 3000 feet

N W E S

NOISE CONTOURS PROPOSED ACTION & ALTERNATIVES 1, 2 2013

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.4-9

Table 4.4-44a SOUND EXPOSURE LEVELS AT REPRESENTATIVE NOISE RECEPTORS, YEAR 1998, 1 RUNWAY PROPOSED ACTION AND ALTERNATIVES, 1, 2, 3 (1)

NO	RECEPTOR LOCATION	LAND-USE	SOUND EXPOSURE LEVEL (dB) AIRCRAFT TYPE										
			B727-200	B737-200	B737-300 B737-400	B757	F100	SAAB 340	DHC-8	SINGLE ENGINE	MULTI-ENGINE PISTON	MULTI-ENGINE TURBO	GA JET
INSIDE THE BASE													
1	NW CORNER OF THE GOLF COURSE	RECREATIONAL	92	97	85	84	88	78	72	77	80	71	84
2	NEAR BLDG 400 EAST OF RUNWAY	RECREATIONAL	95	99	87	86	91	80	74	76	84	73	87
3	SOUTH GATE	RECREATIONAL	101	99	84	83	89	81	72	76	83	74	88
4	BLDG 610 AT ALDER STREET	RESIDENTIAL	90	90	75	74	79	71	65	66	74	66	75
5	CORNER OF SHINE AND B AVENUES	INDUSTRIAL/ EDUCATIONAL/ COMMERCIAL	93	93	80	79	85	75	69	69	78	69	81
6	CORNER OF SHINE AND D AVENUES	INDUSTRIAL	88	92	81	80	83	73	69	67	76	67	78
OUTSIDE THE BASE													
7	WEST END OF WATER SIDE DR.	RESIDENTIAL	102	98	84	82	89	80	76	79	84	75	86
8	CORNER OF STALVEY AND NAYLOR AVENUES	RESIDENTIAL	82	83	70	68	73	65	62	65	67	60	67
9	CORNER OF TAYLOR AND CLARK STREETS	RESIDENTIAL	88	92	80	79	83	73	68	77	81	66	78
10	CORNER OF 25TH AND ROSE MARY STREETS	HOTEL	94	93	79	78	84	75	68	79	82	69	80
11	SPRINGMAID BEACH RESORT	RESORT	108	102	95	94	93	88	92	85	88	85	91
12	MYRTLE BEACH STATE PARK	PARK	103	99	85	83	90	80	77	79	85	75	88
13	CORNER OF YAUPON CIR. AND DOGWOOD DR.	RESIDENTIAL	88	87	73	71	76	69	65	64	73	66	71
14	NORTH OF SOCASTEE BL AND EAST OF HWY 675	RESIDENTIAL	80	81	68	66	71	63	67	57	66	59	65
15	HWY 478 SOUTH OF ROUTE 17	RESIDENTIAL	99	98	84	84	90	80	73	74	82	73	87
16	SOUTH OF US 17 BETWEEN HWY 478 AND HWY 600	RESIDENTIAL	102	99	85	83	90	80	73	77	84	75	88

(1) ALTERNATIVES 1, 2, 3 = EXPANDED AIRFIELD/RESORT-RECREATION, EXPANDED AIRFIELD/RESORT-COMMERCIAL-INDUSTRIAL, AND EXISTING AIRFIELD/MIXED USE ALTERNATIVES, RESPECTIVELY.

Table 4.4-44b SOUND EXPOSURE LEVELS AT REPRESENTATIVE NOISE RECEPTORS, YEAR 2003, 1 RUNWAY-PROPOSED ACTION AND ALTERNATIVES 1, 2, 3 AND YEAR 2013 ALTERNATIVE 3 (1)

NO	RECEPTOR LOCATION	LAND-USE	SOUND EXPOSURE LEVEL (dB) AIRCRAFT TYPE								
			B747-400	B737-400	B757	DHC 8	SAAB 340	SINGLE ENGINE	MULTI-ENGINE PISTON	MULTI-ENGINE TURBO	GA JET
INSIDE THE BASE											
1	NW CORNER OF THE GOLF COURSE	RECREATIONAL	90	85	84	72	78	77	80	71	84
2	NEAR BLDG 400 EAST OF RUNWAY	RECREATIONAL	93	87	86	74	80	76	84	73	87
3	SOUTH GATE	RECREATIONAL	98	84	83	72	81	76	83	74	88
4	BLDG 610 AT ALDER STREET	RESIDENTIAL	87	75	74	65	71	66	74	66	75
5	CORNER OF SHINE AND B AVENUES	INDUSTRIAL/ EDUCATIONAL/ COMMERCIAL	90	80	79	69	75	69	78	69	81
6	CORNER OF SHINE AND D AVENUES	INDUSTRIAL	85	81	80	69	73	67	76	67	78
OUTSIDE THE BASE											
7	WEST END OF WATER SIDE DR.	RESIDENTIAL	99	84	82	76	80	79	84	75	86
8	CORNER OF STALVEY AND NAYLOR AVENUES	RESIDENTIAL	79	70	68	62	65	65	67	60	67
9	CORNER OF TAYLOR AND CLARK STREETS	RESIDENTIAL	85	80	79	68	73	77	81	66	78
10	CORNER OF 25TH AND ROSE MARY STREETS	HOTEL	91	79	78	68	75	79	82	69	80
11	SPRINGMAID BEACH RESORT	RESORT	105	95	94	92	88	85	88	85	91
12	MYRTLE BEACH STATE PARK	PARK	100	85	83	77	80	79	85	75	88
13	CORNER OF YAUPON CIR. AND DOGWOOD DR.	RESIDENTIAL	84	73	71	65	69	64	73	66	71
14	NORTH OF SOCASTEE BL AND EAST OF HWY 675	RESIDENTIAL	77	68	66	67	63	57	66	59	65
15	HWY 478 SOUTH OF ROUTE 17	RESIDENTIAL	96	84	84	73	80	74	82	73	87
16	SOUTH OF US 17 BETWEEN HWY 478 AND HWY 600	RESIDENTIAL	99	85	83	73	80	77	84	75	88

(1) ALTERNATIVES 1, 2, 3 = EXPANDED AIRFIELD/RESORT-RECREATION, EXPANDED AIRFIELD/RESORT-COMMERCIAL-INDUSTRIAL, AND EXISTING AIRFIELD/MIXED USE ALTERNATIVES, RESPECTIVELY.

Table 4.4-44c SOUND EXPOSURE LEVELS AT REPRESENTATIVE NOISE RECEPTORS, YEAR 2013, 2 RUNWAYS PROPOSED ACTION AND ALTERNATIVE 1 AND 2 (1)

NO	RECEPTOR LOCATION	LAND-USE	SOUND EXPOSURE LEVEL (dB) AIRCRAFT TYPE								
			B747-400	B737-400	B757	DHC 8	SAAB 340	SINGLE ENGINE	MULTI-ENGINE PISTON	MULTI-ENGINE TURBO	GA JET
INSIDE THE BASE											
1	NW CORNER OF THE GOLF COURSE	RECREATIONAL	90	85	85	72	78	77	80	71	84
2	NEAR BLDG 400 EAST OF RUNWAY	RECREATIONAL	93	87	86	74	80	76	84	73	87
3	SOUTH GATE	RECREATIONAL	98	84	81	72	81	76	83	74	88
4	BLDG 610 AT ALDER STREET	RESIDENTIAL	87	75	74	65	71	88	92	86	99
5	CORNER OF SHINE AND B AVENUES	INDUSTRIAL/ COMMERCIAL	90	80	79	69	75	76	85	75	89
6	CORNER OF SHINE AND D AVENUES	INDUSTRIAL	85	81	80	69	73	75	81	70	86
OUTSIDE THE BASE											
7	WEST END OF WATER SIDE DR.	RESIDENTIAL	99	84	82	76	80	79	84	75	86
8	CORNER OF STALVEY AND NAYLOR AVENUES	RESIDENTIAL	79	70	68	62	65	65	67	61	67
9	CORNER OF TAYLOR AND CLARK STREETS	RESIDENTIAL	85	80	79	68	73	77	79	66	78
10	CORNER OF 25TH AND ROSE MARY STREETS	HOTEL	91	79	78	68	75	79	82	69	80
11	SPRINGMAID BEACH RESORT	RESORT	105	95	94	92	88	85	88	85	91
12	MYRTLE BEACH STATE PARK	PARK	100	85	83	77	80	79	85	75	88
13	CORNER OF YAUPON CIR. AND DOGWOOD DR.	RESIDENTIAL	84	73	71	65	69	85	88	76	89
14	NORTH OF SOCASTEE BL AND EAST OF HWY 675	RESIDENTIAL	75	68	67	60	60	78	83	67	79
15	HWY 478 SOUTH OF ROUTE 17	RESIDENTIAL	96	84	84	73	80	74	82	73	87
16	SOUTH OF US 17 BETWEEN HWY 478 AND HWY 600	RESIDENTIAL	99	85	83	73	80	77	84	75	88

(1) ALTERNATIVE 1, 2, = EXPANDED AIRFIELD/RESORT-RECREATION AND EXPANDED AIRFIELD/RESORT-COMMERCIAL-INDUSTRIAL ALTERNATIVES, RESPECTIVELY.

Table 4.4-43. Resource Assessment Matrix - Aircraft Noise Exposure for the Alternative Reuse Plans

Year	Alternative	DNL In dBA 65-70 Acres	65-70 Residential Population	>70 Acres	>70 Residential Population
1998	Proposed Action	359	0	275	0
	Resort-Recreation	359	0	275	0
	Resort-Commercial-Industrial	346	0	275	0
	Mixed Use	359	0	275	0
	No-Action	275	0	237	0
2003	Proposed Action	212	0	198	0
	Resort-Recreation	205	0	198	0
	Resort-Commercial-Industrial	205	0	192	0
	Mixed Use	212	0	198	0
	No-Action	134	0	109	0
2013	Proposed Action	262	0	256	0
	Resort-Recreation	256	0	256	0
	Resort-Commercial-Industrial	249	0	250	0
	Mixed Use	231	0	211	0
	Mixed Use with Restricted Second Runway Option	237	0	269	0
	No-Action	134	0	109	0

In 1998, the noisiest airplane would be Stage 2 B727-200, followed by Stage 2 B737-200 and Stage 3 B737. The B727-200 would comprise about 12 percent of the commercial operations. In 2003 and 2013 the noisiest plane would be the Stage 3 B747-400, followed by the Stage 3 B737 and B757 aircraft. These three aircraft comprise about 55 percent of commercial operations in 2003 and 2013. The noisiest aircraft were determined from the A-weighted maximum sound level (L_{max}) as presented in FAA Advisory Circular AC 36-3E (FAA, 1987).

Traffic Noise. This alternative would produce some new roadway traffic associated with the jetport operations and eliminate some existing roadway trips associated with Air Force operations. Projected roadway traffic noise levels were determined for major roads within the study area using the traffic noise prediction methodology, FHWA-RD-77-108, developed by the FHWA. The results of the roadway noise analyses for 1998, 2003, and 2013 are summarized in Table 4.4-45. This table shows the distance from the roadways to the DNL contours.

There are approximately 76 single family residences, 1 multi-family residence, 39 mobile homes, and 4 churches adjacent to the major roads that would be

Table 4.4-45. Distance to DNL from Roadway Centerline - Proposed Action

Year	Runway	Distance to Roadway Centerline (ft)[1][2]				
		DNL of 60 dBA	DNL of 65 dBA	DNL of 70 dBA	DNL of 75 dBA	Pk Hr L_{eq} of 67 dBA
1998	U.S. 17 Business - MBAFB toward south - MBAFB toward north	 559 505	 278 251	 142 129	 81 76	 205 187
	U.S. 17 Bypass - MBAFB toward north and south	788	395	197	105	292
	SC 707 - MBAFB toward west	295	146	76	<50	109
	U.S. 501 - U.S. 17 Bypass toward west - U.S. 17 Bypass toward east	 535 489	 266 243	 137 126	 80 74	 200 183
	SC 544 - U.S. 17 Bus. to U.S. 17 Bypass - U.S. 17 Bypass to SC 707	 306 468	 150 230	 77 114	 <50 61	 112 171
	Jetport Road - Jetport to SC 600	112	53	<50	<50	<50
2003	U.S. 17 Business - MBAFB toward south - MBAFB toward north	 663 586	 331 291	 166 148	 92 84	 242 214
	U.S. 17 Bypass - MBAFB toward north and south	900	453	226	118	334
	SC 707 - MBAFB toward west	346	170	87	51	126
	U.S. 501 - U.S. 17 Bypass toward west - U.S. 17 Bypass toward east	 595 548	 297 273	 151 139	 86 80	 223 205
	SC 544 - U.S. 17 Bus. to U.S. 17 Bypass - U.S. 17 Bypass to SC 707	 348 525	 171 258	 86 127	 <50 67	 127 192
	Jetport Road - Jetport to SC 600	124	59	<50	<50	<50
2013	U.S. 17 Business - MBAFB toward south - MBAFB toward north	 755 670	 378 334	 189 168	 101 92	 282 250
	U.S. 17 Bypass - MBAFB toward north and south	932	470	234	121	352
	SC 707 - MBAFB toward west	342	168	86	51	126
	U.S. 501 - U.S. 17 Bypass toward west - U.S. 17 Bypass toward east	 738 649	 370 324	 186 163	 101 90	 277 243
	SC 544 - U.S. 17 Bus. to U.S. 17 Bypass - U.S. 17 Bypass to SC 707	 412 624	 202 311	 101 157	 55 87	 150 233
	Jetport Road - Jetport to SC 600	141	67	<50	<50	<50

(1) Based on soft site distance propagation of 4.5 dB per doubling of distance.
(2) Heavy truck estimates also assume flat grades (no uphill)

within the DNL of 65 dBA contour in 1998. In 2003 and 2013, there would be approximately 89 single family residences, 6 multi-family residences, 51 mobile homes, and 4 churches within the DNL of 65 dBA contour.

Construction Noise. This alternative would produce some construction activity related noise. Noise at construction sites is non-steady and intermittent. There are procedures to calculate construction noise levels; however, these procedures cannot be used at this time because some of the necessary data for these procedures, such as type of equipment, effective usage factor, number of each type of equipment, and construction schedules are not yet available. There would be no construction activities at the golf course; therefore, residential areas adjacent to the golf course should not be impacted. Construction activities near the west and northwest boundaries of the base may have some adverse noise impact at the adjacent residential sites.

Destination Resort. Attractions in the destination resort would cause a noise impact on adjacent residential or recreational sites. However, the extent of noise impacts cannot be evaluated at this time because details about activities at the resort are not determined yet.

Cumulative Impacts. There are no cumulative impacts expected from noise sources for this alternative.

Mitigation Measures. No residential areas are within a DNL contour of 65 dBA. However, parts of Springmaid Beach Resort would be exposed to a DNL of 65 dBA or higher. No practical noise mitigation measures are available for the trailer campground portion of the Springmaid Beach Resort. Acoustical treatments, such as double glazing windows and acoustic insulation could be applied to buildings in this resort that are within the DNL contour of 65 dBA. Changing flight tracks to avoid an impact at this resort would not be practical. Use of all Stage 3 aircraft would eliminate the noise impact at the Springmaid Beach Resort, as is shown by the 2003 noise contours. Acoustical treatments for some of the buildings in the educational facilities may be required to prevent distraction during the educational activities.

Keeping the existing curfew of 12:00 A.M. to 6:00 A.M. would not increase sleep disturbance at the areas under flight tracks. It would be advisable to extend the curfew hours to between 10:00 P.M. and 12:00 A.M. Results of studies have indicated that aircraft noise disturbance is much higher after 10:00 P.M. than it is during the day.

Construction activities should be scheduled only between 6:00 A.M. and 11:00 P.M. Further mitigation measures may be necessary when details of the construction activities become known.

No mitigation measures are considered for surface traffic because there are very few houses along impacted roads. Construction of noise barriers along city streets is not feasible due to the driveways and intersections.

No mitigation measures are proposed for the theme park activities because their nature and location is not determined at this time. Specific mitigation measures may be required when theme park plans begin to become known.

4.4.4.2 Expanded Airfield/Resort-Recreation Alternative

Noise impacts have been determined for this alternative for the years 1998, 2003, and 2013. Since this alternative, like the other alternatives includes the closure of the base, it would result in a substantial noise reduction. Commercial aircraft operations would be the primary sources of noise in the vicinity of the jetport, followed by commuter turboprops and general aviation aircraft.

Aircraft Noise. Aircraft noise impacts would be the same as discussed for the Proposed Action, as projected jetport operations would be similar. No noise contours are presented for this alternative because they are essentially the same as the one presented for the Proposed Action. Table 4.4-43 presents the approximate number of acres within each DNL range for each of the study years.

Traffic Noise. Traffic noise impacts would be the same as discussed for the Proposed Action. The results of the roadway noise analysis for 1998, 2003, and 2013 are summarized in Table 4.4-46. The approximate number of residential structures and churches within the DNL of 65 dBA contour would be the same as under the Proposed Action.

Construction Noise. Construction noise impacts would be the same as discussed for the Proposed Action.

Cumulative Impacts. There are no cumulative impacts expected from noise sources for this alternative.

Mitigation Measures. Possible mitigation measures would be the same as described for the Proposed Action.

4.4.4.3 Expanded Airfield/Resort-Commercial-Industrial Alternative

Noise impacts have been determined for this alternative for the years 1998, 2003, and 2013. Since this alternative, like the other alternatives, includes the closure of the base, it would result in a substantial noise reduction. Commercial aircraft operations would be the primary sources of noise in the vicinity of the jetport, followed by commuter turboprops and general aviation aircraft.

Aircraft Noise. Aircraft noise impacts would be the same as discussed for the Proposed Action, as projected jetport operations would be similar. No noise contours are presented for this alternative because they are essentially the same as the one presented for the Proposed Action. Table 4.4-43 presents the approximate number of acres within each DNL range for each of the study years.

Traffic Noise. Traffic noise impacts would be the same as discussed for the Proposed Action. The results of the roadway noise analysis for 1998, 2003, and 2013 are summarized in Table 4.4-47. The approximate number of residential structures and churches within the DNL of 65 dBA contour would be the same as under the Proposed Action.

Table 4.4-46. Distance to DNL from Roadway Centerline - Expanded Airfield/Resort-Recreation Alternative

Year	Roadway	Distance to Roadway Centerline (ft)[1][2]				
		DNL of 60 dBA	DNL of 65 dBA	DNL of 70 dBA	DNL of 75 dBA	Pk Hr L_{eq} of 67 dBA
1998	**U.S. 17 Business**					
	- MBAFB toward south	537	267	137	79	199
	- MBAFB toward north	502	250	129	76	187
	U.S. 17 Bypass					
	- MBAFB toward north and south	773	387	194	103	288
	SC 707					
	- MBAFB toward west	292	144	76	<50	108
	U.S. 501					
	- U.S. 17 Bypass toward west	534	266	137	80	200
	- U.S. 17 Bypass toward east	486	242	125	74	182
	SC 544					
	- U.S. 17 Bus. to U.S. 17 Bypass	308	151	77	<50	113
	- U.S. 17 Bypass to SC 707	468	230	114	61	171
	Jetport Road					
	- Jetport to SC 600	109	52	<50	<50	<50
2003	U.S. 17 Business					
	- MBAFB toward south	616	307	155	87	224
	- MBAFB toward north	582	290	147	83	213
	U.S. 17 Bypass					
	- MBAFB toward north and south	888	447	223	116	329
	SC 707					
	- MBAFB toward west	342	168	86	51	124
	U.S. 501					
	- U.S. 17 Bypass toward west	596	297	151	86	223
	- U.S. 17 Bypass toward east	543	270	138	79	203
	SC 544					
	- U.S. 17 Bus. to U.S. 17 Bypass	345	169	85	<50	126
	- U.S. 17 Bypass to SC 707	523	258	127	67	191
	Jetport Road					
	- Jetport to SC 600	123	58	<50	<50	<50
2013	U.S. 17 Business					
	- MBAFB toward south	700	350	175	95	263
	- MBAFB toward north	651	324	163	90	244
	U.S. 17 Bypass					
	- MBAFB toward north and south	903	455	226	118	342
	SC 707					
	- MBAFB toward west	327	161	83	<50	122
	U.S. 501					
	- U.S. 17 Bypass toward west	737	369	185	101	277
	- U.S. 17 Bypass toward east	642	320	161	89	240
	SC 544					
	- U.S. 17 Bus. to U.S. 17 Bypass	406	199	99	55	148
	- U.S. 17 Bypass to SC 707	620	309	156	87	232
	Jetport Road					
	- Jetport to SC 600	131	62	<50	<50	<50

(1) Based on soft site distance propagation of 4.5 dB per doubling of distance.

Table 4.4-47. Distance to DNL from Roadway Centerline - Expanded Airfield/Resort-Commercial-Industrial Alternative

Year	Roadway	Distance to Roadway Centerline (ft)[1][2]				
		DNL of 60 dBA	DNL of 65 dBA	DNL of 70 dBA	DNL of 75 dBA	Pk Hr L_{eq} of 67 dBA
1998	U.S. 17 Business - MBAFB toward south - MBAFB toward north	 593 526	 295 262	 150 134	 84 78	 219 195
	U.S. 17 Bypass - MBAFB toward north and south	777	389	194	104	290
	SC 707 - MBAFB toward west	299	147	77	<50	111
	U.S. 501 - U.S. 17 Bypass toward west - U.S. 17 Bypass toward east	 534 488	 266 243	 137 125	 80 74	 200 183
	SC 544 - U.S. 17 Bus. to U.S. 17 Bypass - U.S. 17 Bypass to SC 707	 318 471	 156 231	 80 114	 <50 61	 116 172
	Jetport Road - Jetport to SC 600	111	53	<50	<50	<50
2003	U.S. 17 Business - MBAFB toward south - MBAFB toward north	 680 599	 339 298	 170 151	 93 85	 249 220
	U.S. 17 Bypass - MBAFB toward north and south	883	445	221	116	329
	SC 707 - MBAFB toward west	344	169	87	51	125
	U.S. 501 - U.S. 17 Bypass toward west - U.S. 17 Bypass toward east	 594 545	 296 271	 151 138	 86 80	 222 204
	SC 544 - U.S. 17 Bus. to U.S. 17 Bypass - U.S. 17 Bypass to SC 707	 360 526	 177 259	 89 127	 50 67	 131 193
	Jetport Road - Jetport to SC 600	124	59	<50	<50	<50
2013	U.S. 17 Business - MBAFB toward south - MBAFB toward north	 750 664	 375 331	 188 167	 101 92	 278 247
	U.S. 17 Bypass - MBAFB toward north and south	906	457	227	118	340
	SC 707 - MBAFB toward west	331	163	84	50	122
	U.S. 501 - U.S. 17 Bypass toward west - U.S. 17 Bypass toward east	 738 645	 369 321	 185 162	 101 90	 277 241
	SC 544 - U.S. 17 Bus. to U.S. 17 Bypass - U.S. 17 Bypass to SC 707	 424 623	 208 310	 103 157	 56 87	 154 233
	Jetport Road - Jetport to SC 600	137	65	<50	<50	<50

(1) Based on soft site distance propagation of 4.5 dB per doubling of distance.
(2) Heavy truck estimates also assume flat grades (no uphill)

Construction Noise. Construction noise impacts would be the same as discussed for the Proposed Action.
Cumulative Impacts. There are no cumulative impacts expected from noise sources for this alternative.

Mitigation Measures. Possible mitigation measures would be the same as described for the Proposed Action.

4.4.4.4 Existing Airfield/Mixed Use Alternative

Noise impacts have been determined for this alternative for the years 1998, 2003, and 2013. In addition, noise impacts have been evaluated for the Restricted Second Runway Option for the year 2013. Since this alternative, like the other alternatives, includes the closure of the base, it would result in a substantial noise reduction. Commercial aircraft operations would be the primary sources of noise in the vicinity of the jetport, followed by commuter turboprops and general aviation aircraft.

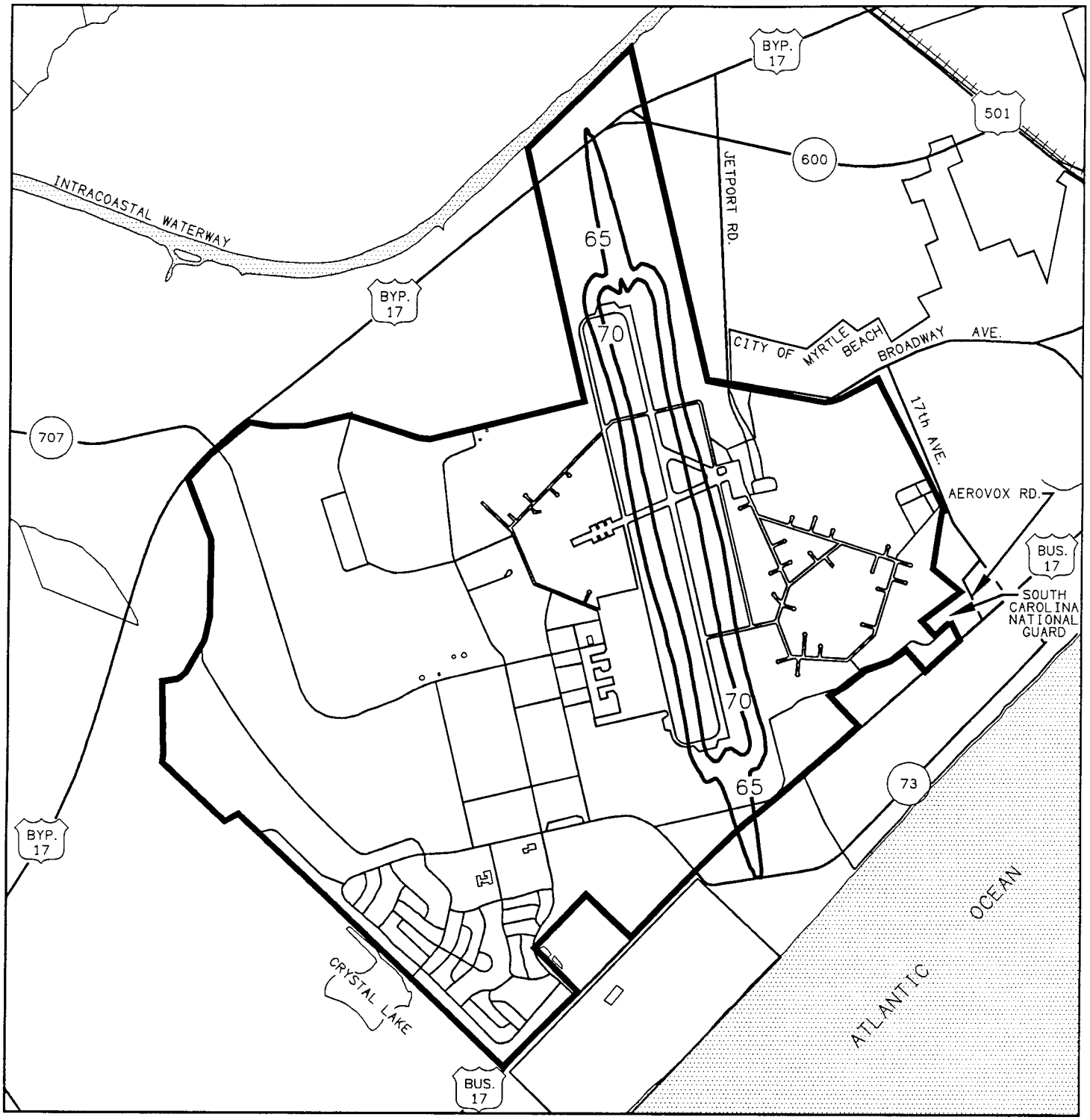
Aircraft noise, surface traffic noise, and construction noise impacts are discussed in the following sections.

Aircraft Noise. Noise level contours were developed using INM Version 3.9 for jetport airport operations for the years 1998, 2003, and 2013, and are presented in Figures 4.4-7, 4.4-8, and 4.4-10a. Noise contours for the Restricted Second Runway Option for the year 2013 are presented in Figure 4.4-10b. Noise contours also reflect an increase in air carrier, general aviation, and business jet operations. Appendix K provides the aircraft operations that were used in the noise model for 1998, 2003, and 2013.

Figure 4.4-6 shows the flight tracks used for generating the noise contours. Flight tracks related to a new runway were not used for generating 2013 noise contours for the alternative without the second runway option, since a new runway is not proposed for this alternative. However, flight tracks for the second runway were used for the 2013 Restricted Second Runway Option.

Table 4.4-43 presents the approximate number of acres within each DNL range for each of the study years. Compared to the preclosure reference, this represents a decrease of 3,766 acres within the DNL contour of 65 dBA in 1998, 3,990 acres in 2003, and 3,958 acres in 2013 and a decrease of 3,894 acres for the Restricted Second Runway Option in 2013. The maximum exposure is projected for 1998, after which the FAA-required conversion of Stage 2 to quieter Stage 3 aircraft would result in reduced noise exposure even though the numbers of aircraft operations would continue to increase.

No residential areas would be exposed to a DNL of 65 dBA or higher for this alternative. During 1998, parts of the Springmaid Beach Resort areas would be within the DNL contour of 65 dBA. Contours for 2003 and 2013 show that after the Stage 2 aircraft are replaced by Stage 3 aircraft, the Springmaid Beach Resort would not be within a DNL contour of 65 dBA.



EXPLANATION

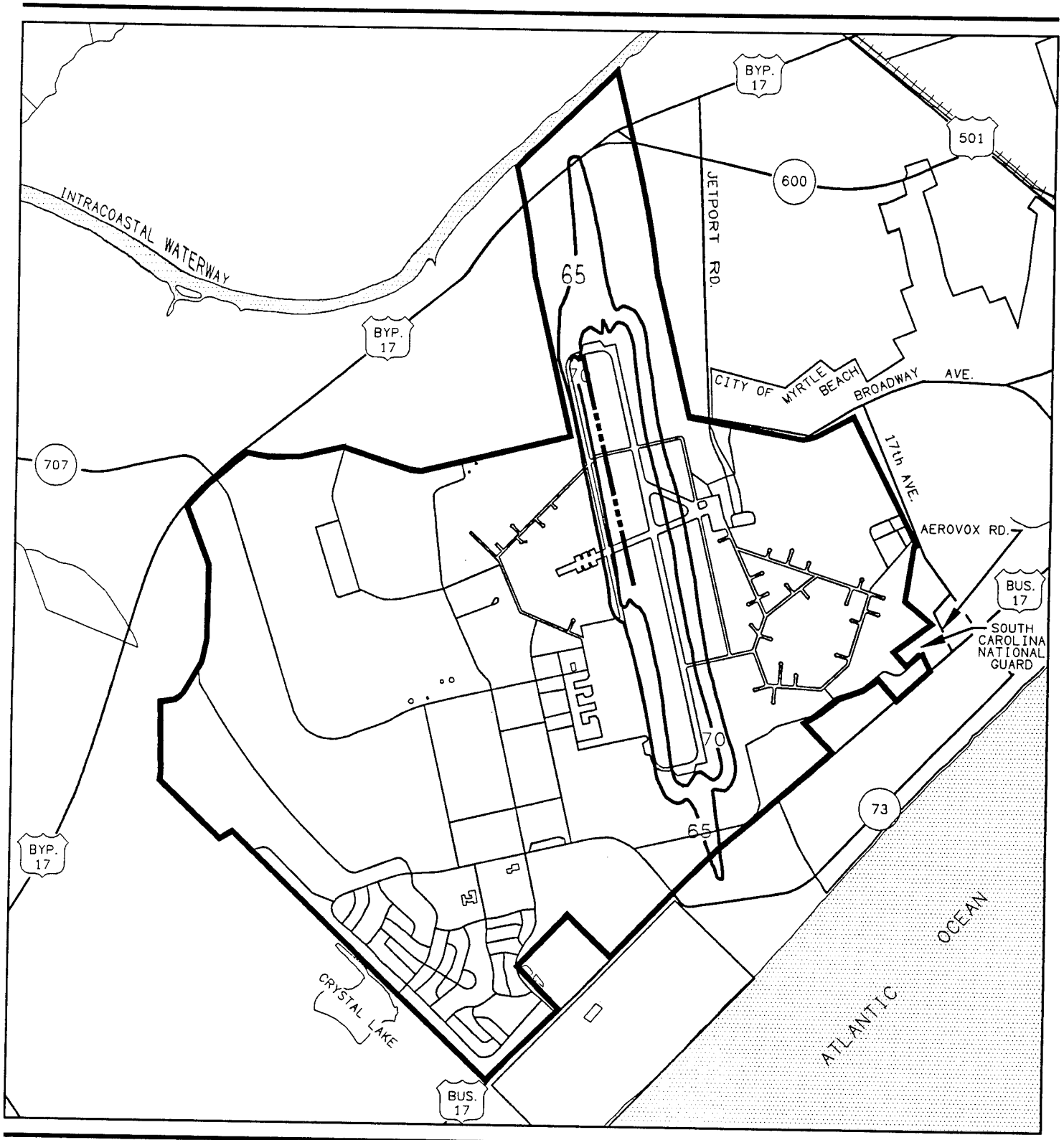
—65— DNL NOISE CONTOURS (dBA)

0 1000 3000 feet

NOISE CONTOURS MIXED USE ALTERNATIVE 2013

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.4-10a



EXPLANATION

65 DNL NOISE CONTOURS (dBA)

PROPOSED RUNWAY

0 1000 3000 feet

N W E S

NOISE CONTOURS MIXED USE ALTERNATIVE RESTRICTED SECOND RUNWAY OPTION 2013

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.4-10b

SEL was calculated at representative sensitive receptor locations for operations of the noisiest and most common aircraft. Tables 4.4-44a, 4.4-44b, and 4.4-48 present the results of the calculations. The analysis suggests that some aircraft overflights could affect the sleep of some residents in the area and guests in the Springmaid Beach Resort.

In 1998, the noisiest airplane would be the Stage 2 B727-200, followed by the Stage 2 B737-200 and the Stage 3 B737. The B727-200 would comprise about 12 percent of the commercial operations. In 2003 and 2013 the noisiest plane would be the Stage 3 B747-400, followed by the Stage 3 B737 and B757 aircraft. These three aircraft would comprise about 55 percent of the commercial operations in 2003 and 2013.

The noisiest aircraft were determined from the A-weighted maximum sound level (L_{max}) as presented in FAA Advisory Circular AC 36-3E (FAA, 1987).

Traffic Noise. This alternative would produce some new roadway traffic associated with the jetport operations and eliminate some existing roadway trips associated with Air Force operations. Projected roadway traffic noise levels were determined for major roads within the study area using the traffic noise prediction methodology, FHWA-RD-77-108, developed by the FHWA. The results of the roadway noise analysis for 1998, 2003, and 2013 are summarized in Table 4.4-49a. Table 4.4-49b shows the results of the roadway noise analysis for the Restricted Second Runway Option. These tables show the distance from the roadways to the DNL contours.

The approximate number of residential structures and churches within the DNL of 65 dBA would be the same as under the Proposed Action.

Construction Noise. This alternative would produce some construction activity related noise similar to the Proposed Action.

Cumulative Impacts. There would be no cumulative impacts expected from noise sources for this alternative.

Mitigation Measures. Mitigation measures would be the same as those discussed for the Proposed Action.

4.4.4.5 No-Action Alternative (Existing Airfield/Caretaker)

Noise impacts have been determined for the No-Action Alternative for the years 1998, 2003, and 2013. With no expansion of the jetport, the No-Action Alternative would limit the growth in the number of airport operations. Since all project alternatives necessarily include the closure of Myrtle Beach AFB (and hence, discontinuation of all military aircraft operations), this would result in a substantial noise reduction for the No-Action Alternative. Limiting the growth of jetport operations also would limit the long-term growth of associated roadway traffic noise. It is not anticipated that there would be any construction or demolition activities associated with the No-Action Alterative. Therefore, noise impacts for these activities were not considered. The noise impacts considered for this alternative are discussed in the following sections.

TABLE 4.4-48. SOUND EXPOSURE LEVELS AT REPRESENTATIVE NOISE RECEPTORS,
YEAR 2013, 2 RUNWAYS - EXISTING AIRFIELD/MIXED-USE ALTERNATIVE - RESTRICTED SECOND RUNWAY OPTION

NO	RECEPTOR LOCATION	LAND-USE	SOUND EXPOSURE LEVEL (dB) AIRCRAFT TYPE								
			B747-400	B737-400	B757	DHC 8	SAAB 340	SINGLE ENGINE	MULTI-ENGINE PISTON	MULTI-ENGINE TURBO	GA JET
INSIDE THE BASE											
1	NW CORNER OF THE GOLF COURSE	RECREATIONAL	90	85	84	72	78	77	80	71	84
2	NEAR BLDG 400 EAST OF RUNWAY	RECREATIONAL	93	87	86	74	80	76	82	73	87
3	SOUTH GATE	RECREATIONAL	98	84	83	72	81	83	89	77	88
4	BLDG 610 AT ALDER STREET	RESIDENTIAL	87	75	74	65	71	77	83	68	75
5	CORNER OF SHINE AND B AVENUES	EDUCATIONAL	90	80	79	69	75	82	87	71	81
6	CORNER OF SHINE AND D AVENUES	INDUSTRIAL	85	81	80	69	73	81	86	69	78
OUTSIDE THE BASE											
7	WEST END OF WATER SIDE DR.	RESIDENTIAL	99	84	82	76	80	79	85	75	86
8	CORNER OF STALVEY AND NAYLOR AVENUES	RESIDENTIAL	79	70	68	62	65	65	73	60	67
9	CORNER OF TAYLOR AND CLARK STREETS	RESIDENTIAL	85	80	79	68	73	77	81	66	78
10	CORNER OF 25TH AND ROSE MARY STREETS	HOTEL	91	79	78	68	75	79	79	69	80
11	SPRINGMAID BEACH RESORT	RESORT	105	95	94	92	88	85	88	85	91
12	MYRTLE BEACH STATE PARK	PARK	100	85	83	77	80	83	87	77	88
13	CORNER OF YAUPON CIR. AND DOGWOOD DR.	RESIDENTIAL	84	73	71	65	69	65	73	66	71
14	NORTH OF SOCASTEE BL AND EAST OF HWY 675	RESIDENTIAL	77	68	67	60	63	61	70	59	65
15	HWY 478 SOUTH OF ROUTE 17	RESIDENTIAL	96	84	84	73	77	78	86	76	87
16	SOUTH OF US 17 BETWEEN HWY 478 AND HWY 600	RESIDENTIAL	99	85	83	73	80	82	89	80	88

Table 4.4-49A. Distance to DNL from Roadway Centerline - Existing Airfield/Mixed Use Alternative

Year	Roadway	Distance to Roadway Centerline (ft)[1][2]				
		DNL of 60 dBA	DNL of 65 dBA	DNL of 70 dBA	DNL of 75 dBA	Pk Hr L_{eq} of 67 dBA
1998	U.S. 17 Business - MBAFB toward south - MBAFB toward north	 471 474	 234 236	 121 122	 73 73	 183 183
	U.S. 17 Bypass - MBAFB toward north and south	712	356	178	97	270
	SC 707 - MBAFB toward west	277	137	73	<50	106
	U.S. 501 - U.S. 17 Bypass toward west - U.S. 17 Bypass toward east	 520 485	 259 241	 134 125	 79 74	 196 183
	SC 544 - U.S. 17 Bus. to U.S. 17 Bypass - U.S. 17 Bypass to SC 707	 304 469	 149 230	 77 114	 <50 61	 113 173
	Jetport Road - Jetport to SC 600	92	<50	<50	<50	<50
2003	U.S. 17 Business - MBAFB toward south - MBAFB toward north	 560 549	 279 273	 142 139	 81 80	 223 215
	U.S. 17 Bypass - MBAFB toward north and south	795	399	199	106	305
	SC 707 - MBAFB toward west	326	160	83	<50	126
	U.S. 501 - U.S. 17 Bypass toward west - U.S. 17 Bypass toward east	 578 541	 290 269	 151 137	 91 79	 221 204
	SC 544 - U.S. 17 Bus. to U.S. 17 Bypass - U.S. 17 Bypass to SC 707	 343 525	 168 259	 85 127	 <50 67	 127 194
	Jetport Road - Jetport to SC 600	99	<50	<50	<50	<50
2013	U.S. 17 Business - MBAFB toward south - MBAFB toward north	 678 647	 338 323	 170 163	 93 90	 273 254
	U.S. 17 Bypass - MBAFB toward north and south	826	415	207	109	320
	SC 707 - MBAFB toward west	328	162	83	50	131
	U.S. 501 - U.S. 17 Bypass toward west - U.S. 17 Bypass toward east	 724 643	 363 320	 185 161	 105 89	 275 242
	SC 544 - U.S. 17 Bus. to U.S. 17 Bypass - U.S. 17 Bypass to SC 707	 409 626	 201 312	 100 157	 55 88	 152 237
	Jetport Road - Jetport to SC 600	113	54	<50	<50	<50

(1) Based on soft site distance propagation of 4.5 dB per doubling of distance.
(2) Heavy truck estimates also assume flat grades (no uphill)

Table 4.4–49B. Distance to DNL from Roadway Centerline – Existing Airfield/Mixed Use Alternative – Restricted Second Runway Option

Year	Road Name	Distance to Roadway Centerline, Ft (1)(2)				
		DNL of 60 dBA	DNL of 65 dBA	DNL of 70 dBA	DNL of 75 dBA	Peak Hr. Leq of 67 dBA (3)
2013	U.S. 17 Business					
	– MBAF toward south	678	338	170	93	274
	– MBAF toward north	648	323	163	90	254
	U.S. 17					
	– MBAF toward north & south	826	415	207	109	320
	S 707					
	– MBAF toward west	329	162	84	50	131
	U.S. 501					
	– US 17 Bypass toward west	724	364	185	105	275
	– US 17 Bypass toward east	643	320	161	89	242
	SC 544					
	– US 17 Business to US 17 Bypass	409	201	100	55	152
	– US 17 Bypass to SC 707	626	312	157	88	237
	Jetport Rd.					
	– Jetport to SC 600	114	54	<50	<50	<50

(1) Based on soft site distance propagation of 4.5 dB per doubling of distance.
(2) Heavy truck estimates assumed flat grades (no uphill).

Aircraft Noise. It was assumed that the peak month average daily operation for all future years would not exceed 92 operations per day based on the Joint Use Agreement. Noise level contours were developed using INM Version 3.9 for jetport operations for the years 1998, 2003, and 2013, and are presented in Figures 4.4-11 and 4.4-12. Noise contours for 2003 and 2013 would be the same because both have the same number of operations and the same fleet mix. These noise contours are based on no new runway, control towers, or other airport improvements and with operations capped at 92 operations per day. The aircraft operations that were used in the noise model for 1998 and 2003/2013 are included in Appendix K. It was assumed that the flight tracks and aircraft profiles would be consistent with the preclosure operational procedures at the jetport for civil aircraft. Figure 4.4-6 shows the flight tracks used for generating the noise contours. Flight tracks related to the second runway were not used for this alternative since no airfield expansion is proposed.

Table 4.4-43 presents the approximate number of acres and estimated population within each DNL range for each of the study years. Compared to the preclosure reference, this represents a decrease of 3,888 acres within a DNL contour of 65 dBA in 1998, 4,157 acres in 2003, and 4,157 acres in 2013. The maximum exposure is projected for 1998, after which the FAA-required conversion of Stage 2 to quieter Stage 3 aircraft would result in a reduced noise exposure even though the numbers of aircraft operations would increase.

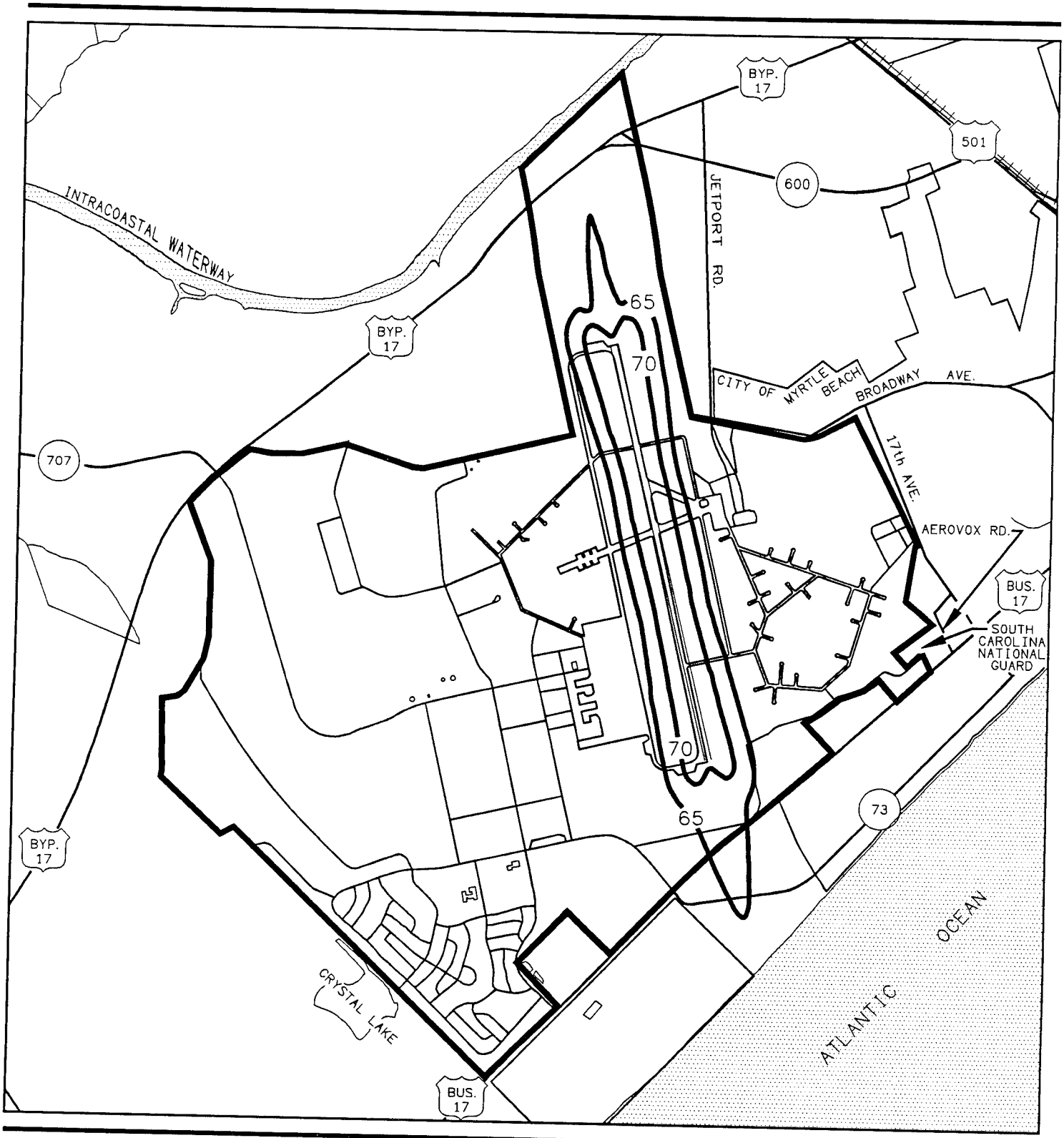
The criteria that define Stage 2 and Stage 3 aircraft are described in FAA Part 36 (FAA, 1988). Noise level limits are defined for takeoff, approach, and sideline measurements. The modeled aircraft operations reflect this phaseout by replacing the B727-200, B737-200, and B737-300 (all Stage 2) with B737-400 and B747-400 (Stage 3).

No residential areas or parts of Springmaid Beach Resort would be exposed to a DNL contour of 65 dBA or higher for this alternative.

SEL was calculated at representative sensitive receptor locations for operations of the noisiest and most common aircraft. Tables 4.4-50a and 4.4-50b present the results of the calculations. The analysis suggests that some aircraft overflights could affect the sleep of some residents located north of the jetport and guests in the Springmaid Beach Resort.

In 1998, the noisiest plane would be the Stage 2 B727-200 aircraft. This aircraft would comprise about 12 percent of the commercial operation. The next noisiest planes are the Stage 2 B737-200 and the Stage 3 B737. These two aircraft combined would comprise about 39 percent of the commercial operations. In 2003 and 2013, the noisiest plane would be the Stage 3 B747-400, followed by the Stage 3 B737 and B757 aircraft. These three aircraft would comprise about 55 percent of the commercial operations in 2003 and 2013. The noisiest aircraft were determined from the L_{max} as presented in FAA Advisory Circular AC 36-3E (FAA, 1987).

Traffic Noise. The No-Action Alternative would produce some new roadway traffic associated with the jetport operations and eliminate some existing



EXPLANATION

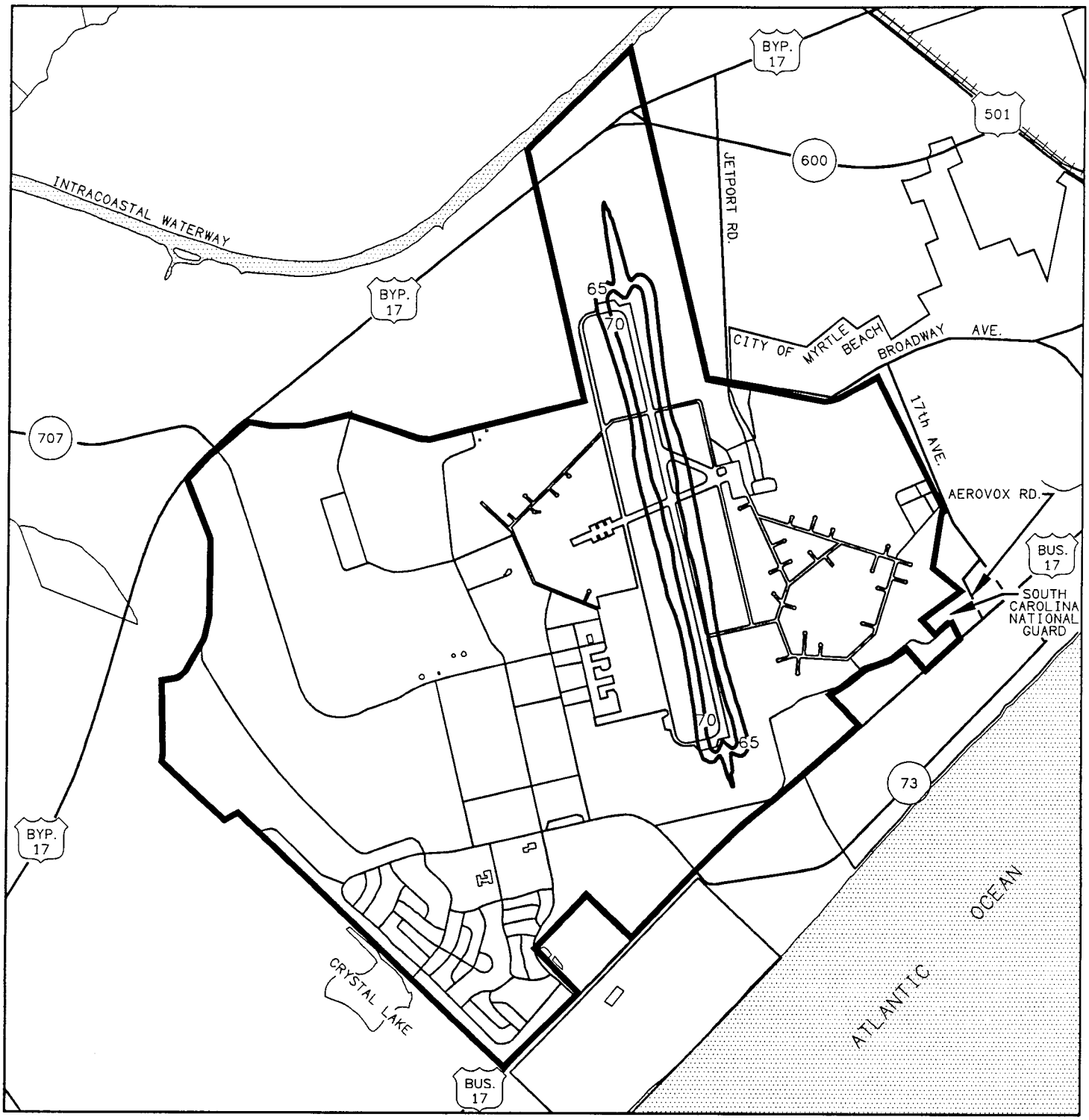
—65— DNL NOISE CONTOURS (dBA)

0 1000 3000 feet

NOISE CONTOURS NO-ACTION ALTERNATIVE 1998

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.4-11



EXPLANATION

—65— DNL NOISE CONTOURS (dBA)

0 1000 3000 feet

N W E S

NOISE CONTOURS NO-ACTION ALTERNATIVE 2003 AND 2013

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE 4.4-12

Table 4.4-50a SOUND EXPOSURE LEVELS AT REPRESENTATIVE NOISE RECEPTORS - YEAR 1998 - NO ACTION ALTERNATIVE

NO	RECEPTOR LOCATION	LAND-USE	SOUND EXPOSURE LEVEL (dB) AIRCRAFT TYPE							
			B727-200	B737-200	B737-300 B737-400	B757	F100	SAAB 340	DHC-8	C402
INSIDE THE BASE										
1	NW CORNER OF THE GOLF COURSE	RECREATIONAL	92	97	85	84	88	78	72	71
2	NEAR BLDG 400 EAST OF RUNWAY	VACANT	95	99	87	86	91	80	74	73
3	SOUTH GATE	VACANT	101	99	84	83	89	81	72	74
4	BLDG 610 AT ALDER STREET	VACANT	90	90	75	74	79	71	65	66
5	CORNER OF SHINE AND B AVENUES	VACANT	93	93	80	79	85	75	69	69
6	CORNER OF SHINE AND D AVENUES	VACANT	88	92	81	80	83	73	69	67
OUTSIDE THE BASE										
7	WEST END OF WATER SIDE DR.	RESIDENTIAL	102	98	84	82	89	80	76	69
8	CORNER OF STALVEY AND NAYLOR AVENUES	RESIDENTIAL	82	83	70	68	73	65	62	61
9	CORNER OF TAYLOR AND CLARK STREETS	RESIDENTIAL	88	92	80	79	83	73	68	66
10	CORNER OF 25TH AND ROSE MARY STREETS	HOTEL	94	93	79	78	84	75	68	69
11	SPRINGMAID BEACH RESORT	RESORT	108	102	95	94	93	88	92	85
12	MYRTLE BEACH STATE PARK	PARK	103	99	85	83	90	80	77	75
13	CORNER OF YAUPON CIR. AND DOGWOOD DR.	RESIDENTIAL	88	87	73	71	76	69	65	66
14	NORTH OF SOCASTEE BL AND EAST OF HWY 675	RESIDENTIAL	80	81	68	66	71	63	67	58
15	HWY 478 SOUTH OF ROUTE 17	RESIDENTIAL	99	98	84	84	90	80	73	73
16	SOUTH OF US 17 BETWEEN HWY 478 AND HWY 600	RESIDENTIAL	102	99	85	83	90	80	73	75

Table 4.4-50b SOUND EXPOSURE LEVELS AT REPRESENTATIVE NOISE RECEPTORS - YEAR 2003/2013 - NO ACTION ALTERNATIVE

NO	RECEPTOR LOCATION	LAND-USE	SOUND EXPOSURE LEVEL (dB) AIRCRAFT TYPE					
			B747-400	B737-400	B757	DHC 8	SAAB 340	C402
INSIDE THE BASE								
1	NW CORNER OF THE GOLF COURSE	RECREATIONAL	90	85	84	72	78	71
2	NEAR BLDG 400 EAST OF RUNWAY	VACANT	93	87	86	74	80	73
3	SOUTH GATE	VACANT	98	84	83	72	81	74
4	BLDG 610 AT ALDER STREET	VACANT	87	75	74	65	71	66
5	CORNER OF SHINE AND B AVENUES	VACANT	90	80	79	69	75	69
6	CORNER OF SHINE AND D AVENUES	VACANT	85	81	80	69	73	67
OUTSIDE THE BASE								
7	WEST END OF WATER SIDE DR.	RESIDENTIAL	99	84	82	76	80	69
8	CORNER OF STALVEY AND NAYLOR AVENUES	RESIDENTIAL	77	70	68	62	65	61
9	CORNER OF TAYLOR AND CLARK STREETS	RESIDENTIAL	85	80	79	68	73	66
10	CORNER OF 25TH AND ROSE MARY STREETS	HOTEL	91	79	78	68	75	69
11	SPRINGMAID BEACH RESORT	RESORT	105	95	94	92	88	85
12	MYRTLE BEACH STATE PARK	PARK	100	85	83	77	80	75
13	CORNER OF YAUPON CIR. AND DOGWOOD DR.	RESIDENTIAL	84	73	71	65	69	66
14	NORTH OF SOCASTEE BL AND EAST OF HWY 675	RESIDENTIAL	77	68	66	67	63	58
15	HWY 478 SOUTH OF ROUTE 17	RESIDENTIAL	96	84	84	73	80	73
16	SOUTH OF US 17 BETWEEN HWY 478 AND HWY 600	RESIDENTIAL	99	85	83	73	80	75

roadway trips associated with Air Force operations. Projected roadway traffic noise levels were determined for major roads within the study area using the traffic noise predication methodology, FHWA-RD-77-108, developed by the FHWA. The results of the roadway noise analysis for 1998, 2003, and 2013 are summarized in Table 4.4-51. This table shows the No-Action Alternative distance from the roadways to the DNL contours. The approximate number of residential structures and churches within the DNL of 65 dBA would be the same as under the Proposed Action.

Cumulative Impacts. There would be no cumulative impacts expected from noise sources for the No-Action Alternative.

Mitigation Measures. Mitigation measures would be the same as those discussed for the Proposed Action. However, no acoustic treatments would be required for the Springmaid Beach Resort buildings.

4.4.5 BIOLOGICAL RESOURCES

The Proposed Action and reuse alternatives (except No-Action) could potentially affect biological resources through alteration or loss of vegetation and wildlife habitat. These impacts are described below for each alternative.

Assumptions used in analyzing the effects of the Proposed Action and alternatives include:

- All staging and other areas disturbed temporarily by construction would be placed in previously disturbed areas (e.g., paved or cleared areas), to the fullest extent possible.
- Proportions of disturbance associated with each land use category were determined based on accepted land use planning concepts. Development within each parcel could occur at one or more locations anywhere within that category, unless designated as vacant land on the project maps.

The RAM for biological resources is presented as Table 4.4-52.

4.4.5.1 Proposed Action (Expanded Airfield/Resort-Education)

The Proposed Action could affect existing biological resources through vegetation and wildlife habitat changes. Proposed construction activities could permanently impact all of the approximately 1,296 acres of commercial forest community on base. The main impacts from this alternative would be the loss of this native vegetation and its associated wildlife habitat value. Proposed activities within the remaining land use areas could result in temporary disruption of species associated with disturbed and urban areas.

Vegetation. The proposed development of the resort complex within the northwest quadrant of the base would disturb the existing forest community. This community includes approximately 1,027 acres of upland pine-hardwood mixed forest and 167 acres of wetland forest. The intensity of development proposed for this sector could affect the majority of this community.

Table 4.4-51. Distance to DNL from Roadway Centerline - No-Action Alternative

Year	Roadway	Distance to Roadway Centerline (ft)[1][2]				
		DNL of 60 dBA	DNL of 65 dBA	DNL of 70 dBA	DNL of 75 dBA	Pk Hr L_{eq} of 67 dBA
1998	U.S. 17 Business					
	- MBAFB toward south	440	219	115	70	166
	- MBAFB toward north	420	209	110	68	159
	U.S. 17 Bypass					
	- MBAFB toward north and south	674	336	169	93	253
	SC 707					
	- MBAFB toward west	243	121	66	<50	93
	U.S. 501					
	- U.S. 17 Bypass toward west	514	256	132	78	193
	- U.S. 17 Bypass toward east	478	238	123	73	180
	SC 544					
	- U.S. 17 Bus. to U.S. 17 Bypass	290	143	74	<50	107
	- U.S. 17 Bypass to SC 707	459	225	112	60	168
	Jetport Road					
	- Jetport to SC 600	96	<50	<50	<50	<50
2003	U.S. 17 Business					
	- MBAFB toward south	492	245	126	75	184
	- MBAFB toward north	467	233	121	72	176
	U.S. 17 Bypass					
	- MBAFB toward north and south	745	372	186	100	280
	SC 707					
	- MBAFB toward west	271	134	71	<50	102
	U.S. 501					
	- U.S. 17 Bypass toward west	571	286	150	90	217
	- U.S. 17 Bypass toward east	531	264	135	78	199
	SC 544					
	- U.S. 17 Bus. to U.S. 17 Bypass	323	158	81	<50	119
	- U.S. 17 Bypass to SC 707	510	251	124	65	187
	Jetport Road					
	- Jetport to SC 600	115	55	<50	<50	<50
2013	U.S. 17 Business					
	- MBAFB toward south	585	291	148	84	218
	- MBAFB toward north	559	278	142	81	209
	U.S. 17 Bypass					
	- MBAFB toward north and south	759	380	190	102	285
	SC 707					
	- MBAFB toward west	248	123	66	<50	94
	U.S. 501					
	- U.S. 17 Bypass toward west	716	360	184	104	271
	- U.S. 17 Bypass toward east	630	314	158	88	236
	SC 544					
	- U.S. 17 Bus. to U.S. 17 Bypass	386	189	95	53	141
	- U.S. 17 Bypass to SC 707	608	302	153	86	227
	Jetport Road					
	- Jetport to SC 600	135	64	<50	<50	<50

(1) Based on soft site distance propagation of 4.5 dB per doubling of distance.
(2) Heavy truck estimates also assume flat grades (no uphill)

Table 4.4-52. Resource Assessment Matrix - Biological Resources, 2013

Evaluation Criteria	Unit of Measurement	Alternative* Proposed Action	1	2	3	No-Action
Federally-listed threatened and endangered species adversely affected	Number	0	0	0	0	0
State-listed threatened and endangered species adversely affected	Number	0	0	0	0	0
Total upland vegetation disturbed or altered	Acres	1,027	1,027	1,027	1,027	0
Wildlife habitat disturbed or altered	Acres	1,296	1,296	1,296	1,296	0
Wetland sites disturbed or lost	Acres	167	167	167	167	0

* Alternatives 1, 2, 3 are the Expanded Airfield/Resort-Recreation, Expanded Airfield/Resort-Commercial-Industrial, and Existing Airfield/Mixed Use Alternatives, respectively.
Note: Mitigation actions required to offset impacts on wetland or upland habitats lost or disturbed would be determined through coordination and permitting actions with regulatory agencies; comparison with acres impacted after mitigation actions are implemented cannot be determined at this time.

An additional 29-acre tract of wetlands is located in an existing campground and recreational use area adjacent to the proposed resort area. This area is proposed for use as a recreation area. Disruption of wetlands by this reuse would not necessarily occur. Wetlands associated with various drainage ditches on the base may also be impacted by use changes and associated drainage improvements.

The proposed airfield, aviation support, commercial, industrial, educational, and other use changes are planned for areas classified as urban lands. These communities are characterized by open fields, grassy areas, and remnant forest communities. The primary impact to these systems would be the temporary loss of vegetation. Landscape replacement activities associated with the new uses would re-establish similar vegetative communities.

A proposal for reuse submitted to the Myrtle Beach AFB Redevelopment Task Force by the AVX Corporation provides two schematic layouts that show potential impacts to a remnant wetland system. This area has approximately 17 acres of wetlands.

Wildlife. Construction within the urban land use areas could temporarily displace resident populations of wildlife species. Populations of most species characteristic of these areas relocate easily. Once construction is completed and new landscape vegetation established, wildlife species previously displaced may return to the area.

Proposed construction activities planned for the forest habitat would displace and disrupt existing wildlife species. Species with limited mobility would be eliminated. Mobile species would relocate to adjacent land, if available. The carrying capacity of the adjacent habitat may result in ecological disruption of

the wildlife in this community. Resident populations would directly compete with the displaced individuals for habitat needs. The ultimate effect would be a decrease in local populations of wildlife until new population equilibria are established. Species most likely affected by these actions include bobwhite quail, gray squirrel, opossum, and white-tailed deer. Potential impacts to migratory bird species that use the forest also may occur. The ultimate effect would be a decrease in local populations of wildlife species.

The conversion of approximately 1,296 acres of forest community to an urban land use would favor species adapted to urban settings. Species most likely to benefit from this change include European starling, robin, mourning dove, house sparrow, and domestic dogs and cats. Increases in populations of these species could affect competition for foraging and nesting habitat as well as increased predation on native species by domestic dogs and cats.

Aquatic Biota. Aquatic resources would not be impacted since aquatic resource changes have not been identified.

Endangered, Threatened, and Special Concern Species. The proposed reuse would not disrupt habitat or disturb biota that could adversely affect potential threatened or endangered species occurrence. The American alligator, the only species known to periodically occur on base, would continue to use the drainage ditches. The shortnose sturgeon has been identified by the National Marine Fisheries Service as occurring in the Intracoastal Waterway near the Myrtle Beach AFB fuel dock. The Proposed Action should not adversely affect the shortnose sturgeon as reuse of the fuel pipeline is not proposed.

Sensitive Habitats. The wetland systems on Myrtle Beach AFB are considered sensitive habitats. The proposed reuse alternative has the potential to impact approximately 167 acres of forested wetlands. The wetlands are associated with drainage features in the northwestern quadrant of the base. Drainage patterns would likely be altered as a result of the proposed land use changes. Wetlands associated with these drainages as well as riparian habitats could be impacted. Wetlands also may be affected by sedimentation associated with construction scour from runoff.

Filling of wetland areas totalling less than 10 acres does not require an individual U.S. Army Corps of Engineers (COE) permit, since this is an activity covered by the existing authorization of a nationwide permit. Filling of a wetland between 1 and 10 acres does require prior notification to the COE. At this time the COE can request that an individual permit application be submitted for the proposed activity. The South Carolina Coastal Council must also issue a Coastal Zone Consistency Certification for these activities. For projects involving fill of less than 1 acre, prior notification to the COE is required.

Cumulative Impacts. Vegetation and wildlife habitat loss or alteration resulting from the Proposed Action would be in addition to the natural habitat losses associated with development of the Carolina Bays Parkway and the Conway Bypass.

Mitigation Measures. Mitigation measures for the potential loss or alteration of the 1,296 acres of forest community, 1,027 acres of upland and 167 acres of wetland may include incorporating existing native plant communities in the

proposed development. The potential water quality degradation by storm water discharges may require pretreatment systems. One of the more common systems uses wetlands as part of the treatment process. The mitigation process normally follows a sequential application of the mitigation elements through avoidance, minimization, and compensation.

Wetlands on base would be protected by compliance with Executive Order 11990 and Section 404 of the Clean Water Act. Mitigation could include avoidance or minimization of direct and indirect disturbance of wetlands through facility design Where unavoidable impacts will occur, compensation could include (1) preservation or enhancement of existing valuable wetland resources, or restoration of the previously impacted wetlands; (2) on-site (if possible) replacement of any wetlands lost at a ratio determined through consultation with COE and other affected agencies; (3) re-creation of wetland habitat elsewhere on the site or purchase and fencing of any off-site replacement habitat; and (4) monitoring (until habitat becomes well established) of any replacement wetlands as required to determine the effectiveness of replacement and any remedial measures necessary. Avoidance of disturbance could include controlling runoff from construction sites into drainages through use of berms, silt curtains, straw bales, and other appropriate techniques. Equipment could be washed in areas where wash water could be contained and treated or evaporated.

4.4.5.2 Expanded Airfield/Resort-Recreation Alternative

Development of the Expanded Airfield/Resort-Recreation Alternative would affect biological resources primarily through vegetation and habitat loss. Construction activities associated with this alternative could impact approximately 1,296 acres of forest community on Myrtle Beach AFB. The primary impacts from this alternative would be the disturbance and loss of native vegetation and its associated value as wildlife habitat.

Vegetation. The major impact from the base reuse proposed in this alternative is the loss or disturbance of forest communities. The destination resort is proposed for placement in the northwestern section of the base. This area includes 1,296 acres of commercial forest. The level of construction and development proposed for these areas could alter or remove the majority of this community.

Included in the 1,296 acre forest complex are 269 acres of wetlands. Within the proposed resort complex approximately 167 acres of wetlands could be impacted. These wetlands are associated with two drainages on the western section of the base.

An extensive (approximately 29-acre) wetland is in the existing family campground, which is proposed for recreation reuse. This reuse would not necessarily disturb the wetlands.

Other wetlands are in drainage ditches. Due to continued development of the base, they may have been inadvertently altered. Impacts to the area on the east side of the base proposed for industrial expansion would be as described for the Proposed Action.

The remaining major land use changes proposed for the base facilities are in areas designated as urban lands. Vegetative communities in these systems are characterized by open fields, grassy areas, and remnant forest communities. These systems are adjacent to the runway, office buildings, and parking lots. Construction activities associated with development of this alternative could temporarily impact these areas. However, landscape replacement associated with the new uses would re-establish similar vegetative communities.

Wildlife. Wildlife within the existing urban land use areas would be temporarily impacted by construction activities for this reuse alternative. Individuals of most species found in these systems relocate easily. Wildlife would be displaced to adjacent areas during construction periods and may return to the new landscape after construction.

Wildlife in the forest habitat proposed for a destination resort also would be displaced. Mobile species would use adjacent land, if available,and less mobile species would likely be eliminated. If adjacent habitat becomes overcrowded, the displaced individuals would compete with resident populations for available resources. Ecological disruption would occur until the population decreases and equilibrium is re-established. Wildlife species most likely affected include the gray squirrel, white-tailed deer, opossum, and bobwhite quail. Potential impacts to migratory bird species that use the forest also may occur. The ultimate effect would be a decrease in local populations of wildlife species.

The conversion of approximately 1,296 acres of forest community to an urban land use would be as described for the Proposed Action.

Aquatic Biota. Aquatic resources would not be impacted since no aquatic resource changes have been identified.

Endangered, Threatened, and Special Concern Species. Potential impacts to threatened or endangered species would the same as described for the Proposed Action.

Sensitive Habitats. The wetland systems on Myrtle Beach AFB are considered sensitive habitats. The proposed reuse alternative has the potential to impact approximately 167 acres of forested wetlands. The wetlands are associated with drainage features in the northwestern quadrant of the base. Drainage patterns would likely be altered as a result of the proposed land use changes. Wetlands associated with these drainages as well as riparian habitats could be impacted. Wetlands also may be affected by sedimentation associated with construction scour from runoff.

Cumulative Impacts. Cumulative impacts would be the same as described for the Proposed Action.

Mitigation Measures. Possible mitigation measures are the same as those described for the Proposed Action.

4.4.5.3 Expanded Airfield/Resort-Commercial-Industrial Alternative

The biological resource effects from this alternative are similar to both of the previously described alternatives. Differences in habitat losses and vegetation

changes between these three options are minor. The primary impact from this alternative would be the disturbance and loss of the forest community and its associated wildlife habitat value.

Vegetation. The destination resort proposed for the northwest quadrant with the inclusion of an additional 134-acre commercial use would impact the existing forest community in a similar manner to the previous alternatives as discussed in sections 4.4.5.1 and 4.4.5.2. The proposed use changes would favor species associated with urban landscaping and most likely retain native vegetation within buffer areas and parks.

The wetland forest community could be impacted in a similar manner. However, since this system is also classified as a sensitive habitat, regulatory restrictions must be incorporated into the planning design. Potential restrictions and mitigation are identified under sensitive habitats and mitigation measures.

The industrial, commercial, airfield, and aviation uses proposed for the existing urban use areas would result in localized short-term loss of vegetation. Landscape replacement activities would re-establish similar communities.

Wildlife. Wildlife impacts in the proposed destination resort and commercial use areas would receive the greatest level of impact. Due to the loss or modification of the existing forest community, displacement of most species would occur. Mobile species would most likely use adjacent lands. Less mobile species would probably be eliminated. Competition for habitat space and food resources on adjacent lands also would stress the existing populations. The ultimate effect could be a decrease in the local population of these species.

The proposed use changes in the existing urban use areas would result in temporary relocation of these normally mobile species to areas not under construction. Once activities are completed and landscapes established, recolonization of these areas would be expected.

Endangered, Threatened, and Special Concern Species. Potential impacts to threatened or endangered species would be the same as described for the Proposed Action.

Sensitive Habitats. The wetland systems on Myrtle Beach AFB are considered sensitive habitats. The proposed reuse alternative has the potential to impact approximately 167 acres of forested wetlands in the northwest quadrant of the site. The wetlands are associated with drainage features in this part of the base. Drainage patterns would likely be altered as a result of the proposed land use changes. Wetlands associated with these drainages as well as riparian habitats could be impacted. Wetlands also may be affected by sedimentation associated with construction scour from runoff.

Cumulative Impacts. Cumulative impacts would be the same as described for the Proposed Action.

Mitigation Measures. Possible mitigation measures are the same as described for the Proposed Action.

4.4.5.4 Existing Airfield/Mixed Use Alternative

Biological resource impacts associated with this alternative are similar to the preceding reuse alternatives. Since reuse options identified in this alternative use all the base grounds, impacts to the biological systems affect all vegetation and wildlife communities on site.

Vegetation. Proposed reuse options identified in this alternative could affect the existing commercial forest acreage on the base. The proposed development of the PGA golf course, some industrial usage, and some of the educational options are planned for placement within this sector of the base. Golf course development could use some of the existing upland vegetation and wetland systems in the course design. The remaining forest acreage would be converted to a more urbanized land usage. Vegetative systems characteristic of urban landscapes would replace the existing forest communities.

The wetland systems on base are considered sensitive habitats. Construction within these areas is controlled by regulatory agencies and restriction on wetland use must be considered during planning and design.

Development of additional industrial, educational, and commercial uses is proposed within the current urban land uses. Impacts to vegetation from these use changes could temporarily impact the existing urban landscape. Standard replacement landscaping normally associated with development activities would re-establish similar communities.

Wildlife. Native wildlife species associated with the forest community would be either displaced to adjacent lands or lost from the wildlife community. Competition for habitat and food sources would stress the existing populations. The result would be the reduction of the native population to match the carrying capacity of the adjacent and remaining forest community The conversion of the land use to a more urbanized setting could enhance species suited to this type of habitat.

The proposed land use changes within the existing urban areas on the base would temporarily relocate or displace existing populations. Once landscape vegetation is replaced, these areas would be again recolonized by the urban species.

Endangered, Threatened, and Special Concern Species. Potential impacts to threatened or endangered species would be the same as described for the Proposed Action.

Sensitive Habitats. The wetland systems on Myrtle Beach AFB are considered sensitive habitats. The proposed reuse alternative has the potential to impact approximately 167 acres of forested wetlands in the northwest part of the site. The wetlands are associated with drainage features in this quadrant of the base. Drainage patterns would likely be altered as a result of the proposed land use changes. Wetlands associated with these drainages as well as riparian habitats could be impacted. Wetlands also may be affected by sedimentation associated with construction scour from runoff.

Restricted Second Runway Option. The impacts of this option would be the same as for the alternative with a single runway.

Cumulative Impacts. Cumulative impacts would be the same as described for the Proposed Action.

Mitigation Measures. Possible mitigation measures are the same as described for the Proposed Action.

4.4.5.5 No-Action Alternative (Existing Airfield/Caretaker)

Under caretaker status, habitat quality at the base would improve in certain areas and decline in others because habitat maintenance operations would be less intensive.

Vegetation. Following closure, maintenance of landscaped areas and grassed lawns would be reduced. Management of forested areas would be reduced or cease. The reduced maintenance activities in the forest areas would result in a more complete canopy closure by the overstory and further loss of understory vegetation. In the grass and open field areas, the return to a more natural herbaceous and shrub-scrub community would result from the reduced maintenance activities. If the planned 1992-1993 forest burning and selective harvesting of timber occurs prior to base closure, these activities would provide a more environmentally beneficial basis for habitat diversification after base closure. Once closure occurs, the forest communities would naturally progress toward a more unified natural system with hardwoods as the dominant species.

Wildlife. Wildlife habitat may decline if the current forest management practices to enhance edge effect communities and reduce canopy cover and tree density were to be discontinued. These forest areas ultimately would become less suitable to maintain wildlife diversity. Base closure may increase populations of wildlife as a result of less disturbance by routine base operations.

Threatened and Endangered Species. The No-Action Alternative would not disrupt habitat or disturb biota that could adversely affect potential species occurrences. In addition, the only listed species within the general area is the American alligator. Habitat for this species when it periodically enters the base drainage ditches and waterway might in fact be enhanced by lack of maintenance. The shortnose sturgeon, listed by the National Marine Fisheries Service as occurring in the vicinity of the base fuel docks, should not be affected by the No-Action Alternative.

Sensitive Habitats. The only sensitive habitats listed for the base are wetland systems. The No-Action Alternative would not likely impact these systems since no additional direct disturbance to wetlands would occur. The reduced maintenance to the surface drainage systems would provide a positive impact as these systems would become more heavily vegetated with an associated improvement of habitat for reptiles and amphibians.

Cumulative Impacts. No cumulative impacts would result from the No-Action Alternative.

Mitigation Measures. No mitigation measures would be required for this alternative.

4.4.6 CULTURAL RESOURCES

Potential impacts were assessed by (1) identifying types and possible locations of reuse activities that could directly or indirectly affect cultural resources, and (2) identifying the nature and potential significance of cultural resources in potentially affected areas. Pursuant to the National Historic Preservation Act (NHPA), consultation, as directed by the Section 106 review process, has been initiated with the South Carolina State Historic Preservation Officer (SHPO).

Historic properties, under 36 CFR Part 800, are defined as "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP [National Register of Historic Places]. This term includes, for the purposes of these regulations, artifacts, records, and remains that are related to and located within such properties. The term 'eligible for inclusion in the National Register' includes both properties formally determined as such by the Secretary of the Interior and all other properties that meet National Register listing criteria." Therefore, sites not yet evaluated are considered potentially eligible to the NRHP and, as such, are afforded the same regulatory consideration as nominated historic properties.

As a federal agency, the Air Force is responsible for identifying any historic properties at Myrtle Beach AFB. This identification process includes no only field surveys and recording of cultural resources, but also evaluations to develop determinations of significance in terms of NRHP criteria. (NRHP criteria and related qualities of significance are discussed in Appendix E, Methods of Analysis.) Completion of this process results in a listing of historic properties subject to federal regulations regarding the treatment of cultural resources.

In compliance with the NHPA, the Air Force has initiated the Section 106 review process with the SHPO (Appendix M). To date, record and literature searches have been conducted at Myrtle Beach AFB, at the University of South Carolina, the Historic Preservation Office in Columbia, South Carolina, Horry County records in Conway, South Carolina, at the South Carolina Institute of Archaeology and Anthropology; a field survey is being conducted by the Air Force to assess potential eligibility of undetermined sites and structures discussed in Section 3.4.6.

The RAM for historic sites and structures is presented in Table 4.4-53 and the RAM for archaeological sites is presented in Table 4.4-54.

4.4.6.1. Proposed Action (Expanded Airfield/Resort-Education)

The western and southern expansion of the airfield could have an effect on Building #544 and archaeological site, 38HR103. The NRHP eligibility of these resources has not been determined.

Table 4.4-53. Resource Assessment Matrix - Historic Sites and Structures[1], 2013

Evaluation Criteria	Unit of Measurement	Proposed Action	Alternative[2] 1	2	3	No-Action
Local survey sites	Number	13	13	13	13	13
	No effect	2	0	0	0	13
	No adverse effect	10	12	12	12	0
	Adverse effect	1	1	1	1	0
Potential NRHP sites	Number	3	3	3	3	3
	No effect	0	0	0	0	3
	No adverse effect	2	2	2	2	0
	Adverse effect	1	1	1	1	0
Sites requiring additional study	Number	12	12	12	12	12

[1] Assumes ROI to be entire Myrtle Beach AFB
[2] Alternatives 1, 2, 3 are the Expanded Airfield/Resort-Recreation, Expanded Airfield/Resort-Commercial-Industrial, and Existing Airfield/Mixed Use Alternatives, respectively.

Table 4.4-54. Resource Assessment Matrix - Archaeological Sites[1], 2013

Evaluation Criteria	Unit of Measurement	Proposed Action	Alternative[2] 1	2	3	No-Action
State sites	Number	14	14	14	14	14
	No effect	1	1	1	1	14
	No adverse effect	12	12	12	12	0
	Adverse effect	1	1	1	1	0
Potential NRHP sites	Number	1	1	1	1	1
	No effect	0	0	0	0	1
	No adverse effect	0	0	0	0	0
	Adverse effect	1	1	1	1	0
High potential area	Acres	1,900	1,900	1,900	1,900	1,900
Low potential area	Acres	1,844	1,844	1,844	1,844	1,844
Area requiring further study	Acres	1,900	1,900	1,900	1,900	1,900

[1] Acreage of ROI assumed to be 3,744 acres.
[2] Alternatives 1, 2, 3 are the Expanded Airfield/Resort-Recreation, Expanded Airfield/Resort-Commercial-Industrial, and Existing Airfield/Mixed Use Alternatives, respectively.

The proposed expansion of aviation support east of the existing airfield could affect the western portion of the FOLTA, whose eligibility for listing in the NRHP is undetermined. The proposed industrial expansion area in the eastern part of the base also could affect the FOLTA. An air museum is proposed forpart of the FOLTA, which would be compatible with its original 1940s

airbase function as an aircraft revetment system. The two Norden bomb sight vaults could be retained and incorporated into this museum.

The proposed expansion of aviation support west of the existing runway could have an effect on Building #586 whose NRHP eligibility is undetermined.

In areas proposed for public facilities and recreation uses, there are several buildings that could be affected. The area now used as a family campground is adjacent to the existing state park. It was part of the larger original state park built by the Civilian Conservation Corps (CCC) in the 1930s before the construction of the airfield. Several historic buildings, #172, #162, and #155, remain from this 20th century use whose NRHP eligibility is undetermined. Archaeological site, 38HR114, is also located within this area and its NRHP eligibility has not been determined. The existing golf course has two buildings over 50 years old, #450 and #451, whose eligibility is undetermined. The destination resort is proposed in an area where there are three buildings whose NRHP eligibility has not been reviewed, Buildings #584, #576, and #577. There are no NRHP eligible archaeological sites in this area.

Roadways. The proposed new roadways could have an effect on archaeological resources. New grading and construction would be conducted in some areas with moderate to high potential for archaeological resources. Potential effects could be determined by a systematic testing and evaluation program prior to construction.

Cumulative Impacts. No cumulative impacts are anticipated from the Proposed Action.

Mitigation Measures. Preservation or data recovery for historic properties that would not be maintained under this alternative would be undertaken. Archaeological sites eligible for the NRHP that could not be avoided would be subject to a data recovery program. Specific mitigation would be defined in consultation with the SHPO and be detailed in a treatment plan and agreement document, if applicable, initiated by the Air Force.

If the land is conveyed to a non-federal entity (state, local, or private), preservation covenants could be placed on the disposal document. These restrictions would reduce the impact associated with conveyance to a non-adverse level. Any minor development within the designated parcels which could impact historic properties would, therefore, fall under the requirements of Section 106 of the NHPA.

4.4.6.2 Expanded Airfield/Resort-Recreation Alternative

Expansion of the airfield to the west of the existing runway could have an effect on Building #544 whose NRHP eligibility has not been determined. Expansion of the airfield to the south of the existing runway would not affect identified historic structures but could have an effect on archaeological site, 38HR103, whose NRHP eligibility is undetermined. Industrial expansion in the eastern part of the base could have an effect on the FOLTA.

In areas proposed for public facilities and recreation uses, impacts to the family campground, golf course, and proposed air museum area would be as described

under the Proposed Action. The destination resort is proposed in an area containing several buildings (#584, #586, #596 and #576) whose eligibility has not been determined.

Roadways. The proposed new roadways could have an effect on archaeological resources. New grading and construction would be conducted in some areas with moderate to high potential for archaeological resources. Potential effects could be determined by a systematic testing and evaluation program prior to construction.

Cumulative Impacts. No cumulative impacts are anticipated from this alternative.

Mitigation Measures. Possible mitigation measures would be the same as described for the Proposed Action.

4.4.6.3. Expanded Airfield/Resort-Commercial-Industrial Alternative

The expansion of the airfield facility to the west of the existing runway could have an effect on Building #544 whose NRHP eligibility has not been determined. The expansion of the airfield facility into the area to the south of the existing runway could affect archaeological site, 38HR103. The NRHP eligibility of this site has not been determined. The industrial expansion in the eastern part of the base could affect the FOLTA. The proposed commercial area for the northwest corner of the property contains only one building, #586, whose eligibility has not been determined.

In public facilities and recreation areas, impacts to the family campground, the existing golf course, proposed air museum area, and proposed destination resort would be the same as described for the Proposed Action.

Roadways. The proposed new roadways could have an effect on archaeological resources. New grading and construction would be conducted in some areas with moderate to high potential for archaeological resources. Potential effects could be determined by a systematic testing and evaluation program prior to construction.

Cumulative Impacts. No cumulative impacts are anticipated from this alternative.

Mitigation Measures. Possible mitigation measures are the same as described for the Proposed Action.

4.4.6.4 Existing Airfield/Mixed Use Alternative

The area proposed for industrial use contains Buildings #544, #584, #586, #576, and #577 whose NRHP eligibility has not been determined. The commercial development in the eastern location on the base could affect the FOLTA. The proposed commercial area adjacent to the family campground contains archaeological site, 38HR103, whose NRHP eligibility has not been determined.

Impacts to the family campground, existing golf course, and proposed air museum would be the same as described for the Proposed Action.

Impacts of the Restricted Second Runway Option would be the same as for the option with a single runway.

Roadways. The proposed new roadways could have an effect on archaeological resources. New grading and construction would be conducted in some areas with moderate to high potential for archaeological resources. Potential effects could be determined by a systematic testing and evaluation program prior to construction.

Cumulative Impacts. No cumulative impacts are anticipated from this alternative.

Mitigation Measures. Possible mitigation measures are the same as described for the Proposed Action.

4.4.6.5 No-Action Alternative (Existing Airfield/Caretaker)

Adverse effects under the No-Action Alternative would be minimal. Maintenance and repair of the existing facilities during caretaker status may result in physical changes to architectural qualities that make historic structures potentially eligible for listing on the NRHP. In addition, some historic structures may not receive maintenance necessary to preserve their historic integrity. These impacts are not considered adverse, if mitigation measures as described for the Proposed Action are implemented.

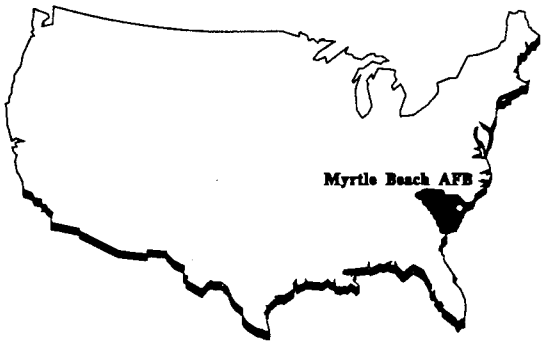
Impacts to archaeological resources would be minimal under the No-Action Alternative. One exception could come from ground disturbance carried on by remediation of hazardous waste and UST sites. These impacts are not considered adverse, if mitigation measures as described for the Proposed Action are implemented.

Cumulative Impacts. The No-Action Alterative would not result in cumulative impacts.

Mitigation Measures. Preservation or data recovery for historic properties that would not be maintained under caretaker status would be undertaken. Specific mitigation would be defined in consultation with the SHPO and be detailed in a treatment plan and agreement document, if applicable, initiated by the Air Force.

The OL should continue to ensure adequate security to discourage illegal looting of the archaeological sites, and this inadvertent violation of the Archaeological Resources Protection Act.

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CHAPTER 5
CONSULTATION AND COORDINATION

5.0 CONSULTATION AND COORDINATION

FEDERAL AGENCIES

Department of Commerce, Bureau of the Census
Department of Justice, Bureau of Prisons
Department of Labor, Bureau of Labor Statistics
Federal Aviation Administration
Federal National Mortgage Agency
National Marine Fisheries Service
Office of Economic Adjustment
U.S. Air Force, Base Disposal Office
U.S. Air Force, Brooks AFB
U.S. Air Force, Langley AFB
U.S. Air Force, Myrtle Beach AFB
U.S. Air Force, Tyndall AFB
U.S. Air Force, Wright-Patterson AFB
U.S. Army, Corps of Engineers
U.S. Department of Health and Human Services
U.S. Department of Housing and Urban Development
U.S. Environmental Protection Agency
U.S. Fish and Wildlife Service
U.S. Geological Survey
U.S. Postal Service

STATE AGENCIES

Carolina Coastal Council
South Carolina Bureau of Air Quality Control
South Carolina Department of Corrections
South Carolina Department of Education
South Carolina Department of Health and Environmental Control
South Carolina Department of Highways and Public Transportation
South Carolina Department of Labor
South Carolina Division of Research and Statistical Service
South Carolina Employment Security Commission
South Carolina Geological Survey
South Carolina Historic Preservation Office
South Carolina Highway Commission
South Carolina Institute of Archaeology and Anthropology
South Carolina State Data Center
South Carolina State Development Board
South Carolina Water Resources Commission
South Carolina Wildlife and Freshwater Fisheries Division
South Carolina Wildlife and Marine Resources Department
University of South Carolina Archaeology Department

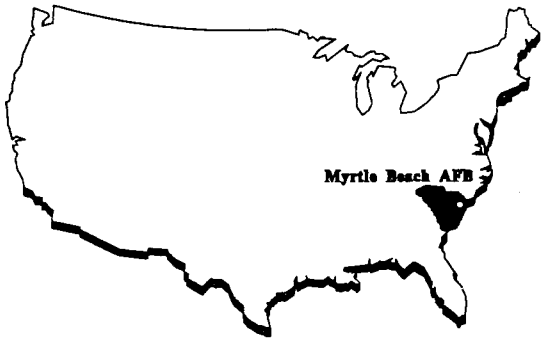
LOCAL/REGIONAL AGENCIES

Charleston County Building Department
City of Aynor Fire Department
City of Aynor Police Department
City of Conway Fire Department
City of Conway Police Department
City of Loris Fire Department
City of Loris Police Department
City of Myrtle Beach, City Manager's Office
City of Myrtle Beach, Department of Planning
City of Myrtle Beach Fire Department
City of Myrtle Beach Police Department
City of Myrtle Beach Public Utilities Department
City of North Myrtle Beach Fire Department
City of North Myrtle Beach Police Department
City of Surfside Beach Fire Department
City of Surfside Beach Police Department
City of Surfside Beach Town Administrator's Office
Coastal Carolina College
Coastal Regional Public Transit Authority
Development Board of Horry County
Garden City/Murrell's Inlet Fire Department
Georgetown County Administrator's Office
Georgetown County Fire Department
Georgetown County Police Department
Grand Strand Water and Sewer Authority
Horry County Administrator's Office
Horry County Department of Airports
Horry County Department of Engineering
Horry County Department of Planning
Horry County Fire Department
Horry County Mapping Department
Horry County Police Department
Horry County Property Assessor's Office
Horry County School Board
Horry County 2010 Committee
Horry County Waste Management Division
Horry-Georgetown County Technical College
Myrtle Beach AFB Redevelopment Task Force
Myrtle Beach Housing Authority
Myrtle Beach Jetport
Port of Georgetown
Waccamaw Regional Planning and Development Council

PRIVATE ORGANIZATIONS AND INDIVIDUALS

Area Council on Transportation
Atlantic Breeze Motel
Beach Park Apartments and Condos
Blue Hawk Motel
Caravan Motel
CEHP, Inc.
Charles Willis & Associates, Inc.
Cognetics Real Estate, Inc.
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Myrtle Beach Pipeline Company
Nash's Rooms and Apartments
National Golf Foundation
PGA Tour, Inc.
Royal Plaza Hotel
Sea Horn Motel
Sheraton Resort
South Carolina Public Service Authority (Santee-Cooper)
South Carolina Electric & Gas Company
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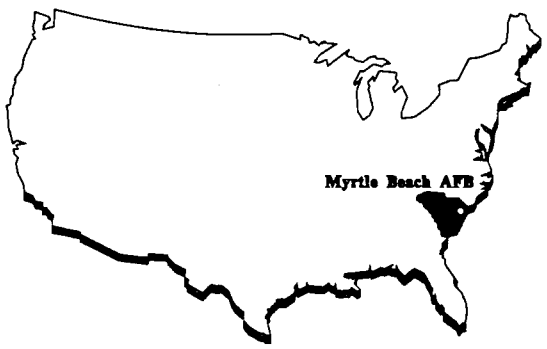
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CHAPTER 7
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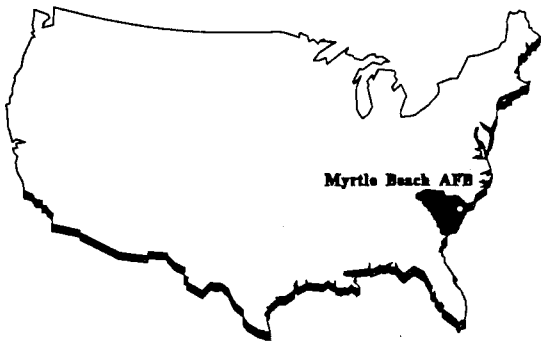
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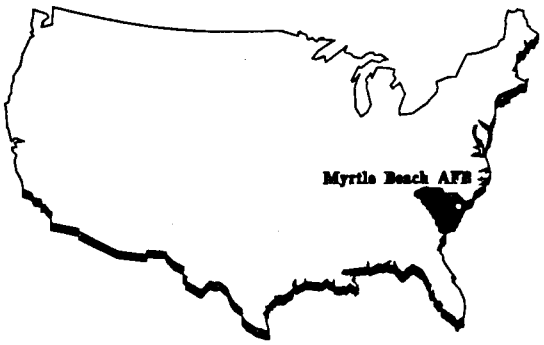
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CHAPTER 9
PUBLIC COMMENTS AND RESPONSES

9.0 PUBLIC COMMENTS AND RESPONSES

9.1 INTRODUCTION

The Air Force has complied with the National Environmental Policy Act (NEPA) mandate of public participation in the environmental impact analysis process primarily in two ways:

- A public hearing was held in Myrtle Beach, South Carolina, on November 12, 1992, at which the Air Force presented the findings of the Draft Environmental Impact Statement (DEIS) for disposal and reuse of Myrtle Beach Air Force (AFB) and invited public comments.
- The subject DEIS was made available for public review and comment October 1992.

Public comments received both verbally at the public meeting and in writing during the response period have been reviewed and are addressed by the Air Force in this chapter.

9.2 ORGANIZATION

The Public Comments and Responses chapter is organized into the following sections:

- This introduction, which describes the process, organization, and approach taken in addressing public comments
- An index of commentors
- A consolidated comment-response document
- A transcript of the public hearing
- Photocopies of all written comments received.

During the public comment and review period, comments on the DEIS were received from governmental officials, as well as the general public. The comments included verbal and written statements submitted at the public hearing and letters and statements received through the mail. A total of 18 documents (comment letters and statements, including the public hearing transcript) were received by the close of the public comment period. Because of the small number of comments received, responses have been provided for each comment.

Within each of the 18 documents, each comment and response is numbered sequentially. For example, comment number 1.3 refers to comment 3 in document 1. A reader who wishes to read the specific comment(s) received may turn to the photocopies of the documents included in this chapter.

Effects on the physical or natural environment that may result from projected changes in certain socioeconomic factors that are associated with

or caused by the disposal or reuse of the base are addressed within this EIS. Other socioeconomic issues, such as the region's employment base, school budgets, municipal/state tax revenues, municipal land planning, medical care for military retirees and dependents, local governments and services, real estate, and economic effects on utility systems and specific businesses are beyond the scope of NEPA and Council on Environmental Quality (CEQ) requirements. Analysis of impacts associated with these issues is provided in the Socioeconomic Impact Analysis Study (SIAS); that public document also will support the base reuse decision-making process. The environmental impact analyses presented in this EIS are based on the results of the socioeconomic analyses described in detail in the SIAS. All comments pertaining solely to issues addressed in the SIAS were considered beyond the scope of this EIS, and so are not addressed in detail in this comment and response chapter.

Finally, it should be emphasized that not only have responses to EIS comments been addressed in this comment-response chapter, as explained, but the text of the EIS itself also has been revised, as appropriate, to reflect the concerns expressed in the public comments.

Table 9.2-1 includes the names of the commentors, the document numbers that have been assigned to each document, and the page number on which the photocopy of the document is presented.

Table 9.2-1. Index of Commentors

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1	Public Hearing Transcript	9-15
	Speaker #1 Robert M. Grissom, Mayor, City of Myrtle Beach	9-59
	Speaker #2 John Maxwell, representative of Citizen's Committee	9-66
	Speaker #3 Edsel J. DeVille	9-68
	Speaker #4 John Cyphers	9-69
	Speaker #5 James R. Clark, Jr.	9-71
	Speaker #6 Robert L. Bellamy, Jr.	9-73
	Speaker #7 Eugene Stroman	9-77
	Speaker #8 W.A. Roberts	9-80
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2	Kenneth W. Holt, Centers for Disease Control	9-87
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9.3 RESPONSES TO INDIVIDUAL COMMENTS

1.1 **Comment.** The Federal Aviation Administration and the South Carolina Aviation Commission do not agree totally with the LPA forecast. Therefore, several other alternatives of increasing capacity of general aviation need to be considered (Mayor Robert Grissom).

Response. The aviation forecasts in the EIS are derived from those in the LPA Group, Inc. report. The forecast for the Existing Airfield/ Mixed Use Alternative was capped at the annual service volume calculated for a single runway with the reuse scenarios factored in.

A Citizen's Group in Myrtle Beach has questioned LPA's forecasts. the Citizen's Group report ("Alternative Proposal for the Expanded Jetport Plan") presents Federal Aviation Administration (FAA) forecasts for Myrtle Beach Jetport. Table 9.2-2 compares the forecast for the Proposed Action and Existing Airfield/Mixed Use Alternative in this EIS with the FAA forecast. The FAA numbers in Table 9.2 were interpolated from the FAA median data. The FAA data were reduced by 8,000 operations per year because the FAA included military operations and the EIS reuse alternatives do not.

Table 9.2-2. Comparison of EIS Aviation Forecast with FAA Forecast

	1998	2003	2013
Proposed Action	99,940	119,380	150,950
Existing Airfield/Mixed Use	98,230	117,260	126,500
FAA	92,869	104,152	131,772

The FAA forecast is similar to the range of operations forecast for the EIS Proposed Action and alternatives. However, in order to respond to public comments, an option for a general aviation runway has been included. This is discussed in the response to comment 1.2 below.

1.2 **Comment.** Changing technology in the location of parallel runways and potential location of VFR runway within existing airfield areas needs to be considered (Mayor Robert Grissom).

Response. An option to the Existing Airfield/Mixed Use Alternative has been prepared. This option would include a second, restricted use runway located 700 feet from the existing runway, within the airfield land use. The details of this option are presented in the Final EIS.

1.3 **Comment.** While the Existing Airfield/Mixed Use Alternative best addresses the community needs, an open space/recreation corridor should be included (Mayor Robert Grissom).

Response. Recreation areas have been included in all of the reuse options.

1.4 **Comment.** A VFR in-close runway should be considered, including an additional 200 to 300 acres to the airfield (Mayor Robert Grissom).

Response. The VFR in-close runway has been addressed in the response to comment 1.2

1.5 **Comment.** All alternatives create an expanded use different and more intense than uses by the United States Air Force. While this is necessary to stimulate the economy, it will create a need for city-provided infrastructure. Our ability to provide that infrastructure should be balanced by the city's ability to raise funds on the site (Mayor Robert Grissom).

Response. The purpose of the EIS is analysis of environmental impacts. Planning for infrastructure needs should be aided by the Myrtle Beach AFB Disposal and Reuse Socioeconomic Impact Analysis Study.

1.6 **Comment.** Any development that occurs must be sensitive to our tourism base and the natural environment that exists on and around the base today. A decrease in noise levels, for instance, should continue long term (Mayor Robert Grissom).

Response. All reuse alternatives would realize a decrease in noise levels as compared to preclosure conditions. No residential areas would be exposed to day-night noise levels (DNL) of 65 A-weighted decibels (DBA) or greater. Parts of the Springmaid Beach Resort would be within DNL or 65 DBA or greater in 1998, but not in 2003 or 2013.

1.7 **Comment.** Any development west of the airfield creates new drainage into a basin that drains into the Intracoastal Waterway. This is the source of the city's drinking water so particular attention needs to be paid to storm water management (Mayor Robert Grissom).

Response. The estimated concentrations and loads of pollutants have been calculated for each of the two drainage basins on the

base as well as for the entire base. These results are shown in Tables 4.4-9, 4.4-10, 4.4-11, 4.4-12, 4.4-17, 4.4-18, 4.4-19, 4.4-20, 4.4-25, 4.4-26, 4.4-27, 4.4-28, 4.4-32, and 4.4-33.

1.8 **Comment.** All the alternatives show the highways around the base at an "E & F" status in 1998. Any development must allow the community to plan for other transportation methods or solutions. The suggestion by the DEIS that the Carolina Bays Highway and Conway Bypass will help traffic is simply not true. Major interchange construction at Bypass 17 and improvement of access on Business 17 must be planned (Mayor Robert Grissom).

Response. The Carolina Bays Parkway and Conway Bypass will help to relieve some congestion by providing parallel routes for US 510 and US 17 Bypass. However, the DEIS states that "the section of US 17 Bypass between SC 544 and US 501 is expected to remain congested." The DEIS indicates that US 17 Bypass would need to be modified as a six-lane expressway to effectively accommodate 2013 traffic. This improvement would include construction of interchanges at major intersections on US 17 Bypass, as suggested in your comment.

Furthermore, the DEIS states "generally, the roadway improvements that are planned for the Myrtle Beach area by 2013 would not alleviate all of the traffic congestion in the area." The DEIS suggests that transit improvements be implemented along US 17 Business to improve access along that road. Otherwise, US 17 Business would need to be modified as an expressway to accommodate the forecast traffic.

1.9 **Comment.** The city's request for land from the Department of the Interior should be considered. The community has a shortfall of green space as a whole (Mayor Robert Grissom).

Response. All of the reuse options include recreation areas. The ultimate ownership of the parcels of property that have been proposed for recreation uses is a disposal decision. Specific disposal decisions cannot be determined until the Record of Decision is made and therefore are not within the scope of this EIS. The biophysical impacts of the use of the land for recreation have been addressed in the EIS, thereby satisfying the requirements of NEPA.

1.10 **Comment.** It is time to let the public and the United States Air Force understand that we stand behind our Air Base Redevelopment Commission and the recommended changes to the DEIS and EDAW draft (Mayor Robert Grissom).

Response. Comment noted.

1.11 **Comment.** We (the Citizen's Group) question the predictions by the LPA Group (Mr. John Maxwell).

Response. See response to document number 1, comment 1.1.

1.12 **Comment.** The Existing Airfield/Mixed Use Alternative creates the least demand on the facilities which would be provided by the city of Myrtle Beach. It would create the least grounds for disturbance and it would create the least noise exposure after closure (Mr. John Maxwell).

Response. Comment noted.

1.13 **Comment.** There is a lack of identifying the basic needs of this community regarding medical services. There is a lack of addressing the assessment of those needs and what will happen as the result of base closure at Myrtle Beach. So we would request that you do that assessment in detail as to the needs of the community regarding all care for retirees, for the veterans, and also the impact on the civilian community as the result of the closure (Mr. Edsel J. DeVille).

Response. The purpose of the EIS is analysis of environmental impacts. Analysis of medical and retiree needs should be aided by the Myrtle Beach AFB Disposal and Reuse Socioeconomic Impact Analysis Study.

1.14 **Comment.** I (Mr. John Cyphers) would like to have a veterans' national cemetery located on the Myrtle Beach Air Force Base property. Who can I contact to further this cause?

Response. The veterans' cemetery is included in the Existing Airfield/Mixed Use Alternative. To further comment on your desire for this option, please write to Mr. Chips Johnson, Air Force Base Disposal Agency, Kafritz Building, Room D-170, Pentagon, Washington, D.C. 20330-1000.

1.15 **Comment.** I (Mr. James R. Clark, Jr.) think the subject of foreign trade zones, which was eliminated from further consideration, deserves further study.

Response. Because the components of a foreign trade zone are commercial and/or industrial uses, such an option could be included within the proposed commercial and industrial areas of any of the reuse alternatives. Therefore, the environmental impacts of a foreign trade zone would be consistent with the impacts discussed for the commercial and industrial parcels of each reuse alternative. Consequently, in the Final EIS the foreign trade zone has been included in the list of "suggested reuse proposals" in Section 2.3.5, and omitted from the "alternatives eliminated from further consideration" in Section 2.4.

1.16 **Comment.** I (Mr. James L. Bellamy, Jr.) proposed a flood relief canal to direct flood waters of the Waccamaw River to the Atlantic Ocean. It involved a canal around the south and southwest side of the air base property. The DEIS asserted that the floodway was eliminated after consultation with the U.S. Army Corps of Engineers (COE)

because of hydraulic and salt water concerns in the Intracoastal Waterway and concern for protection of marine species in the Atlantic Ocean. Just recently a response was received from Lt Col Mark E. Vincent, District Engineer of the COE, approving a study resolution to look into the merits of this floodway canal. This means that money will be later appropriated, and the plan is feasible in theory enough to be studied. I request that this proposal be re-evaluated using the proper information and people who would be in charge of the study to decide if it should be eliminated from further consideration. In addition, the resolution by the committee on Public Works and Transportation of the U.S. House of Representatives requested that the Secretary of the Army review the 1927 study on the Waccamaw River in its relation to this proposed flood relief canal.

Response. Mr. Bellamy's suggestion is the only item that has been received for a flood relief canal. No formal proposal has been received from a proponent of such a project.

Mr. Richard Jackson, Head of the Planning Section of the COE Charleston District Office, indicated that Congressman Ravanel of South Carolina requested from the COE a draft resolution regarding a feasibility study for the proposed canal. Resolutions are draft pieces of legislation the COE provides to a member of Congress upon request to help the member of Congress bring the project into consideration of a legislative subcommittee for potential funding appropriation. The COE action does not imply any type of project endorsement, funding, approval, or feasibility evaluation of any kind. Any proposed project submitted to Congress has then to compete for funding allocations with all other projects submitted by other members of Congress. If the proposed project is funded by Congress, the COE will first conduct a recognizance study to determine if the project appears to have an adequate benefit-cost ratio. If it does, the COE may continue with a second, more detailed project evaluation.

Given this information from the COE and the lack of a formal proposal and proponent for the canal, it will remain as an alternative eliminated from further consideration. If the COE conducts a study and finds the canal feasible, and a proponent presents a formal proposal, an EIS would have to be conducted to analyze impacts of the canal.

1.17 **Comment.** I (Mr. Eugene Stroman) think the Existing Airfield/Mixed Use Alternative is what we need in this area because we do not have the infrastructure we need.

Response. Comment noted.

1.18 **Comment.** As to retirees' systems, a hospital is needed. We have to look at this situation much better than we have ever done in the past, and we have to find out what is best for the community (Mr. Eugene Stroman).

Response. See response to document number 1, comment 1.13.

1.19 **Comment.** Those items of major concern to me were already addressed (Mr. W.A. Roberts).

Response. Comment noted.

1.20 **Comment.** Please consider the historic significance of our base and most specifically the FOLTA. We have the opportunity to preserve this site through an air and space museum located on the FOLTA (Mr. Ed Edelin).

Response. The FOLTA has been considered in all the reuse alternatives as a proposed site for an air and space museum.

2.1 **Comment.** The National Center for Environmental Health has reviewed the DEIS on behalf of the U.S. Public Health Service. We believe issues related to potential adverse impacts on human health have been addressed. We encourage appropriate restrictions on future land uses, on a site-specific level, as discussed in the DEIS, to help ensure protection of public health. We concur that adequate implementation of the Management Action Plan should result in a consistent and thorough review of all potential hazardous substance sites on Myrtle Beach AFB (Mr. Kenneth W. Holt, M.S.E.H., Centers for Disease Control).

Response. Comment noted.

3.1 **Comment.** On page 1-5, paragraph 3, in the sentence, "These items also satisfy the requirements of the FAA (5050.4A) for environmental impact documentation," FAA Order 1050.1D should be identified instead of Order 5050.4A since order 1050.1D is the agency's environmental order (Ms. Louise R. Maillet, Federal Aviation Administration).

Response. FAA Order 1050.1D will be identified in the Final EIS.

4.1 **Comment.** In general, the document provides a comprehensive insight into the consequences of the proposed reuse scenario together with the other notional choices. All options will result in various types of problems over the life of the project. The specifics of these difficulties and their potential mitigations have been reasonably described. Given the fact that all the proposals are notional in nature, the precise environmental future of the site will only be known when it occurs from the array of potential choices. Additional NEPA evaluation may be necessary by the federal agency having purview over these subsequent specific actions (Mr. Heinz J. Mueller, U.S. Environmental Protection Agency, Region IV).

Response. Concur. The USEPA summary accurately reflects the Proposed Action and alternatives in this EIS. It is true that the proposals are notional, and the precise impacts and required

mitigations will be known only when the disposal and reuse decisions have been made.

5.1 **Comment.** The Final EIS should address the recreation needs indicated by the city of Myrtle Beach and requests for use of the base for park and recreation purposes by the state of South Carolina and city of Myrtle Beach (Mr. James H. Lee, U.S. Department of the Interior, Atlanta Region).

Response. See document number 1, Comment 1.9.

5.2 **Comment.** The city of Myrtle Beach has proposed to develop a ramp and docking facilities on the Intracoastal Waterway (Mr. James H. Lee, U.S. Department of the Interior, Atlanta Region).

Response. The EIS did not address the impacts of placement of a boat ramp and docking facilities on the Intracoastal Waterway. The land along the Intracoastal Waterway has been determined to be wetlands, which would be destroyed by such construction.

5.3 **Comment.** The potential acreage of impacted wetlands is substantial and is subject to review through the Section 404 Clean Water Act permitting process. This permitting process, and the role of involved resource agencies, should be clarified (Mr. James H. Lee, U.S. Department of the Interior, Atlanta Region).

Response. See document number 5, comment 5.6.

5.4 **Comment.** An effort should be made to identify biological resources that are significantly valuable relative to the remaining property (Mr. James H. Lee, U.S. Department of the Interior, Atlanta Region).

Response. The forested lands and wetlands on Myrtle Beach AFB are not unique, as they are typical of such biological communities found in the area. Because the reuse options do not specify any particular locations where forested lands or wetlands would be removed, the impacts of such removal on any particular location cannot be evaluated. Reuse proponents will have to go through the permit process, as required by applicable regulations. Regulatory agencies will be able to comment on specific impacts at that time.

5.5 **Comment.** The protected species list has been updated and now includes the chaff-seed as an endangered species.

Response. Table 3.4-20 has been modified to reflect the status change of the chaff-seed to endangered. The South Carolina Heritage Trust was contacted to determine if there are additional data for species occurrences on base. According to their records, there are no known populations on the base.

5.6 **Comment.** It is misleading to state that wetland fill between 1 and 10 acres is an activity covered by the existing authorization of a nationwide permit. Such permit requests are reviewed on a

case-by-case basis. In addition, notification to the Corps of Engineers (COE) and the South Carolina Coastal Council is required for potential wetland impacts involving fill of less than 1 acre in the coastal zone counties (Mr. James H. Lee, U.S. Department of the Interior, Atlanta Region).

Response. The discussion of biological resources, sensitive habitats, has been modified to indicate that 1) filling of a wetland between 1 and 10 acres requires prior notification to the COE, which can request that an individual permit application be submitted for the proposed activity; 2) the South Carolina Coastal Council must issue a Coastal Zone Consistency Certification for these activities; and 3) prior notification to the COE is required for projects involving fill of less than 1 acre.

5.7 **Comment.** The mitigation process should be clarified in Section 4.4.5 (Mr. James H. Lee, U.S. Department of the Interior, Atlanta Region).

Response. The four suggested mitigation items in this section have been modified to incorporate the step-wise sequence of activities from avoidance to minimization to compensation for unavoidable impacts.

6.1 **Comment.** Any freshwater wetlands impacts should be minimized and are permitted for commercial/residential development only when no feasible alternatives exist or an overriding public interest can be demonstrated. The South Carolina Coastal Council with the Corps of Engineers will review any wetland impacts to determine consistency with the South Carolina Coastal Zone Management Program. Storm water management planning will also be analyzed to determine compliance with the Coastal Zone Management Program and Sediment Reduction Act. Impacts on archaeological and historical sites will be reviewed for consistency as well (Mr. H. Stephen Snyder, South Carolina Coastal Council).

Response. Comment noted. See responses to document number 5, comments 5.4 and 5.6.

7.1 **Comment.** Site 38HR114 was determined eligible for the NRHP by the State Historic Preservation Office in 1980 (Mary Watson Edmonds, South Carolina Department of Archives and History).

Response. The Air Force does not concur with this determination.

7.2 **Comment.** The two Norden Bomb Sight Vaults, the World War II Aircraft Parking and Cantonment Area (FOLTA), and the CCC shed were determined eligible for the National Register of Historic Places by the State Historic Preservation Office in 1980 (Mary Watson Edmonds, South Carolina Department of Archives and History).

Response. The Air Force does not concur with this determination.

7.3 **Comment.** What is mean by "region" in the discussion of Traditional Resources in Section 3.4.6.3 (Mary Watson Edmonds, South Carolina Department of Archives and History).

Response. The statement refers to base property, and has been revised in the Final EIS to reflect this.

7.4 **Comment.** We are not aware of on-going consultation on cultural resources at Myrtle Beach AFB (Mary Watson Edmonds, South Carolina Department of Archives and History).

Response. As indicated by the letters reproduced in Appendix M, the Air Force has initiated the Section 106 consultation with the Department of Archives and History. This consultation is on-going.

8.1 **Comment.** Written statement of Mayor Robert Grissom.

Response. See document number 1, comments 1.1 through 1.10.

9.1 **Comment.** Careful review of aviation needs in Myrtle Beach prompted our committee to object to the plan for an additional runway at the Myrtle Beach Jetport. Since three of the five reuse plans recommend construction of a parallel runway at 4,800-foot separation, we do not support these alternatives. New technology that allows reduction of minimum centerline separation of parallel runways and the resultant factor of less land use must be studied for any future planning. The Citizens' Committee can endorse only the Existing Airfield/ Mixed Use Alternative (Mr. Ed Shaw, Citizens' Committee).

Response. See responses to document number 1, comments 1.1 and 1.2.

9.2 **Comment.** Proper planning for reuse of the base must be long-range and detailed to preserve what standards exist there today (Mr. Ed Shaw, Citizens' Committee).

Response. The impact analysis of each reuse option was performed for a 20-year timeframe. The details of the analyses are as much as can be assumed, given that the specifics of reuse are not definite at this time.

9.3 **Comment.** Noise levels have shown a significant decrease with the departure of the military aircraft. This is compatible with our tourist economy and the forest lands of Myrtle Beach State Park (Mr. Ed Shaw, Citizens' Committee).

Response. See document number 1, comment 1.6.

9.4 **Comment.** All five plans show the existing highway system at an E and F status most of the year. The resulting increase of automobile traffic and its pollution must weigh heavily on any development (Mr. Ed Shaw, Citizens' Committee).

Response. The impacts of traffic levels, and the subsequent noise and air quality impacts, have been analyzed.

9.5 **Comment.** Surface pollution is an acceptable level today on the base. Any development west of the existing airfield will create drainage into the Intracoastal Waterway (Mr. Ed Shaw, Citizens' Committee).

Response. See document number 1, comment 1.7.

9.6 **Comment.** The Air Force should conduct an EIS on the proposed FAA "east coast gateway" to determine the impact of a major runway addition to our downtown airport. Also, a socioeconomic study of employment generation using the Existing Airfield/Mixed Use Alternative overlaid on the EDAW, Inc. Community Redevelopment Plan - Interim Land Use would allow a better perspective when analyzing economic benefits (Mr. Ed Shaw, Citizens' Committee).

Response. Any future FAA proposed actions not analyzed within this EIS will be analyzed by FAA, as per NEPA requirements. The EDAW, Inc. Community Redevelopment Plan was selected by the Myrtle Beach Redevelopment Task Force as their preferred alternative. Therefore, it was identified by the Air Force as the Proposed Action in this EIS. The Interim Land Use of that plan was incorporated into the Proposed Action planning prior to expansion of the jetport.

10.1 **Comment.** Written statement of Mr. Robert L. Bellamy.

Response. See document number 1, comment 1.16.

11.1 **Comment.** The Air Force should ensure the Horry County Master Plan, submitted with this request, is adequately considered in the EIS (Ms. Emma Ruth Brittain).

Response. The Air Force has reviewed the document, "Myrtle Beach Jetport Master Plan and Base Re-Utilization Study," both draft and final, for this EIS. The aviation forecasts used in the EIS are based on those in the Master Plan. The location and phasing of jetport expansion presented in the document also was considered.

12.1 **Comment.** This is a formal written request to further consider a foreign trade zone as a part of the redevelopment plan for Myrtle Beach AFB (Mr. James R. Clark, Jr.).

Response. See response to document number 1, comment 1.15.

13.1 **Comment.** An agreement should be established between the Federal government and the state of South Carolina stipulating that the Air Force will continue to provide communication and control functions for all air traffic to the airfield until the FAA and other support

agencies can fully assume the necessary responsibilities (Mr. Frederick S. Tuttle).

Response. The Air Force has continued to provide communication and control functions for air traffic to the airfield, while working with the FAA to transition these functions to them.

13.2 **Comment.** Under the agreement [see comment 13.1], the Department of Defense (DOD) will ask the state of South Carolina to designate portions of the base as a retirement community for DOD retired personnel. The DOD would furnish funds to sell these facilities to retired military and DOD personnel (below the rank of General or Admiral) at 5 to 10 percent over cost; monies from sales would go to DOD for part payment for release of the base. The upgraded housing, library, Airmen's Club, NCO Club, Officer's Club, golf clubhouse, golf course, and ancillary facilities would be designated as parts of the retirement community. Residents would receive a 7 percent reduction in cost of goods and services issued by these enterprises and in South Carolina state income taxes (Mr. Frederick S. Tuttle).

Response. The DOD intends to vacate Myrtle Beach AFB upon disposal. There is no intention to retain interest in any aspect of the base except the Installation Restoration Program sites as required. If a proponent wants to establish a retirement community, this is within the scope of several of the reuse options analyzed in this EIS. Therefore, the environmental impacts of such land uses have been analyzed herein.

14.1 **Comment.** I (Mr. Dean R. Guyton) would like to voice my concern about the loss of wetlands. I feel the Federal Government should retain possession of all wetlands to ensure their protection. I hope there will not be any compromise on the wetland on the east side of the base between the campground/housing area and the Headquarters Building/shopping center area.

Response. Future owners of the property will have to comply with all regulations concerning wetlands on the base. These regulations would apply whether the property is owned by the Federal Government or a private concern.

15.1 **Comment.** The Grand Strand has been a thriving area, but the condition of the beaches is deteriorating, golf fees are higher than the market can handle, and the expanded jetport terminal is ahead of its time. Fifteen years from now, the area should have roadway improvements, clean beaches, golf courses with stabilized prices, and one jetport runway (Mr. Eugene S. Stroman).

Response. Comment noted.

16.1 **Comment.** We need year-round employment with above-average pay scales (B. Holt).

Response. Employment and income are addressed in the SIAS.

16.2 **Comment.** The county should have final say in the outcome of the base (B. Holt).

Response. In accordance with the Defense Base Closure and Realignment Act of 1990 (Public Law 101-510), the decision for disposal of the base will be made by the Air Force.

16.3 **Comment.** Some of the buildings should be offered to local and state government to locate their offices there (B. Holt).

Response. Public facilities have been considered in the reuse options. Public benefit conveyance to an eligible entity and negotiated sale to a public body for a public purpose are among the methods of disposal that will be considered by the Air Force.

16.4 **Comment.** I (B. Holt) hope the final usage of the base will benefit the majority of the citizens of Horry County rather than a few citizens that live within the limits of Myrtle Beach.

Response. Comment noted.

16.5 **Comment.** I (B. Holt) don't see any need now or in the future for a second runway at the jetport.

Response. Comment noted. The Existing Airfield/Mixed Use Alternative does not propose a second runway.

16.6 **Comment.** The housing units at the base should be sold by bid to anyone who can afford them (B. Holt).

Response. Comment noted. The Air Force will determine the method of disposal.

17.1 **Comment.** A V.A. cemetery is badly needed.

Response. See response to document number 1, comment 1.14.

17.2 **Comment.** If Shaw AFB is overcrowded due to reassignment of personnel from Homestead AFB, why not use Myrtle Beach AFB to house Homestead personnel.

Response. Myrtle Beach AFB is scheduled to close, under provisions of law (the Defense Base Closure and Realignment Act of 1990). As closure is scheduled for March 1993, preparations for closure are in their final stages. Housing personnel from Homestead AFB is not possible under these circumstances.

18.1 **Comment.** Wildlife and historical areas can be preserved within the FOLTA by the use of the area for an air and space museum.

Response. See response to document number 1, comment 1.20.

TRANSCRIPT OF PROCEEDINGS

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PUBLIC HEARING

FOR THE

DRAFT ENVIRONMENTAL IMPACT STATEMENT

ON THE

DISPOSAL AND REUSE OF MYRTLE BEACH AIR FORCE BASE

MYRTLE BEACH, SOUTH CAROLINA

****
****

MARTINIQUE HOTEL
MYRTLE BEACH, SOUTH CAROLINA

THURSDAY, NOVEMBER 12, 1992
COMMENCING AT 7:00 P.M.

****

PROCEEDINGS

(SLIDE NO. 1 - PUBLIC HEARING TITLE)

LIEUTENANT COLONEL EDWARD STARR

GOOD EVENING LADIES AND GENTLEMEN, AND THANK YOU FOR COMING. THIS IS THE PUBLIC HEARING ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE DISPOSAL AND REUSE OF THE MYRTLE BEACH AIR FORCE BASE.

I'M LIEUTENANT COLONEL ED STARR AND I WILL BE THE PRESIDING OFFICER FOR TONIGHT'S MEETING.

THIS HEARING IS BEING HELD UNDER PROVISIONS OF THE NATIONAL ENVIRONMENTAL POLICY ACT AND IMPLEMENTING REGULATIONS. THESE REQUIRE THAT FEDERAL AGENCIES STUDY THE POTENTIAL ENVIRONMENTAL IMPACTS OF FEDERAL ACTIONS AND CONSIDER THE FINDINGS OF THOSE STUDIES IN DECIDING HOW TO PROCEED.

THE ENVIRONMENTAL PROCESS BEGAN A YEAR AGO. AS A PART OF THIS EFFORT, ON NOVEMBER 14, 1991 A SCOPING MEETING WAS HELD HERE IN MYRTLE BEACH TO HEAR YOUR SUGGESTIONS CONCERNING WHAT SHOULD BE COVERED IN THE

ENVIRONMENTAL IMPACT STATEMENT OR "EIS". SINCE THAT MEETING THE AIR FORCE HAS EXAMINED THE ENVIRONMENTAL CONCERNS THEN RAISED, AS WELL AS OTHERS, AND HAS PREPARED THE DRAFT EIS THAT IS THE SUBJECT OF TONIGHT'S HEARING.

THE PURPOSE OF TONIGHT'S HEARING IS TO RECEIVE YOUR COMMENTS, SUGGESTIONS, AND CONCERNS ON THE DRAFT EIS. FOR THOSE OF YOU WHO HAVE NOT HAD AN OPPORTUNITY TO REVIEW IT, YOU MAY WANT TO READ THE SUMMARY OF THE MAJOR FINDINGS IN THE BROCHURE AVAILABLE AT THE DOOR. THOSE FINDINGS WILL ALSO BE ADDRESSED BY PANEL MEMBERS IN THEIR PRESENTATIONS TONIGHT.

(PROJECTOR OFF)

BEFORE INTRODUCING THE MEMBERS OF THE PANEL, I'LL EXPLAIN MY ROLE HERE. I AM A MILITARY JUDGE AND PRIMARILY SERVE AS A CIRCUIT TRIAL JUDGE FOR THE AIR FORCE COURTS MARTIAL. I'M NOT HERE AS AN EXPERT ON THIS DRAFT EIS, AND HAVE HAD NO CONNECTION WITH ITS DEVELOPMENT. I AM NOT HERE AS A LEGAL ADVISOR TO THE PANELISTS WHO WILL ADDRESS THESE PROPOSALS. MY PURPOSE IS TO SEE THAT WE HAVE A FAIR, ORDERLY HEARING -

AND THAT ALL WHO WISH TO BE HEARD HAVE A FAIR CHANCE TO SPEAK.

NOW I'LL INTRODUCE THE MEMBERS OF THE PUBLIC HEARING PANEL. ON MY RIGHT IS MR. KELVIN KELKENBERG, REPRESENTING THE AIR FORCE BASE DISPOSAL AGENCY. HE WILL DESCRIBE THE AIR FORCE BASE DISPOSAL PROCESS.

TO HIS RIGHT IS LIEUTENANT COLONEL TERRY ARMSTRONG. LIEUTENANT COLONEL ARMSTRONG IS THE CHIEF OF THE ENVIRONMENTAL PROGRAMS BRANCH AT THE AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE LOCATED AT BROOKS AIR FORCE BASE IN TEXAS. HE WILL DISCUSS THE ENVIRONMENTAL IMPACT ANALYSIS PROCESS AND SUMMARIZE THE RESULTS REPORTED IN THE DRAFT EIS.

TO LEIUTENANT COLONEL ARMSTRONG'S RIGHT IS MS. SHARON CARTER, REPRESENTING THE FEDERAL AVIATION ADMINISTRATION. MS. CARTER IS FROM THE FAA'S SOUTHERN REGIONAL OFFICE. BECAUSE ALL OF THE REUSE PROPOSALS IN THE EIS INVOLVE SOME FORM OF AIRPORT OPERATIONS, THE FAA WILL BE DIRECTLY INVOLVED IN THE DECISION-MAKING PROCESS.

ADDITIONALLY, THE FAA HAS SPECIAL EXPERTISE TO ASSIST THE AIR FORCE IN ANALYZING ENVIRONMENTAL IMPACTS ASSOCIATED WITH AIRPORT OPERATIONS. FOR THESE REASONS, THE FAA IS A CO-OPERATING AGENCY WITH THE AIR FORCE FOR THE PURPOSE OF PREPARING THE EIS.

MS. CARTER WILL TRY TO ANSWER ANY QUESTIONS YOU MAY HAVE REGARDING ISSUES PECULIAR TO THE FAA'S ROLE.

THIS INFORMAL MEETING IS INTENDED TO PROVIDE A CONTINUING PUBLIC FORUM FOR TWO-WAY COMMUNICATION ABOUT THE DRAFT EIS, WITH A VIEW TO IMPROVING THE OVERALL DECISION-MAKING PROCESS.

YOU WILL NOTICE I SAID "TWO-WAY COMMUNICATION". IN THE FIRST PART OF THE HEARING, THE PANELISTS WILL BRIEF YOU ON DETAILS OF THE ACTIONS AND THE ANTICIPATED ENVIRONMENTAL IMPACTS.

THE SECOND PART OF THE HEARING WILL GIVE YOU AN OPPORTUNITY TO PROVIDE INFORMATION, AND MAKE STATEMENTS FOR THE RECORD. YOUR INPUT ENSURES THAT THE DECISION-MAKERS WILL HAVE THE

BENEFIT OF YOUR KNOWLEDGE OF THE LOCAL AREA AND ANY ADVERSE ENVIRONMENTAL EFFECTS YOU THINK MAY RESULT FROM THE PROPOSED ACTION OR ALTERNATIVES.

ALSO, IF YOU HAVE ANY QUESTIONS REGARDING THE ENVIRONMENTAL IMPACT ANALYSIS PROCESS OR THE EVIRONMENTAL IMPACTS PRESENTED IN THE DRAFT EIS, PLEASE ASK THE PANEL MEMBERS AND THEY WILL ANSWER TO THE EXTENT THEY CAN.

IF YOUR QUESTION IS A TECHNICAL ONE THAT REQUIRES FURTHER RESEARCH, THE AIR FORCE WILL ENSURE YOUR QUESTION WILL BE ANSWERED IN THE FINAL EIS ITSELF.

TONIGHT'S HEARING IS DESIGNED TO GIVE YOU AN OPPORTUNITY TO COMMENT. KEEP IN MIND THAT THE EIS IS SIMPLY INTENDED TO ENSURE THAT THE DECISION-MAKERS WILL BE FULLY APPRISED OF THE ENVIRONMENTAL IMPACTS ASSOCIATED WITH THE VARIOUS REUSE ALTERNATIVES BEFORE THEY DECIDE ON A COURSE OF DISPOSAL.

CONSEQUENTLY, ANY COMMENTS TONIGHT ON ISSUES UNRELATED TO THE ENVIRONMENTAL IMPACT STATEMENT ARE BEYOND THE SCOPE OF THIS HEARING AND WILL NOT BE ADDRESED.

WHEN YOU CAME IN, YOU WERE PROVIDED WITH AN ATTENDANCE CARD AND YOU WERE ASKED TO INDICATE ON IT IF YOU WISHED TO SPEAK TONIGHT. AFTER THE PANEL MEMBERS HAVE FINISHED THEIR PRESENTATIONS, WE WILL HAVE A FIFTEEN-MINUTE RECESS DURING WHICH WE WILL COLLECT ALL THE CARDS. ALSO, IF AFTER HEARING THE PRESENTATIONS BY THE PANEL MEMBERS, YOU DECIDE YOU WANT TO MAKE A STATEMENT FOR THE RECORD, YOU MAY FILL OUT A CARD DURING THE RECESS AT THE REGISTRATION TABLE.

(SLIDE NO. 2 - ADDRESS)

IF YOU DO NOT FEEL LIKE MAKING A STATEMENT TONIGHT, YOU WILL HAVE UNTIL DECEMBER THE 7TH OF THIS YEAR TO SUBMIT A COPY OF YOUR STATEMENT FOR THE AIR FORCE'S CONSIDERATION BEFORE PUBLISHING THE FINAL EIS. THE AIR FORCE WILL CONTINUE TO ACCEPT COMMENTS AFTER DECEMBER THE 7TH, BUT CANNOT GUARANTEE LATE COMMENTS WILL BE INCLUDED IN THE FINAL EIS.

SPECIAL SHEETS ARE PROVIDED IN THE REGISTRATION AREA FOR YOUR USE IN PROVIDING THESE COMMENTS. THE ADDRESS SHOWN ON THE SLIDE

IS ALSO CONTAINED IN THE BROCHURE AND COMMENT SHEET YOU RECEIVED AS YOU ENTERED THIS MEETING ROOM.

EVEN IF YOU MAKE COMMENTS TONIGHT, YOU HAVE UNTIL DECEMBER 7TH TO SUBMIT ADDITIONAL WRITTEN COMMENTS TO THE ADDRESS SHOWN ON THE SLIDE AND ON THE BOTTOM OF THE COMMENT SHEETS.

ALL STATEMENTS RECEIVED BEFORE DECEMBER 7TH WILL BE CONSIDERED BY THE AIR FORCE. ALL COMMENTS, ORAL AND WRITTEN, RECEIVED BEFORE DECEMBER 7TH WILL HAVE THE SAME IMPACT AND WILL BE CONSIDERED TO THE SAME EXTENT AS OTHER COMMENTS.

(PROJECTOR OFF)

DON'T BE HESITANT TO MAKE A STATEMENT. I WANT TO ENSURE THAT ALL WHO WISH TO SPEAK HAVE A FAIR CHANCE TO BE HEARD. WE HAVE A COURT REPORTER HERE, MS. SYLVIA ARROWWOOD WHO WILL TAKE DOWN VERBATIM EVERYTHING THAT IS SAID TONIGHT. THE VERBATIM RECORD WILL BECOME A PART OF THE FINAL EIS. SHE CAN MAKE AN ACCURATE RECORD ONLY IF SHE CAN HEAR AND UNDERSTAND WHAT YOU SAY.

WITH THAT IN MIND, PLEASE ABIDE BY THE FOLLOWING RULES:

FIRST: ONLY SPEAK AFTER I RECOGNIZE YOU. IF YOU HAVE A WRITTEN STATEMENT, PLEASE PLACE IT IN THE BOX NEXT TO THE PODIUM. YOU MAY ALSO READ IT INTO THE RECORD IF YOU WISH.

SECOND: SPEAK CLEARLY AND SLOWLY INTO THE MICROPHONE, STARTING WITH YOUR NAME, ADDRESS, AND THE CAPACITY IN WHICH YOU APPEAR, FOR EXAMPLE, PUBLIC OFFICIAL, DESIGNATED REPRESENTATIVE OF A GROUP, OR CONCERNED CITIZEN.

THIRD: PLEASE HONOR ANY REQUEST THAT I MAKE FOR YOU TO STOP SPEAKING. I WILL MAKE NO SUCH REQUEST UNLESS IT APPEARS THAT THE LENGTH OF A PRESENTATION IS UNREASONABLY INTERFERING WITH THE ABILITY OF OTHERS TO MAKE PRESENTATIONS.

FOURTH: DO NOT SPEAK WHILE ANOTHER PERSON IS SPEAKING. ONLY ONE PERSON WILL BE RECOGNIZED AT A TIME.

FINALLY: KINDLY REFRAIN FROM SMOKING IN THIS ROOM.

ONE THING HERE IS VERY IMPORTANT. YOU MAY HAVE INFORMATION ABOUT ENVIRONMENTAL EFFECTS UNKNOWN TO THE AIR FORCE. THE AIR FORCE IS VERY INTERESTED IN HAVING AND ANALYZING ALL POTENTIAL ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION AND ALTERNATIVES. YOU HAVE EXPERIENCE THAT COMES FROM LIVING IN THIS AREA, SO THIS SECOND PART OF TONIGHT'S COMMUNICATION, THE PART THAT COMES FROM YOU IS QUITE IMPORTANT. DON'T HESITATE TO BE A PART OF THE PROCEEDINGS.

AND NOW MR. KELKENBERG WILL DESCRIBE THE AIR FORCE BASE DISPOSAL PROCESS.

MR. KELKENBERG, PLEASE.

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(SLIDE NO. 3 - DISPOSAL PROCESS TITLE)

LIEUTENANT_COLONEL_KELLY_KELKENBERG

THANK YOU, LIEUTENANT COLONEL STARR. MY NAME IS LIEUTENANT COLONEL KELLY KELKENBERG, AND I WORK FOR THE AIR FORCE BASE DISPOSAL AGENCY, AN OFFICE CREATED TO MANAGE THE CLEANUP AND DISPOSAL OF AIR FORCE BASES CLOSED UNDER THE AUTHORITIES OF THE TWO BASE CLOSURE AND REALIGNMENT LAWS. IN DISCUSSING THE AIR FORCE'S PROPOSED ACTION OF DISPOSING OF MYRTLE BEACH AIR FORCE BASE I'D LIKE TO COVER FOUR GENERAL TOPICS.

(SLIDE NO. 4 - OVERVIEW)

FIRST IS DISPOSAL PLANNING.

SECOND IS THE OBJECTIVE USED BY THE AIR FORCE TO GUIDE ITS PLANNING.

THIRD IS DISPOSAL CONSIDERATIONS WE WILL USE TO ARRIVE AT A DECISION.

LASTLY IS THE AIR FORCE DECISION ITSELF, THAT IS, WHAT ACTIONS THE AIR FORCE WILL TAKE BASED ON THE FINDINGS IN THE EIS AND OTHER CONSIDERATIONS.

(SLIDE NO. 5 - DISPOSAL PLANNING)

USUALLY, THE GENERAL SERVICES ADMINISTRATION IS RESPONSIBLE FOR DISPOSING OF

FEDERAL PROPERTY. HOWEVER, UNDER THE 1988 CLOSURE AND REALIGNMENT ACT, AND THE DEFENSE BASE CLOSURE AND REALIGNMENT ACT OF 1990, THE SECRETARY OF THE AIR FORCE HAS BEEN DELEGATED THE AUTHORITY TO ACT AS THE DISPOSAL AGENT FOR THE FEDERAL GOVERNMENT FOR AIR FORCE BASES BEING CLOSED, INCLUDING THE MYRTLE BEACH AIR FORCE BASE.

IN CARRYING OUT HIS AUTHORITY TO DISPOSE OF CLOSURE BASES, THE SECRETARY OF THE AIR FORCE WILL FOLLOW ALL LAWS AND GENERAL SERVICES ADMINISTRATION REGULATIONS THAT APPLY TO THE DISPOSAL OF FEDERAL PROPERTY.

THE SECRETARY HAS ALSO ISSUED ADDITIONAL GUIDANCE TO THE AIR FORCE BASE DISPOSAL AGENCY, THE ORGANIZATION I WORK FOR, TO ADDRESS SPECIFIC DISPOSAL SITUATIONS.

THE 1989 AND 1990 ACTS REQUIRE THE AIR FORCE TO CONSULT WITH THE STATE GOVERNOR AND LOCAL GOVERNMENT LEADERS WHEN CONSIDERING PLANS AND PROPOSALS FOR THE REUSE OF CLOSURE BASES. THE AIR FORCE HAS MET THIS CONSULTATION REQUIREMENT BY WORKING CLOSELY WITH THE MYRTLE

BEACH AIR FORCE BASE REDEVELOPMENT TASK FORCE THROUGHOUT THE BASE CLOSURE PROCESS.

(SLIDE NO. 6 - DISPOSAL OBJECTIVE)

THE AIR FORCE RECOGNIZES THE SIGNIFICANT ECONOMIC IMPACT CLOSURE WILL HAVE ON THE LOCAL COMMUNITIES AND IT IS THE AIR FORCE'S GOAL TO COMPLETE CLOSURES AS QUICKLY AND AS EFFICIENTLY AS POSSIBLE.

THE FEDERAL GOVERNMENT AND THE AIR FORCE ARE COMMITTED TO ASSISTING COMMUNITIES IN THEIR EFFORTS TO REPLACE THE DEPARTING MILITARY ACTIVITIES WITH VIABLE PUBLIC AND PRIVATE ENTERPRISES.

WE ARE IN THE PROCESS OF DEVELOPING A COMPREHENSIVE DISPOSAL PLAN THAT ATTEMPTS TO BALANCE THE NEEDS OF THE COMMUNITY, THE ENVIRONMENTAL CONSEQUENCES OF OUR DISPOSAL DECISION, AND THE NEEDS OF THE AIR FORCE.

HOWEVER, CONGRESS HAS ONLY PROVIDED STARTUP CAPITAL FOR IMPLEMENTATION OF THE REALIGNMENTS AND CLOSURES. REVENUES FROM PROPERTY SALES WILL BE USED TO OFFSET THE FUNDING SHORTFALL.

(SLIDE NO. 7 - DISPOSAL CONSIDERATIONS)

THE DISPOSAL OF AIR FORCE PROPERTY IS ACCOMPLISHED IN A THREE-PART PLANNING PROCESS. FIRST, THE AIR FORCE CONSIDERS CAREFULLY THE ENVIRONMENTAL IMPACTS OF THE REUSE PLAN PROPOSED BY THE LOCAL COMMUNITY. THIS PLAN IS GENERALLY ADOPTED BY THE AIR FORCE AS THE PROPOSED ACTION IN THE EIS.

SECOND, THE AIR FORCE ANALYZES THE ENVIRONMENTAL IMPACTS OF OTHER REASONABLE DISPOSAL AND REUSE OPTIONS.

THIRD, THE AIR FORCE PREPARES AN ENVIRONMENTAL IMPACT STATEMENT AS REQUIRED UNDER THE NATIONAL ENVIRONMENTAL POLICY ACT, OTHERWISE KNOWN AS NEPA.

THE EIS PROCESS RESULTS IN THE SIGNING OF A RECORD OF DECISION THAT DOCUMENTS HOW THE AIR FORCE WILL DISPOSE OF THE BASE PROPERTY, AND SPECIFIES WHAT ENVIRONMENTAL MITIGATION MAY BE NEEDED TO PROTECT HUMAN HEALTH AND THE ENVIRONMENT AS A RESULT OF THE DISPOSAL AND REUSE OPTIONS SELECTED.

(SLIDE NO. 8 - DISPOSAL DECISION)

UNDER CURRENT LAW, THE AIR FORCE MUST GIVE PRIORITY CONSIDERATION TO OTHER FEDERAL AGENCIES AND HOMELESS ASSISTANCE PROVIDERS WHEN DECIDING HOW TO DISPOSE OF EXCESS BASE REAL PROPERTY. THE AIR FORCE WILL INFORM LOCAL COMMUNITY REPRESENTATIVES IF ANY FEDERAL AGENCIES OR HOMELESS ASSISTANCE PROVIDERS EXPRESS INTEREST IN MYRTLE BEACH AIR FORCE BASE PROPERTY.

IN GENERAL, THE AIR FORCE HAS THE FOLLOWING DISPOSAL OPTIONS:

TRANSFER TO OTHER FEDERAL AGENCIES.

PUBLIC BENEFIT TRANSFERS TO STATES OR THEIR POLITICAL SUBDIVISONS AND ELIGIBLE NON-PROFIT INSTITUTIONS.

NEGOTIATED SALES TO PUBLIC AGENCIES.

COMPETITIVE SALES TO THE GENERAL PUBLIC.

THE LAWS AND REGULATIONS GOVERNING DISPOSAL DO NOT ESTABLISH RIGID PRIORITIES FOR DISPOSAL, BUT RATHER PROVIDE THE SECRETARY OF THE AIR FORCE THE BROAD DISCRETION NECESSARY TO ENSURE THAT ALL FEDERAL REAL PROPERTY IS DISPOSED OF IN AN EFFICIENT AND EFFECTIVE

MANNER.

THE SECRETARY OF THE AIR FORCE WILL DECIDE ON THE FINAL DISPOSAL PLAN. FINAL DISPOSAL DECISIONS WILL BE DOCUMENTED IN THE RECORD OF DECISION.

(PROJECTOR OFF)

THE LAST SUBJECT I'D LIKE TO ADDRESS IS ENVIRONMENTAL CLEANUP. THE AIR FORCE IS COMMITTED TO CLEANING UP ALL AREAS CONTAMINATED BY PAST AIR FORCE ACTIVITIES AS REQUIRED TO PROTECT HUMAN HEALTH AND THE ENVIRONMENT. CLEANUP OF MANY CONTAMINATED SITES AT MYRTLE BEACH AIR FORCE BASE IS ALREADY UNDERWAY.

IF CONTAMINATED AREAS ARE NOT READY FOR TRANSFER AT THE TIME THE BASE CLOSES, THE AIR FORCE WILL RETAIN OWNERSHIP UNTIL THE PROPERTY IS CLEANED UP.

AFTER TRANSFER, THE AIR FORCE MAY REQUIRE EASEMENTS AND RIGHTS-OF-ENTRY TO PERMIT LONG-TERM MONITORING AND TREATMENT. WE DO NOT, HOWEVER, EXPECT CLEANUP ACTIVITIES TO DELAY THE REUSE OF CLEAN PARCELS NOT REQUIRING CLEANUP.

THANK YOU FOR THE OPPORTUNITY TO MEET

WITH YOU THIS EVENING. NOW I'D LIKE TO TURN THE MEETING BACK OVER TO LIEUTENANT COLONEL STARR.

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LIEUTENANT COLONEL EDWARD STARR

THANK YOU, MR. KELKENBERG.

NOW LIEUTENANT COLONEL TERRY ARMSTRONG WILL BRIEF US ON THE ENVIRONMENTAL PROCESS.

LIEUTENANT COLONEL TERRY ARMSTRONG.

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(SLIDE NO. 9 - ENVIRONMENTAL PROCESS)

LIEUTENANT COLONEL TERRY ARMSTRONG

THANK YOU, LIEUTENANT COLONEL STARR.

GOOD EVENING. I'M LIEUTENANT COLONEL TERRY ARMSTRONG FROM THE ENVIRONMENTAL PLANNING DIVISION, AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE, LOCATED AT BROOKS AIR FORCE BASE, TEXAS.

OUR ORGANIZATION IS CONDUCTING THE ENVIRONMENTAL IMPACT ANALYSIS PROCESS FOR THE DISPOSAL AND REUSE OF MYRTLE BEACH AIR FORCE BASE AS WELL AS FOR THE OTHER MAJOR INSTALLATIONS MANDATED TO CLOSE UNDER THE BASE

CLOSURE AND REALIGNMENT ACT.

TONIGHT, I WILL PRESENT THE SCHEDULE FOR THIS ENVIRONMENTAL IMPACT ANALYSIS PROCESS, AND SHOW HOW THE PUBLIC COMMENT PERIOD FITS INTO THIS SCHEDULE. I'LL ALSO DISCUSS THE SCOPE OF THE STUDY, AND THE RELATIONSHIP BETWEEN THE ENVIRONMENTAL IMPACT STATEMENT AND THE SOCIO-ECONOMIC STUDY.

LAST, I WILL PRESENT THE RESULTS OF OUR ANALYSIS BY RESOURCE CATEGORY.

(PROJECTOR OFF)

THIS ENVIRONMENTAL EFFORT WAS INITIATED IN OCTOBER 1991 WITH A NOTICE OF INTENT TO PREPARE AN ENVIRONMENTAL IMPACT STATEMENT, OR WHAT I'LL REFER TO AS AN EIS, FOR BASE DISPOSAL AND REUSE.

A SCOPING MEETING WAS HELD IN THE MYRTLE BEACH HIGH SCHOOL AUDITORIUM ON NOVEMBER 14, 1991 TO IDENTIFY THE ENVIRONMENTAL ISSUES RELEVANT TO THE DISPOSAL AND REUSE OF THE BASE. DURING THE SCOPING PROCESS, OUR OFFICE RECEIVED INPUT FROM THE PUBLIC AS WELL AS A REUSE PROPOSAL FROM THE MYRTLE BEACH AIR FORCE

BASE REDEVELOPMENT TASK FORCE.

BECAUSE OF THE POTENTIAL FOR AN AVIATION REUSE OF THE BASE, THE FEDERAL AVIATION ADMINISTRATION, SOUTHEAST REGION, WAS INVITED, AND SUBSEQUENTLY AGREED, TO BECOME A COOPERATING AGENCY IN THE PREPARATION OF THE EIS. THE AIR FORCE HAS WORKED WITH THE FEDERAL AVIATION ADMINISTRATION TO INCLUDE THEIR ENVIRONMENTAL REQUIREMENTS IN THE EIS.

AFTER SCOPING, WE COLLECTED THE NECESSARY DATA AND CONDUCTED THE ENVIRONMENTAL ANALYSIS. THE DRAFT EIS WAS FILED WITH THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY ON OCTOBER 16, 1992.

(SLIDE NO. 10 - PUBLIC COMMENT PERIOD AND ADDRESS)

IN ADDITION TO TONIGHT'S HEARING, WRITTEN COMMENTS ON THE DRAFT EIS WILL CONTINUE TO BE ACCEPTED AT THIS ADDRESS UNTIL DECEMBER 7TH OF 1992. AFTER THE COMMENT PERIOD IS OVER, WE WILL EVALUATE ALL COMMENTS, BOTH WRITTEN AND VERBAL, AND PERFORM ADDITIONAL ANALYSIS OR CHANGE THE EIS WHERE NECESSARY.

AGAIN, AS IN THE SCOPING PROCESS, EQUAL CONSIDERATION WILL BE GIVEN TO ALL COMMENTS WHETHER THEY ARE PRESENTED HERE TONIGHT OR MAILED PRIOR TO DECEMBER 7TH.

ONCE THE REVIEW PROCESS IS COMPLETE, WE WILL PRODUCE A FINAL EIS, SCHEDULED FOR COMPLETION IN FEBRUARY 1993, AND MAIL IT TO ALL THOSE ON THE ORIGIANL DRAFT EIS DISTRIBUTION LIST.

IF YOU ARE NOT ON OUR MAILING LIST, YOU CAN REQUEST A COPY BY WRITING TO THIS ADDRESS. THE FINAL EIS WILL INCLUDE COMMENTS RECEIVED DURING THE PUBLIC REVIEW PERIOD AND OUR RESPONSE TO THOSE COMMENTS.

IF APPROPRIATE, WE WILL GROUP THE COMMENTS INTO CATEGORIES AND RESPOND ACCORDINGLY. DEPENDING ON THE NUMBER AND DIVERSITY OF COMMENTS, OR THE NEED TO CONDUCT ADDITIONAL ANALYSES, THE FINAL EIS MAY CONSIST OF A SEPARATE VOLUME AS A COMPANION TO THE DRAFT EIS, OR BE DISTRIBUTED AS A COVER LETTER AND ERRATA SHEETS.

THE FINAL EIS WILL AID IN THE

DEVELOPMENT OF THE RECORD OF DECISION, WHICH WILL DOCUMENT THE DISPOSAL ACTION TAKEN BY THE AIR FORCE. AS YOU JUST HEARD FROM LIEUTENANT COLONEL KELKENBERG, OTHER STUDIES AND CONSIDERATION OF OTHER ISSUES BESIDES THOSE ADDRESSED IN THE EIS WILL ENTER INTO THE FINAL DISPOSAL DECISION.

WE EXPECT TO ACCOMPLISH THE RECORD OF DECISION IN MARCH OF 1993.

(PROJECTOR OFF)

THE DRAFT EIS WAS PREPARED TO COMPLY WITH THE NATIONAL ENVIRONMENTAL POLICY ACT AND THE COUNCIL ON ENVIRONMENTAL QUALITY REGULATIONS. EFFORTS WERE MADE TO REDUCE NEEDLESS BULK, WRITE IN PLAIN LANGUAGE, FOCUS ONLY ON THOSE ISSUES THAT ARE CLEARLY RELATED TO THE ENVIRONMENT, AND TO INTEGRATE WITH OTHER DOCUMENTS REQUIRED AS PART OF THE DECISION-MAKING PROCESS.

REUSE ALTERNATIVES THAT WERE DEVELOPED DURING THE SCOPING PROCESS WERE INDIVIDUALLY ANALYZED AND ASSESSED.

THIS ANALYSIS FOCUSES ON IMPACTS TO

THE NATURAL ENVIRONMENT THAT MAY OCCUR AS A DIRECT RESULT OF BASE DISPOSAL AND REUSE, OR INDIRECTLY THROUGH CHANGES IN THE COMMUNITY. RESOURCES EVALUATED ARE GEOLOGY AND SOILS, WATER (BOTH SURFACE AND GROUNDWATER), AIR QUALITY, NOISE, AND BIOLOGICAL AND CULTURAL RESOURCES.

INDIRECT CHANGES TO THE COMMUNITY THAT PROVIDE MEASURES AGAINST WHICH ENVIRONMENTAL IMPACTS COULD BE ANALYZED INCLUDE CHANGES TO THE LOCAL POPULATION, LAND USE AND AESTHETICS, TRANSPORTATION, AND COMMUNITY UTILITY SERVICES.

IN ADDITION, THE FOLLOWING ISSUES RELATED TO CURRENT AND FUTURE MANAGEMENT OF HAZARDOUS MATERIALS AND WASTE ARE DISCUSSED IN THE DOCUMENT: HAZARDOUS MATERIALS MANAGEMENT, THE AIR FORCE'S INSTALLATION RESTORATION PROGRAM, ASBESTOS, PESTICIDES, POLYCHLORINATED BIPHENYLS OR PCB'S, RADON, MEDICAL OR BIO-HAZARDOUS WASTE MANAGEMENT, AND PHOTOCHEMICAL WASTE MANAGEMENT.

IF, AS A RESULT OF OUR ANALYSIS, IT WAS DETERMINED THAT SUBSTANTIAL ADVERSE ENVIRONMENTAL IMPACTS WOULD OCCUR THROUGH

IMPLEMENTATION OF A REUSE ALTERNATIVE, SUGGESTED MITIGATION MEASURES WERE IDENTIFIED AND INCLUDED IN THE DOCUMENT.

AS I MENTIONED EARLIER, THIS DRAFT EIS FOCUSES ON THE IMPACTS TO THE NATURAL ENVIRONMENT THAT WOULD OCCUR, EITHER DIRECTLY OR INDIRECTLY, FROM THE DISPOSAL AND REUSE OF MYRTLE BEACH AIR FORCE BASE. THE DOCUMENT ADDRESSES SOCIOECONOMIC FACTORS WHERE THERE IS A RELATIONSHIP BETWEEN BASE DISPOSAL AND CHANGES TO SOCIOECONOMIC CONDITIONS THAT WOULD RESULT IN IMPACTS TO THE NATURAL ENVIRONMENT.

OUR ORGANIZATION HAS RECENTLY PRODUCED A SEPARATE SOCIOECONOMIC STUDY THAT IS NOT REQUIRED UNDER THE NATIONAL ENVIRONMENTAL POLICY ACT. IT DESCRIBES IN GREATER DETAIL HOW DISPOSAL AND REUSE OF THE MYRTLE BEACH AIR FORCE BASE MAY ECONOMICALLY AFFECT THE SURROUNDING AREAS.

SPECIFICALLY, THE SOCIOECONOMIC STUDY ADDRESSES THE FOLLOWING FACTORS FOR EACH OF THE REUSE ALTERNATIVES: POPULATION, EMPLOYMENT, HOUSING, PUBLIC FINANCE, EDUCATION, GOVERNMENT,

POLICE AND FIRE, MEDICAL, TRANSPORTATION, AND UTILITIES.

COPIES OF THIS DOCUMENT WERE RECENTLY PROVIDED TO FEDERAL, STATE, AND LOCAL OFFICIALS AND ARE AVAILABLE FOR REVIEW AT LIBRARIES IN THE AREA. THIS DOCUMENT WILL BE FORWARDED TO THE DECISION-MAKER FOR INPUT INTO THIS DISPOSAL PROCESS.

NOW I WOULD LIKE TO PRESENT AN OVER-VIEW OF THE PROPOSED ACTION AND ALTERNATIVES THAT HAVE BEEN ANALYZED. AFTERWARDS, I WILL PRESENT A SYNOPSIS OF THE RESULTS OF OUR ANALYSIS BY RESOURCE CATEGORY.

PLEASE NOTE THAT THE TITLE OF EACH ALTERNATIVE IS PRESENTED TO GIVE THE READER ONLY A GENERAL IDEA OF THE ACTION. EACH OF THE ALTERNATIVES CONTAINS NUMEROUS ACTIVITIES THAT MAY OR MAY NOT BE INCLUDED IN THE TITLE.

(SLIDE NO. 11 & 12 - PROPOSED ACTION)

THIS FIGURE SHOWS THE LAND USES FOR THE PROPOSED ACTION AS PROVIDED TO US AS THE COUMMUNITY'S REUSE PLAN. THE FOCUS OF THE PROPOSED ACTION IS THE REUSE OF MYRTLE BEACH AIR

FORCE BASE FOR EXPANDED CIVILIAN AVIATION, INCLUDING GENERAL AVIATION ON A NEW SECOND RUNWAY; AVIATION SUPPORT AND INDUSTRIAL DEVELOPMENT; AN EDUCATION COMPLEX; A DESTINATION RESORT, AN AIR MUSEUM, AND OTHER RECREATIONAL USES; AND SHORT-TERM RESIDENTIAL USES OF THE EXISTING BASE HOUSING AREA.

THE AIRFIELD USES ARE SHOWN IN BROWN. AVIATION-RELATED LAND USES ARE INDICATED IN BLUE. INDUSTRIAL LAND USES ARE SHOWN IN GREY; AND COMMERCIAL LAND USES, INCLUDING OFFICE AND RETAIL USES, ARE SHOWN IN RED.

NON-AVIATION USES PROPOSED FOR OTHER PORTIONS OF THE BASE PROPERTY INCLUDE RECREATION AREAS WHICH ARE SHOWN IN GREEN. RESIDENTIAL AREAS ARE SHOWN IN YELLOW AND EDUCATIONAL AREAS ARE SHOWN IN PINK.

THE AIRFIELD EXPANSION IS PROPOSED TO TAKE PLACE AROUND THE YEAR 2010, SO INTERIM RESIDENTIAL, EDUCATION, AND RECREATIONAL USES WOULD OCCUR IN THE EXPANSION AREA PRIOR TO THAT DATE.

(SLIDE NO. 13 & 14 - EXPANDED AIRFIELD/RESORT-

RECREATION ALTERNATIVE)

THE FOCUS OF THIS ALTERNATIVE

INCLUDES EXPANSION OF THE CIVILIAN AIRFIELD, WITH GREATER EMPHASIS ON RECREATION, AS A BASIC THEME THAT YOU EXPRESSED DURING THE SCOPING PROCESS. EXPANSION OF THE CIVILIAN AIRFIELD, WITH GREATER EMPHASIS ON RECREATION.

THE ALTERNATIVE PROVIDES FOR THE ADDITION OF A SECOND RUNWAY AND GENERAL AVIATION OPERATIONS, SHOWN IN BROWN. AVIATION SUPPORT USES, SHOWN IN BLUE; INDUSTRIAL USES, SHOWN IN GREY; AND COMMERCIAL USES, SHOWN IN RED, ALSO ARE PART OF THIS ATERNATIVE.

A DESTINATION RESORT AND AIR MUSEUM ARE PROPOSED, ALONG WITH OTHER RECREATION USES, ALL SHOWN IN GREEN. MEDICAL AND RESIDENTIAL USES, SHOWN IN PURPLE AND YELLOW, RESPECTIVELY ARE PROPOSED FOR THE SHORT TERM, PRIOR TO EXPANSION OF THE AIRFIELD.

(SLIDE 15 & 16 - EXPANDED AIRFIELD/RESORT-COMMERCIAL-INDUSTRIAL ALTERNATIVE)

THIS FIGURE SHOWS THE LAND USES FOR AN EXPANDED AIRFIELD WITH EMPHASIS THIS TIME ON

COMMERCIAL AND INDUSTRIAL OPERATIONS, ANOTHER THEME THAT WAS EXPRESSED DURING THE SCOPING PROCESS. THIS ALTERNATIVE ALSO PROPOSES EXPANSION OF THE AIRFIELD, WITH A SECOND RUNWAY AND GENERAL AVIATION.

A DESTINATION RESORT IS PROPOSED ON THE WEST SIDE OF THE BASE, AS IN THE PREVIOUS TWO REUSE OPTIONS, AS WELL AS AN AIR MUSEUM AND OTHER RECREATION USES, SHOWN IN GREEN.

INDUSTRIAL AND COMMERCIAL LAND USES ARE SHOWN IN GREY AND RED, RESPECTIVELY. SHORT-TERM RESIDENTIAL AREAS AND MEDICAL USES ARE SHOWN IN YELLOW AND PURPLE, RESPECTIVELY.

(SLIDE 17 & 18 - EXISTING AIRFIELD/MIXED USE ALTERNATIVE)

THIS FIGURE SHOWS THE EXISTING AIRFIELD/MIXED USE ALTERNATIVE. THIS ALTERNATIVE PROPOSES A BROAD MIX OF ACTIVITIES.

ALTHOUGH A SECOND RUNWAY IS NOT PROPOSED, THE ADDITION OF GENERAL AVIATION OPERATION IS INCLUDED. MAIN FEATURES WOULD BE AN EDUCATION COMPLEX, SHOWN IN PINK; A CORRECTIONAL AND LAW ENFORCEMENT CENTER AND

OTHER INDUSTRIAL USES, SHOWN IN GREY; RESIDENTIAL, SHOWN IN YELLOW; AND AN AIR MUSEUM, CHAMPIONSHIP GOLF COURSE, AND OTHER PUBLIC FACILITIES AND RECREATION USES ARE SHOWN IN GREEN.

(SLIDE 19 & 20 NO-ACTION ALTERNATIVE)

AS REQUIRED BY THE NATIONAL ENVIRONMENTAL POLICY ACT THE NO-ACTION ALTERNATIVE ALSO WAS EVALUATED. THE NO-ACTION ALTERNATIVE WOULD RESULT IN THE AIR FORCE RETAINING CONTROL OF THE BASE PROPERTY AFTER CLOSURE WITH CONTINUED OPERATION OF THE MYRTLE BEACH JETPORT.

THE PROPERTY WOULD BE CLOSED AND MAINTAINED IN A CONDITION TO PREVENT DETERIORATION. BASE DISPOSAL AGENCY SUPPORT PERSONNEL WOULD BE ESTABLISHED TO ENSURE BASE SECURITY AND MAINTAIN THE GROUNDS AND PHYSICAL ASSETS, INCLUDING THE EXISTING UTILITIES AND STRUCTURES.

I WOULD LIKE TO DISCUSS THE RESULTS OF OUR ANALYSIS THAT ARE PRESENTED IN THE DRAFT EIS. THE PROPOSED ACTION AND ALL ALTERNATIVES WERE ANALYZED TO THE SAME LEVEL OF DETAIL.

THE BASELINE THAT WAS USED TO EVALUATE IMPACTS WAS CONDITIONS REPRESENTATIVE OF MYRTLE BEACH AIR FORCE BASE AT THE TIME OF CLOSURE, WHICH IS MARCH 1993.

THE FOLLOWING SLIDES SHOW THE COMPARATIVE IMPACTS AMONG THE REUSE ALTERNATIVES.

(SLIDE NO. 21 - EMPLOYMENT)

THIS BAR GRAPH SHOWS THE INCREASE IN EMPLOYMENT IN HORRY AND GEORGETOWN COUNTIES DUE SOLELY TO REUSE ACTIVITIES AT THE BASE PROJECTED THROUGH THE YEAR 2013.

IN ADDITION TO THE DIRECT JOBS GENERATED ON SITE, A NUMBER OF INDIRECT OR SECONDARY JOBS WOULD BE CREATED THROUGHOUT THE REGION. THESE ADDITIONAL JOBS WOULD INCREASE REGIONAL EARNINGS INCOME, AND SPENDING.

EMPLOYMENT WOULD BE PHASED OVER THE TWENTY-YEAR DEVELOPMENT PERIOD.

DEPENDING ON THE ALTERNATIVE FOLLOWED, REUSE ACTIVITIES AT THE BASE COULD RESULT IN AN ADDITIONAL EIGHT THOUSAND TO TEN THOUSAND DIRECT JOBS IN THE AREA BY THE YEAR

2013. THIS INCREASE TRANSLATES TO AN INCREASED GROWTH IN THE LOCAL JOB MARKET BY ABOUT SEVEN TO EIGHT PERCENT BY 2013.

(SLIDE NO. 22 - POPULATION)

REDEVELOPMENT ACTIVITIES AND JOB GROWTH IN THE AREA ARE EXPECTED TO RESULT IN SOME POPULATION IN-MIGRATION INTO THE REGION. THE CITY OF MYRTLE BEACH WOULD BE THE COMMUNITY MOST LIKELY TO EXPERIENCE THE LARGEST INCREASE IN POPULATION.

THIS BAR GRAPH SHOWS THE INCREASE IN POPULATION IN HORRY AND GEORGETOWN COUNTIES RESULTING FROM REUSE ACTIVITIES AT THE BASE PROJECTED THROUGH 2013. DEPENDING ON THE ALTERNATIVE SELECTED, GROWTH RESULTING FROM REUSE ACTIVITIES WOULD RESULT IN A MAXIMUM INCREASE OF 13 PERCENT IN THE PROJECTED POPULATION OF THE COUNTIES BY THE YEAR 2013.

(SLIDE NO. 23 - TRAFFIC)

THE REDEVELOPMENT OF MYRTLE BEACH AIR FORCE BASE WOULD AFFECT LOCAL AND REGIONAL TRANSPORTATION NETWORKS. REUSE OF THE BASE WOULD INCREASE TRAFFIC ON ARTERIAL ROADS NEAR

THE BASE, PARTICULARLY U. S. 17 BUSINESS AND U. S. 17 BYPASS.

THIS BAR GRAPH SHOWS THE ESTIMATED NUMBER OF AVERAGE DAILY TRIPS PROJECTED TO BE GENERATED BY THE YEAR 2013 WITH EACH OF THE REUSE ALTERNATIVES. FOR COMPARISON PURPOSES, THE AVERAGE NUMBER OF DAILY TRIPS GENERATED BY MYRTLE BEACH AIR FORCE BASE PRIOR TO BASE CLOSURE WAS ESTIMATED AT ABOUT TEN THOUSAND. THE NUMBER OF DAILY TRIPS TO AND FROM THE SITE DUE TO REUSE WOULD RANGE FROM APPROXIMATELY 83,000 WITH THE EXISTING AIRFIELD/MIXED USE ALTERNATIVE TO OVER 116,000 WITH THE PROPOSED ACTION BY THE YEAR 2013 DURING THE PEAK SEASON. THE IMPACT OF THIS TRAFFIC WOULD BE A DECREASE IN LEVEL OF SERVICE FOR SURROUNDING ROADS, AND TRAFFIC CONGESTION WOULD INCREASE.

(SLIDE NO. 24 - FLIGHT OPERATIONS)

THE PROPOSED ACTION AND EXPANDED AIRFIELD/RESORT-RECREATION AND EXPANDED AIR-FIELD/RESORT-COMMERCIAL-INDUSTRIAL ALTERNATIVES PROPOSE A SECOND RUNWAY AROUND THE YEAR 2010. THE EXISTING AIRFIELD/MIXED USE AND NO-ACTION

ALTERNATIVES DO NOT PROPOSE A SECOND RUNWAY. THIS GRAPH SHOWS THE LEVEL OF ANNUAL AIR OPERATIONS PROJECTED THROUGH THE YEAR 2013 FOR EACH ALTERNATIVE.

FOR REFERENCE, APPROXIMATELY 47,000 AIR OPERATIONS OCCURRED AT MYRTLE BEACH AIR FORCE BASE AND MYRTLE BEACH JETPORT IN 1991. BY 2013, THE NUMBER OF ANNUAL AIR OPERATIONS WOULD INCREASE TO ABOUT 150,000 WITH THE THREE EXPANDED AIRFIELD OPTIONS, TO ABOUT 126,500 WITH THE EXISTING AIRFIELD/MIXED USE ALTERNATIVE AND TO 33,580 UNDER THE NO-ACTION ALTERNATIVE.

OPERATIONS FOR THE PROPOSED ACTION AND ALL ALTERNATIVES EXCEPT NO-ACTION WOULD INCLUDE A MIX OF AIR CARRIER, AIR CARGO, AND GENERAL AVIATION.

(SLIDE NO. 25 - UTILITIES)

REDEVELOPMENT OF MYRTLE BEACH AIR FORCE BASE WOULD INCREASE DEMANDS ON LOCAL UTILITY SYSTEMS, INCLUDING WATER, WASTEWATER, SOLID WASTE DISPOSAL, AND ELECTRICITY AND NATURAL GAS.

THIS TABLE SHOWS THE PROJECTED

UTILITY DEMAND INCREASES TO PURVEYORS IN THE AREA FOR EACH OF THE REUSE ALTERNATIVES. AS A REFERENCE, THE FIRST COLUMN SHOWS THE PROJECTED UTILITY DEMAND IN THE YEAR 2013 WITHOUT REUSE OF THE BASE. FOR INSTANCE TOTAL DEMAND ON WATER PURVEYORS IN THE AREA IS PROJECTED TO BE 52.1 MILLION GALLONS PER DAY BY 2013.

THE OTHER FOUR COLUMNS SHOW THE INCREASES IN UTILITY DEMAND ASSOCIATED WITH EACH ALTERNATIVE IN THE YEAR 2013. FOR EXAMPLE, WITH THE PROPOSED ACTION, TOTAL WATER DEMAND FROM AREA SUPPLIERS IS PROJECTED TO BE 3.42 MILLION GALLONS PER DAY HIGHER THAN THE DEMAND WITHOUT REUSE OF THE BASE.

FOR ALL UTILITIES UNDER ALL OF THE ALTERNATIVES, INCREASES IN DEMAND RANGE FROM ABOUT 4 PERCENT FOR ELECTRICITY AND NATURAL GAS TO 6.7 PERCENT FOR WATER. LOCAL UTILITY SUPPLIERS HAVE SUFFICIENT CAPACITY TO MEET THESE DEMANDS.

(SLIDE NO. 26 - HAZARDOUS MATERIALS/WASTE)

THE AIR FORCE IS CONTINUING TO CONDUCT INVESTIGATIONS TO IDENTIFY,

CHARACTERIZE, AND REMEDIATE ENVIRONMENTAL CONTAMINATION ON MYRTLE BEACH AIR FORCE BASE THAT HAS RESULTED FROM PAST ACTIONS. THIS COMPREHENSIVE EFFORT IS CALLED THE INSTALLATION RESTORATION PROGRAM.

CLEANUP ACTIVITIES WILL BE ACCOMPLISHED IN ACCORDANCE WITH APPLICABLE FEDERAL AND STATE LAWS AND REGULATIONS. SOME INITIAL REMEDIAL ACTIONS ARE UNDERWAY WITH FURTHER WORK AND MONITORING TO CONTINUE AFTER BASE CLOSURE.

CLEANUP AND MONITORING OF CERTAIN SITES AT THE BASE MAY REQUIRE LONG-TERM ACCESS TO THE SITE TO ENSURE THE SUCCESS OF THE REMEDIATION EFFORTS.

THE AIR FORCE WILL TAKE ALL NECESSARY ACTIONS FOR ENVIRONMENTAL CLEANUP OF THE BASE TO PROTECT PUBLIC HEALTH AND THE ENVIRONMENT. DEEDS OF PROPERTY TRANSFER WILL CONTAIN THIS ASSURANCE AND ALL PROPERTY TRANSFERS WILL BE CONDUCTED IN COMPLIANCE WITH THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT, OTHERWISE KNOWN AS CERCLA OR

SUPERFUND.

UNDERGROUND STORAGE TANKS AT THE BASE THAT ARE NOT IN COMPLIANCE WITH CURRENT REGULATIONS WILL BE DEACTIVATED AND REMOVED PRIOR TO DISPOSAL OF THE BASE.

AN ASBESTOS SURVEY WAS UNDERTAKEN FOR THE BASE. ASBESTOS-CONTAINING MATERIALS THAT MAY POSE A THREAT OF RELEASE WILL BE REMOVED OR MANAGED IN ACCORDANCE WITH AIR FORCE POLICY.

RENOVATION OR DEMOLITION OF ASBESTOS-CONTAINING STRUCTURES DURING BASE REUSE WILL REQUIRE COMPLIANCE WITH APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS CONCERNING ASBESTOS-CONTAINING MATERIALS AND IS THE RESPONSIBILITY OF THE REUSE PROPONENT.

POLYCHLORINATED BIPHENYL COMPOUNDS, CALLED PCB'S WERE ONCE USED EXTENSIVELY IN ELECTRICAL EQUIPMENT. ALL PCB TRANSFORMERS AND PCB-CONTAMINATED TRANSFORMERS HAVE BEEN REMOVED FROM THE BASE AND PROPERLY DISPOSED OF, POSING NO IMPACT TO DISPOSAL OR REUSE.

A BASE RADON SURVEY WAS CONDUCTED SEVERAL YEARS AGO AS PART OF AN AIR FORCE-WIDE

RADON ASSESSMENT AND MITIGATION PROGRAM AND FOUND TO BE NO PROBLEM. THE AVERAGE INDOOR CONCENTRATIONS RECORDED ON THE BASE WERE BELOW THE ENVIRONMENTAL PROTECTION AGENCY-RECOMMENDED MITIGATION LEVEL OF 4 PICOCURIES PER LITER OF AIR.

(SLIDE NO. 27 - SOILS AND GEOLOGY)

POTENTIAL IMPACTS TO SOILS AND GEOLOGY AT MYRTLE BEACH AIR FORCE BASE WITH ALL OF THE ALTERNATIVES WOULD BE SHORT TERM AND RESULT PRIMARILY FROM GROUND DISTURBANCE ASSOCIATED WITH CONSTRUCTION ACTIVITIES.

GROUND DISTURBANCE WOULD RANGE FROM 1,443 ACRES UNDER THE EXISTING AIRFIELD/MIXED USE ALTERNATIVE TO 1,995 ACRES UNDER THE EXPANDED AIRFIELD/RESORT-COMMERCIAL-INDUSTRIAL ALTERNATIVE.

ONCE CONSTRUCTION IS COMPLETE, MOST AREAS WOULD BE COVERED OR LANDSCAPED, REDUCING THE EROSION POTENTIAL. CONSTRUCTION WOULD MINIMALLY ALTER THE SOIL PROFILES AND WOULD HAVE LITTLE AFFECT ON THE LOCAL TOPOGRAPHY.

(SLIDE NO. 28 - WATER RESOURCES)

MYRTLE BEACH AIR FORCE BASE USES GROUNDWATER FOR BOTH ITS POTABLE AND NON-POTABLE NEEDS. HOWEVER, SURFACE WATER PROVIDES THE MOST POTABLE WATER USED IN THE REGION.

FOR OUR ANALYSIS, SURFACE WATER WAS USED TO PROVIDE POTABLE WATER SOURCES FOR ALL THE REUSE ALTERNATIVES, WHILE GROUNDWATER WOULD PROVIDE NON-POTABLE NEEDS.

SURFACE WATER DEMAND CAN BE MET BY UTILITY PURVEYORS THROUGH ADEQUATE LOCAL SUPPLIES. TOTAL WATER DEMAND IN THE REGION IS EXPECTED TO INCREASE WITH ALL THE REUSE ALTERNATIVES.

INCREASED GROUNDWATER DEMAND FOR NON-POTABLE PURPOSES BY THE YEAR 2013 IS EXPECTED TO RANGE FROM 1.77 MILLION GALLONS PER DAY UNDER THE EXISTING AIRFIELD/MIXED USE ALTERNATIVE TO 1.35 MILLION GALLONS PER DAY WITH THE EXPANDED AIRFIELD/RESORT-COMMERCIAL-INDUSTRIAL ALTERNATIVE. THIS COULD INCREASE THE GROUND-WATER DRAWDOWN THAT THE BLACK CREEK AQUIFER HAS EXPERIENCED.

SURFACE WATER AND SURFACE DRAINAGE

WOULD ALSO BE AFFECTED BY REUSE ACTIVITIES.

CONSTRUCTION OF NEW FACILITIES AND INFRASTRUCTURE MAY CHANGE THE EXISTNG FLOW OF SURFACE WATER RUNOFF AND REQUIRE EROSION CONTROL DURING CONSTRUCTION.

STORMWATER DISCHARGES WOULD BE EXPECTED TO CONTAIN HIGHER LEVELS OR RESIDUAL CONTAMINANTS, RESULTING IN A DECLINE IN SURFACE WATER QUALITY. REUSE ACTIVITIES ARE EXPECTED TO COMPLY WITH APPLICABLE FEDERAL AND STATE REGULATIONS TO REDUCE THE POTENTIAL EFFECT ON GROUND AND SURFACE WATER QUALITY.

(SLIDE NO. 29 - AIR QUALITY)

AIR POLLUTION EMISSIONS ASSOCIATED WITH THE PROPOSED ACTION AND ALTERNATIVES WOULD INCREASE ABOVE BASELINE CLOSURE LEVELS, BUT LOCAL AMBIENT POLLUTANT CONCENTRATIONS WOULD NOT EXCEED THE NATIONAL OR SOUTH CAROLINA AMBIENT AIR QUALITY STANDARDS.

(SLIDE NO. 30 - NOISE CONTOURS)

THIS GRAPHIC PRESENTS THE PRECLOSURE AND FUTURE DNL NOISE CONTOURS ASSOCIATED WITH AVIATION ACTIVITIES AT THE BASE. DNL IS THE

DAY-NIGHT AVERAGE SOUND LEVEL EXPRESSED IN DECIBELS, WITH A PENALTY ADDED TO ACCOUNT FOR INCREASED ANNOYANCE FROM NOISE DURING THE NIGHT.

65 DECIBELS IS EQUIVALENT TO NORMAL SPEECH AT THREE FEET AND IS THE ACCEPTED THRESHOLD FOR RESTRICTIONS ON LAND USES.

ON THIS GRAPHIC, THE PRECLOSURE 65 DECIBEL DNL NOISE CONTOUR ASSOCIATD WITH MILITARY OPERATIONS IS SHOWN IN RED. THE FUTURE NOISE CONTOURS ASSOCIATED WITH THE PROPOSED ACTION AND ALTERNATIVES ARE SHOWN IN BLUE FOR THE EXISTING RUNWAY AND IN GREEN FOR THE SECOND RUNWAY.

(SLIDE NO. 31 - NOISE EXPOSURE)

THIS CHART ILLUSTRATES THE APPROXIMATE ACREAGE EXPOSED TO DNL NOISE LEVELS OF 65 DECIBELS OR MORE FROM AIRCRAFT ACTIVITY FROM THE REUSE ALTERNATIVES.

PRECLOSURE MILITARY OPERATIONS AT THE BASE EXPOSED A MUCH LARGER AREA, ABOUT 4,400 ACRES, TO 65 DNL OR GREATER NOISE LEVELS. BY CONTRAST, THE LAND AREA EXPOSED TO 65 DNL OR GREATER NOISE LEVELS WITH THE PROPOSED ACTION

AND ALTERNATIVES RANGES FROM ABOUT 635 ACRES IN 1998 DECREASING TO 400 ACRES IN 2003 AND 500 ACRES IN 2013.

THE NO-ACTION ALTERNATIVE WOULD RESULT IN SOMEWHAT LOWER NOISE LEVELS. THE REDUCTION IN ACRES AFFECTED BY NOISE BETWEEN 1998 AND 2003 IS THE RESULT OF THE FEDERALLY-MANDATED CONVERSION TO QUIETER JET AIRCRAFT BY THE YEAR 2000. NONE OF THE ALTERNATIVES WOULD EXPOSE EXISTING RESIDENTIAL AREAS TO AIRCRAFT DNL NOISE LEVELS OF 65 DECIBELS OR GREATER.

NOISE-RELATED IMPACTS FROM TRAFFIC ASSOCIATED WITH REUSE WOULD INCREASE SURFACE LEVEL NOISE ALONG SOME ROAD SEGMENTS. APPROXIMATELY 89 EXISTING SINGLE FAMILY RESIDENCES, SIX MULTI-FAMILY RESIDENCES, 51 MOBILE HOMES, AND FOUR CHURCHES WOULD BE EXPOSED TO TRAFFIC NOISE LEVELS OF 65 DECIBELS OR GREATER BY 2013 UNDER ALL OF THE REUSE ALTERNATIVES.

(SLIDE NO. 32 - BIOLOGICAL RESOURCES)

BIOLOGICAL RESOURCES CONSIDERED AT MYRTLE BEACH AIR FORCE BASE INCLUDE NATIVE AND

NATURALIZED PLANTS AND ANIMALS, THREATENED AND ENDANGERED SPECIES, AND SENSITIVE OR CRITICAL HABITATS.

WHILE SOME OF THE CONSTRUCTION OR DEVELOPMENT ASSOCIATED WITH REUSE WOULD OCCUR IN PREVIOUSLY DISTURBED AREAS WITH LOW SENSITIVITY, ALL OF THE ALTERNATIVES EXCEPT THE NO-ACTION ALTERNATIVE COULD POTENTIALLY AFFECT SOME AREAS ON THE BASE CONTAINING NATIVE VEGETATION.

UP TO 1,027 ACRES OF UPLAND VEGETATION COULD BE DISTURBED WITH EACH OF THE ALTERNATIVES, DEPENDING OF COURSE ON THE SITING OF FACILITIES OR DEPENDING ON THE PROPOSED REUSE ACTIVITIES.

THE POTENTIAL CONVERSION OF THESE HABITATS WOULD DECREASE BIODIVERSITY AND AFFECT LOCAL WILDLIFE POPULATIONS, BUT WOULD NOT AFFECT REGIONAL POPULATIONS.

THE AMERICAN ALLIGATOR IS THE ONLY THREATENED OR ENDANGERED SPECIES KNOWN TO OCCUR ON MYRTLE BEACH AIR FORCE BASE. THE ENDANGERED SHORTNOSE STURGEON OCCURS IN THE INTRACOASTAL

WATERWAY, ADJACENT TO THE BASE. NEITHER SPECIES IS EXPECTED TO BE IMPACTED BY REUSE.

UP TO 167 ACRES OF WETLANDS COULD BE DISTURBED BY CONSTRUCTION OR DEVELOPMENT ASSOCIATED WITH REUSE.

REUSE PROPONENTS CAN MITIGATE THIS POTENTIAL IMPACT THROUGH AVOIDANCE OF DEVELOPMENT IN WETLANDS OR REPLACEMENT OF DISTURBED WETLANDS.

(SLIDE NO. 33 - CULTURAL RESOURCES)

CONSULTATION HAS BEEN INITIATED WITH THE SOUTH CAROLINA STATE HISTORIC PRESERVATION OFFICER CONCERNING CULTURAL RESOURCES AT MYRTLE BEACH AIR FORCE BASE.

THERE ARE NO PREHISTORIC SITES OR HISTORIC STRUCTURES CURRENTLY AT THE BASE THAT ARE LISTED ON THE NATIONAL REGISTER OF HISTORIC PLACES; HOWEVER, SEVERAL STRUCTURES OR SITES HAVE BEEN IDENTIFIED WHOSE ELIGIBILITY FOR THE NATIONAL REGISTER OF HISTORIC PLACES HAS NOT YET BEEN DETERMINED.

CONSULTATION WITH THE SOUTH CAROLINA STATE HISTORICAL PRESERVATION OFFICER IS

ONGOING.

(PROJECTOR OFF)

IN CLOSING, I REMIND YOU THE STUDY IS IN A DRAFT STATE. OUR GOAL IS TO PROVIDE AIR FORCE DECISION-MAKERS WITH ACCURATE INFORMATION ON THE ENVIRONMENTAL CONSEQUENCES OF ITS ACTIONS.

TO DO THIS, WE ARE SOLICITING YOUR COMMENTS ON THE DRAFT EIS. THIS INFORMATION WILL THEN SUPPORT INFORMED AIR FORCE DECISION MAKING.

I WOULD NOW LIKE TO TURN THIS MEETING BACK OVER TO LIEUTENANT COLONEL EDWARD STARR.

LIEUTENANT COLONEL EDWARD STARR.

****

LIEUTENANT COLONEL EDWARD STARR

THANK YOU, LIEUTENANT COLONEL ARMSTRONG.

AFTER A FIFTEEN-MINUTE RECESS WE WILL MOVE INTO THE NEXT PHASE OF THE MEETING, WHICH IS THE PUBLIC COMMENT PERIOD.

IF THERE IS ANYONE HERE WHO HAS NOT

FILLED OUT A CARD, THIS WOULD BE A GOOD TIME TO FILL ONE OUT. THEY ARE IN THE BACK ON A TABLE AND ALSO ON A TABLE OUT IN THE HALL.

WE ARE NOW IN RECESS.

*****

(HEARING IN RECESS FROM 7:50 TO 8:05 P.M.)

*****

LIEUTENANT COLONEL EDWARD STARR

ALL RIGHT. WE ARE BACK ON THE RECORD. BEFORE WE BEGIN I WOULD LIKE TO REMIND YOU OF A FEW POINTS.

FOR THOSE OF YOU WHO WISH TO SPEAK, PLEASE BEGIN WITH YOUR NAME, ADDRESS AND THE CAPACITY OF YOUR APPEARANCE.

I WILL RECOGNIZE THE ELECTED OFFICIALS FIRST. THEN I WILL CALL ON THE PUBLIC FOR ANY INFORMATION FROM THE CARDS THAT HAVE BEEN HANDED IN.

REMEMBER THAT THE PANEL MEMBERS ARE NOT THE DECISION-MAKERS REGARDING THE PROPOSED ACTION OR ALTERNATIVES. IF YOU NEED ANY CLARIFICATION OR INFORMATION BEFORE SPEAKING,

THE PANEL MEMBERS WILL CERTAINLY TRY TO ANSWER THE QUESTIONS.

TO ENSURE EVERYONE HAS AN OPPORTUNITY TO SPEAK, I ALSO ASK THAT REPETITIVE STATEMENTS PLEASE BE AVOIDED. IF YOU AGREE WITH THE COMMENTS OF AN EARLIER SPEAKER, PLEASE SIMPLY INDICATE YOUR CONCURRENCE WITH THAT SPEAKER'S POSITION.

WE WILL NOW BEGIN THE COMMENT PERIOD AND FIRST I WOULD LIKE TO CALL UPON MAYOR BOB GRISSOM.

*****

MAYOR OF MYRTLE BEACH, SOUTH CAROLINA

BOB GRISSOM

CITY HALL, MYRTLE BEACH, SOUTH CAROLINA

THANK YOU, LIEUTENANT COLONEL STARR.

I AM BOB GRISSOM, MAYOR OF MYRTLE BEACH, SOUTH CAROLINA. I GUESS MY ADDRESS IS CITY HALL MOST OF THE HOURS.

ON BEHALF OF THE CITY OF MYRTLE BEACH I WOULD LIKE TO THANK YOU FOR BEING HERE THIS EVENING AND ALLOWING THE PUBLIC TO COMMENT ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT. THE

CITY WILL PROVIDE A WRITTEN PROPOSAL BEFORE THE DECEMBER 7, 1992 DEADLINE, BUT BRIEFLY, LET ME ADDRESS A FEW POINTS.

THE UNITED STATES AIR FORCE'S DESIRE FOR THE COMMUNITY TO REBOUND FROM BASE CLOSURE IS EVIDENT, AND WE APPRECIATE THAT.

SEVERAL AREAS OF DISCUSSION EXIST BETWEEN THE DEIS AND EDAW PROPOSAL SPONSORED BY THE TASK FORCE. IN THE DEIS PROPOSED PLAN A NEW RUNWAY IS PLANNED FOR 2002, BASED ON LPA'S STUDY OF OPERATIONS AND CAPACITY AT THE MYRTLE BEACH AIR FORCE BASE.

THE FEDERAL AVIATION AUTHORITY AND THE SOUTH CAROLINA AVIATION COMMISSION DO NOT AGREE TOTALLY WITH THE LPA FORECAST. THEREFORE SEVERAL OTHER ALTERNATIVES OF INCREASING CAPACITY FOR GENERAL AVIATION NEED TO BE CONSIDERED. 1.1

IN THE DEIS EXPANDED AIRFIELD/RESORT RECREATIONAL AND EXPANDED AIRFIELD/RESORT-COMMERCIAL ALTERNATIVE, THE TIME FRAME FOR A NEW RUNWAY IS 2010.

IF THERE IS A NEED FOR AN EXPANDED

AIRFIELD THESE ALTERNATIVES SUPPORT THE CONCEPT OF GOOD INTERIM LAND USE AND ADOPTING A WAIT-AND-SEE ATTITUDE.

CHANGING TECHNOLOGY IN THE LOCATION OF PARALLEL RUNWAYS AND POTENTIAL LOCATION OF A VFR RUNWAY WITHIN EXISTING AIRFIELD AREAS NEEDS TO BE CONSIDERED. 1.2

WHILE THE CITY IS WAITING FOR A REVIEW OF THE CITIZENS REPORT ON AVIATION AND HAS NO OFFICIAL POSITION ON IT AT THIS TIME, IT NONETHELESS SHOULD BE CONSIDERED BY THE UNITED STATES AIR FORCE ALONG WITH RECENT COMMENTS BY SCAC AND THE FAA AND POTENTIAL TECHNOLOGY ADVANCES.

EXISTING AIRFIELD/MIXED USE ALTERNATIVE BEST ADDRESSES THE PROBLEMS OF CLOSURE. ALLOWING FOR SUFFICIENT AIRFIELD SUPPORT AND SOME ADDITIONAL LAND FOR AVIATION RELATED INDUSTRY IS IN THE BEST INTEREST OF THE COMMUNITY.

REDEVELOPMENT CAN OCCUR IN STAGES BUT WILL ALLOW THE CITY TO PLAN FOR AND FUND INFRASTRUCTURE NEEDS.

WHILE THIS PLAN BEST ADDRESSES THE COMMUNITY NEEDS, SEVERAL AVIATION NEEDS SHOULD BE ADDRESSED. THE LOCATION OF AN OPEN SPACE/ RECREATION CORRIDOR IN THE LAST EDAW PLAN SHOULD BE INCLUDED. 1.3

ALSO, THE PROPOSED VFR IN CLOSE RUNWAY SHOULD BE CONSIDERED AND SHOWN. INCLUDING AN ADDITIONAL 200-300 ACRES TO THE AIRFIELD (MILITARY APRON, HANGERS, TOWER AREA AND ARMAMENT AREA) WOULD PROVIDE AN INCOME AREA TO AIRFIELD AND ALLOW FUTURE RUNWAY EXPANSION AREA BASED ON NEW TECHNOLOGY. THIS IS SIMILAR TO NO. 2 OF THE INTERIM LAND USE BY EDAW. 1.4

THIS SCENARIO HAS THREE RUNWAY ALTERNATIVES.

THERE ARE OTHER POINTS TO CONSIDER.

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1. ALL ALTERNATIVES CREATE AN EXPANDED USE DIFFERENT AND MORE INTENSE THAN USES BY THE UNITED STATES AIR FORCE. WHILE THIS IS NECESSARY TO STIMULATE THE ECONOMY, IT WILL CREATE A NEED FOR CITY PROVIDED INFRA-STRUCTURE. 1.5

OUR ABILITY TO PROVIDE THAT INFRA-STRUCTURE SHOULD BE BALANCED BY THE CITY'S ABILITY TO RAISE FUNDS ON THE SITE. 1.5

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2. ANY DEVELOPMENT THAT OCCURS MUST BE SENSITIVE TO OUR TOURISM BASE AND THE NATURAL ENVIRONMENT THAT EXISTS ON AND AROUND THE BASE TODAY. A DECREASE IN NOISE LEVELS FOR INSTANCE, SHOULD CONTINUE LONG TERM. 1.6

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3. ANY DEVELOPMENT WEST OF AIRFIELD CREATES NEW DRAINAGE INTO A BASIN THAT DRAINS INTO THE INTRACOASTAL WATERWAY. THIS IS THE SOURCE OF THE CITY'S DRINKING WATER SO PARTICULAR ATTENTION NEEDS TO BE PAID TO STORM WATER MANAGEMENT. 1.7

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4. ALL THE ALTERNATIVES SHOW THE HIGHWAYS AROUND THE BASE AT AN "EF" STATUS IN 1998. ANY DEVELOPMENT MUST ALLOW THE COMMUNITY TO PLAN FOR OTHER TRANSPORTATION METHODS OR SOLUTIONS. GOOD RECOVERY CANNOT OCCUR 1.8

UNLESS WE ARE ABLE TO MOVE OCCUPANTS FROM THE BASE AREA WITHOUT UNUSUAL DELAY.

1.8 THE SUGGESTION BY THE DEIS THAT THE CAROLINA BAYS HIGHWAY AND CONWAY BY-PASS WILL HELP TRAFFIC IS SIMPLY NOT TRUE. MAJOR INTERCHANGE CONSTRUCTION AT BY-PASS 17 AND IMPROVEMENT OF ACCESS ON BUSINESS 17 MUST BE PLANNED.

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5. THE CITY'S REQUEST FOR LAND FROM THE DEPARTMENT OF THE INTERIOR SHOULD BE CONSIDERED. THE COMMUNITY HAS A SHORTFALL OF GREEN SPACE AS A WHOLE.

1.9 THE ATTEMPT TO ALLOW THE FAA TO GET CONTROL OF LAND, GIVING IT TO THE COUNTY AND REQUIRING THE COUNTY TO LEASE IT TO THE CITY FOR RECREATION IS BURDENSOME.

THE FUTURE AVIATION REQUIREMENTS QUITE POSSIBLY WILL NOT INCLUDE THIS LAND, AND IF IT IS NEEDED THE MECHANISM EXISTS FOR TRANSFER. THIS REQUEST FOR RECREATION LAND SHOULD BE A STRONG ONE.

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6. FINALLY, THIS IS THE CITY'S LAST CHANCE TO COMMENT PUBLICLY TO THE UNITED STATES AIR FORCE ABOUT WHAT IS BEST FOR THE FOUR THOUSAND ACRES WITHIN OUR CITY LIMITS. IF WE WANT TO ENCOURAGE JOB CREATION AND CONTROLLED REDEVELOPMENT IT IS TIME TO LET THE PUBLIC AND THE UNITED STATES AIR FORCE UNDERSTAND THAT WE STAND BEHIND OUR AIR BASE REDEVELOPMENT COMMISSION AND THE RECOMMENDED CHANGES TO THE DEIS AND EDAW DRAFT.

1.10

YOUR REPORT STATES THAT "REDEVELOPMENT COULD RESULT IN ZONING AND LAND USE CONFLICTS AND COULD REQUIRE REZONING OF PROPERTY." THIS IS MOST DEFINITELY THE CASE. DESPITE ALL OF THE DISCUSSION BY THE AIR FORCE, THE FAA, THE COUNTY, THE CITY THROUGH THE REDEVELOPMENT COMMISSION, THE PLANNING AND ZONING COMMISSION AND ULTIMATELY CITY COUNCIL MUST BE CONVINCED THAT THE USE OR USES ARE IN THE BEST INTEREST OF THE CITY.

WE HOPE THAT OUR INPUT THROUGH THE

PROCESS WILL BE TAKEN SERIOUSLY IN ORDER TO AVOID LAND USE AND ZONING PROBLEMS IN THE FUTURE.

THANK YOU VERY MUCH.

******

LIEUTENANT COLONEL EDWARD STARR

THANK YOU VERY MUCH, SIR. WOULD IT BE POSSIBLE FOR US TO GET A COPY OF YOUR ADDRESS?

MAYOR BOB GRISSOM

YES, SIR, IT IS.

LIEUTENANT COLONEL EDWARD STARR

I HAVE THREE NAMES HERE REPRESENTING THE CITIZENS GROUP, MR. HERSCH, MR. MAXWELL AND MR. SHAW. I WILL CALL THOSE PERSONS NOW.

*****

JOHN MAXWELL

5701 COUNTRY CLUB DRIVE

MYRTLE BEACH, SOUTH CAROLINA 29577

MY NAME IS JOHN MAXWELL AND I AM A REPRESENTATIVE OF THE CITIZENS GROUP THIS EVENING. BASICALLY ANY OF THE INPUT WE HAVE WOULD BE STRICTLY VERBAL. WE WILL SUBMIT IT

LATER.

WE ARE THE GROUP WHICH WAS FORMED TO QUESTION SEVERAL INFORMATIONAL FACTORS THAT HAVE BEEN PROVIDED TO THE AIR FORCE BY LPA REGARDING CAPACITIES IN THE EXISTING AIR FORCE PROPOSALS FOR REDEVELOPMENT OF THE NEW RUNWAY AT THE AIRPORT.

WE QUESTION NO. 1 THE PREDICTIONS BY THE LPA GROUP AND REALIZE THE TIME FRAME THAT THE AIR FORCE OPERATED UNDER TO PUT TOGETHER THE EIS. WE WOULD LIKE TO SUBMIT IN COPY SOME RECENT PREDICTIONS BY THE FAA AND THE SOUTH CAROLINA AERONAUTICS COMMISSION. 1.11

WE DO NOT WANT TO TAKE YOUR TIME THIS EVENING. THE ONLY REASON WE WOULD LIKE TO MENTION THIS IS ON THE FIVE PROPOSALS FOR CLOSURE, THE NO. 4 EXISTING AIRFIELD CREATES THE LEAST DEMAND ON THE FACILITIES WHICH WOULD BE PROVIDED BY THE CITY OF MYRTLE BEACH. IT WOULD CREATE THE LEAST GROUNDS FOR DISTURBANCE AND IT WOULD CREATE THE LEAST NOISE EXPOSURE AFTER CLOSURE. 1.12

AGAIN OUR SPEECH IS JUST A

REITERATION OF WHAT HAS ALREADY SAID BY THE MAYOR. THE MAYOR HAS ALREADY SAID IT BUT WE WILL OFFER INFORMATION ON AN AS-NEEDED BASIS IF DESIRED.

THANK YOU.

THAT'S ABOUT IT.

*****

LIEUTENANT COLONEL EDWARD STARR

THANK YOU, SIR.

I WOULD NOW LIKE TO CALL ON MR. EDSEL J. DEVILLE.

*****

EDSEL J. DEVILLE

522 ACADIAN WAY

SURFSIDE BEACH, SOUTH CAROLINA 29575

THANK YOU. I DO APPRECIATE THIS. FIRST OF ALL I WOULD LIKE TO SAY THAT WE APPRECIATE THE DEPTH OF THIS STUDY AND THE DETAILS. ALSO THE AIR FORCE DID AN EXCELLENT JOB WORKING WITH US AND WE REALLY APPRECIATE THE COOPERATIVE EFFORT.

THERE IS ONE THING THAT I WOULD LIKE TO POINT OUT IN THE STUDY ON PAGE 2-18 PARAGRAPH

231.4 INSTITUTIONAL AND MEDICAL.

WE FEEL THAT THERE IS A LACK OF IDENTIFYING THE BASIC NEEDS OF THIS COMMUNITY REGARDING MEDICAL SERVICES. THE BASE HERE WAS PROVIDING A DEFINITE SERVICE TO THE COMMUNITY BY TAKING CARE OF THE MILITARY RETIREES OF THE COMMUNITY.

WE NOTICE THERE IS A LACK OF ADDRESSING THE ASSESSMENT OF THOSE NEEDS AND WHAT WILL HAPPEN AS THE RESULT OF BASE CLOSURE AT MYRTLE BEACH. SO WE WOULD REQUEST THAT YOU WOULD DO THAT ASSESSMENT IN DETAIL AS TO THE NEEDS OF THE COMMUNITY REGARDING ALL CARE FOR RETIREES, FOR THE VETERANS AND ALSO THE IMPACT ON THE CIVILIAN COMMUNITY AS THE RESULT OF THE CLOSURE. 1.13

THANK YOU VERY MUCH.

*****

LIEUTENANT COLONEL EDWARD STARR

THANK YOU.

MR. JOHN CYPHERS, PLEASE.

*****

JOHN CYPHERS

505 GARDEN DRIVE

SURFSIDE BEACH, SOUTH CAROLINA 29575

MY NAME IS JOHN CYPHERS AND I LIVE AT 505 GARDEN DRIVE IN SURFSIDE BEACH, SOUTH CAROLINA 29575.

I AM A FORMER AIR FORCE PERSON AND NOW A RETIREE. I AM ALSO THE VICE PRESIDENT OF THE RETIRED OFFICERS ASSOCIATION. BUT TONIGHT I SPEAK AS A PRIVATE CITIZEN.

I WOULD LIKE TO HAVE A VETERANS' NATIONAL CEMETARY LOCATED ON THE MYRTLE BEACH AIR FORCE BASE PROPERTY WHEN THE BASE CLOSES DOWN.

I KNOW THERE HAVE BEEN MANY COMMENTS MADE THAT THIS IS A POSSIBILITY. BUT IN SEEING YOUR DRAFTS, I THINK THE ONLY DRAFT I SAW IN THE NEWSPAPER WAS ONE OUT OF THREE THAT MENTIONED A NATIONAL CEMETARY.

1.14

I WOULD LIKE TO KNOW WHAT I CAN DO TO HELP ASSURE THAT THIS WILL BE A REALITY. WHO SPECIFICALLY CAN I CONTACT TO FURTHER THIS CAUSE? WOULD IT BE THE VA OR SOME OTHER AGENCY OF THE GOVERNMENT?

THANK YOU, SIR.

*****

LIEUTENANT COLONEL EDWARD STARR

THANK YOU, MR. CYPHERS.

MR. JAMES R. CLARK, JR.

*****

JAMES R. CLARK, JR.
POST OFFICE BOX 7071- 309 SUNSET TRAIL

MYRTLE BEACH, SOUTH CAROLINA 29577

MY NAME IS JAMES R. CLARK, JR., AND I LIVE AT 309 SUNSET TRAIL, MYRTLE BEACH, SOUTH CAROLINA 29577.

I AM HERE AS A PRIVATE CITIZEN AND ALSO AS A CONSULTANT.

I WANT TO SAY THAT I WISH TO THANK YOU FOR HAVING SUCH DEMOCRATIC MEETINGS. I THINK THESE MEETINGS ARE SOME OF THE BEST I HAVE EVER ATTENDED. I HAVE BEEN ATTENDING THESE MEETINGS SINCE JANUARY OF 1991.

MY COMMENTS ARE ABOUT FOREIGN TRADE ZONES. I NOTICED IN YOUR REPORT DATED OCTOBER OF 1992 ON PAGE 2-40 THESE WERE ALTERNATIVES BEING ELIMINATED FROM FURTHER CONSIDERATION. I WOULD LIKE TO REQUEST THAT THAT BE RESTUDIED

1.15

BECAUSE OVER THE PAST EIGHTEEN MONTHS I HAVE DONE A RATHER DETAILED STUDY OF THE FOREIGN TRADE ZONES IN THIS AREA IN NORTH CAROLINA AND SOUTH CAROLINA AS WELL AS IN OTHER STATES.

I HAVE VISITED THE BOARD OF FOREIGN TRADE ZONES IN WASHINGTON, D. C. AND HAVE GATHERED RATHER DETAILED REPORTS ABOUT THIS SPECIAL ZONES SITUATION THAT ARE POSSIBLY USEFUL TO AREAS SEEKING REDEVELOPEMENT ON PARTS OF AIR BASES AND SO ON.

FOR EXAMPLE THE ORLANDO FOREIGN TRADE ZONE HAS BEEN VERY SUCCESSFUL IN A RESORT-INDUSTRIAL TYPE AREA. I KNOW WE ARE NOWHERE ADVANCED LIKE ORLANDO IS, BUT I THINK THERE ARE SOME SIMILARITIES IN MANY RESPECTS WITH THEIR SITUATION.

THEIR FOREIGN TRADE ZONE HAS SIXTEEN DIFFERENT COMPANIES ACTIVE IN IT. THEY HAVE BEEN IN EXISTENCE SINCE 1979. SO IT ALL DOES NOT HAPPEN OVERNIGHT.

I THINK THE SUBJECT DESERVES FURTHER STUDY AND I WOULD LIKE TO REQUEST THAT YOU DO THAT.

1.15

THANK YOU.

*****

LIEUTENANT COLONEL EDWARD STARR

THANK YOU, MR. CLARK.

MR. ROBERT L. BELLAMY, JR.

*****

ROBERT L. BELLAMY, JR.

4706 OLEANDER DRIVE

MYRTLE BEACH, SOUTH CAROLINA 29577

MY NAME IS ROBERT L. BELLAMY, JR. 4706 OLEANDER DRIVE, MYRTLE BEACH, SOUTH CAROLINA 29577. I AM HERE AS A CONCERNED CITIZEN TONIGHT.

IT SEEMS LIKE IF YOU HAVE ANYTHING OF INTEREST ON PAGE 2-40 YOU HAVE BEEN BOMDED OUT. THOSE THINGS HAVE BEEN REMOVED FROM FURTHER CONSIDERATION.

I HAVE A LETTER HERE TO LIEUTENANT COLONEL BAUMGARTEL AND I WOULD LIKE TO READ IT FOR THE PANEL. IT IS IN REFERENCE TO COMMENTS TO THE DRAFT ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR DISPOAL AND REUSE OF THE MYRTLE BEACH AIR FORCE BASE, SOUTH CAROLINA.

"DEAR COLONEL BAUMGARTEL:

ON NOVEMBER 14, 1991 AT A PUBLIC HEARING AT THE MYRTLE BEACH HIGH SCHOOL, I PROPOSED A FLOOD RELIEF CANAL TO DIRECT FLOOD WATERS OF THE WACCAMAW RIVER TO THE ATLANTIC OCEAN. IT INVOLVED A CANAL AROUND THE SOUTH AND SOUTHWEST SIDE OF THE AIR BASE PROPERTY.

1.16

IT WAS PLANNED SO THAT THERE WOULD BE NO INTERFERENCE WITH THE NORMAL HYDROLOGICAL CHARACTERISTICS OF THE WATERWAY OR THE ECOLOGICAL ENVIRONMENT OR AQUATIC LIFE. IN SHORT I DID NOT THINK ANYONE COULD OBJECT BECAUSE OF THE WAY IT WAS PLANNED. ANY COMMENT A NAYSAYER MIGHT HAVE WAS TAKEN INTO ACCOUNT.

WHEN THE DRAFT OF THE EIS CONCERNING THE DISPOSAL AND REUSE OF THE MYRTLE BEACH AIR FORCE BASE WAS INTRODUCED RECENTLY, I WAS SURPRISED BY WHAT WAS ASSERTED ON PAGE 2-40 UNDER 'ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION.'

WHAT WAS ASSERTED WAS THAT THE FLOOD-

WAY ELIMINATED AFTER CONSULTATION WITH THE UNITED STATES ARMY CORPS OF ENGINEERS BECAUSE OF HYDRAULIC AND SALT WATER CONCERNS IN THE INTRACOASTAL WATERWAY AND CONCERN FOR PROTECTION OF MARINE SPECIES IN THE ATLANTIC OCEAN.

JUST RECENTLY A RESPONSE WAS RECEIVED FROM LIEUTENANT COLONEL MARK E. VINCENT, DISTRICT ENGINEER OF THE CORPS OF ENGINEERS APPROVING A STUDY RESOLUTION TO LOOK INTO THE MERITS OF THIS FLOODWAY CANAL. THIS MEANS THAT MONEY WILL BE LATER APPROPRIATED, AND THE PLAN IS FEASIBLE IN THEORY ENOUGH TO BE STUDIED.

THIS IS THE CULMINATION OF A REQUEST BY HORRY COUNTY COUNCIL, MAYOR ROBERT M. GRISSOM, ROBERT L. BELLAMY, JR., ENGINEER, AND THE HONORABLE ARTHUR RAVANEL.

IT SEEMS THAT THIS CASUAL EIS ASSERTION HAS PULLED THE RUG FROM UNDER EVERYONE.

DISCUSSION WITH MR. BRAXTON KYSER AND MR. RICHARD JACKSON, CHARLESTON CORPS OF

ENGINEERS, WHO OVERSEE THIS TYPE OF STUDY IN THIS AREA ARE AT A LOSS FOR WORDS SAYING NO ONE HAS TALKED TO THEM ABOUT THIS AND THAT THE STUDY THAT WILL BE FUNDED BY THE RESOLUTION WOULD GENERATE COMMENTS AS TO THE ABILITY OF THIS PROJECT.

I WOULD LIKE TO SEE THE CONSULTATION CORRESPONDENCE MADE AVAILABLE TO MYSELF AND CONGRESSMAN RAVANEL AS TO WHY THIS ALTERNATIVE WAS ELIMINATED.

I WOULD RESPECTFULLY REQUEST THAT THIS PROPOSAL BE RE-EVALUATED USING THE PROPER INFORMATION AND PEOPLE WHO WOULD BE IN CHARGE OF THE STUDY TO DECIDE IF IT SHOULD BE ELIMINATED FROM FURTHER CONSIDERATION. 1.16

LASTLY, SINCE THE RESOLUTION BY THE COMMITTEE ON PUBLIC WORKS AND TRANS-PORTATION OF THE UNITED STATES HOUSE OF REPRESENTATIVES REQUESTED THAT THE SECRETARY OF THE ARMY REVIEW THE 1927 STUDY ON THE WACCAMAW RIVER IN ITS RELATION TO THIS PROPOSED FLOOD RELIEF CANAL BE

PERFORMED. THEN THERE IS NO ALTERNATIVE BUT TO CONSIDER THIS A VIABLE ALTERNATIVE UNTIL IT IS PROVEN OTHERWISE.

A COPY OF THE FLOODWAY PROPOSAL IS ENCLOSED AS IT WAS WRITTEN TO OUR HONORABLE SENATOR STROM THURMOND."

AND HERE ARE COPIES OF LETTERS FROM COUNCIL HERE AND FROM CONGRESSMAN ARTHUR RAVANEL.

WOULD YOU LIKE THAT IN THE TRAY?

*****

LIEUTENANT COLONEL EDWARD STARR

JUST HAND IT TO OUR REPORTER PLEASE.

THANK YOU VERY MUCH.

MR. EUGENE STROMAN, PLEASE.

*****

EUGENE STROMAN

654 BURCALE ROAD

MYRTLE BEACH, SOUTH CAROLINA 29577

THANK YOU VERY MUCH, COLONEL.

I AM EUGENE STROMAN, 654 BURCALE ROAD, MYRTLE BEACH, SOUTH CAROLINA 29577. I AM

ALSO A RETIREE OF THE UNITED STATES AIR FORCE.

WHEN YOU WERE SHOWING THE THINGS UP ON THE SCREEN AND WE SAW EARLIER YOU WERE SHOWING FOUR DIFFERENT USES AND ONE WAS EXISTING AIRFIELD AND MIXED USE.

1.17 I THINK THAT IS WHAT WE NEED IN THIS AREA BECAUSE WE DO NOT HAVE THE INFRASTRUCTURE WE NEED. WE DO NOT HAVE THE ROADS. WE DO NOT HAVE THE WAY FOR PEOPLE TO GET AROUND.

I DO NOT LOOK -- AND THIS IS GOING BACK TO WHEN I CAME HERE IN 1975 -- WE DO NOT HAVE AN INCREASE IN THIS AREA IN THE NUMBER OF VISITORS IN THE LAST THREE TO FIVE YEARS. WE HAVE SEEN IT GOING DOWN AND RIGHT NOW THE AREA IS HURTING. WE ARE ABOUT TWENTY PERCENT OFF COMPARED TO LAST YEAR AND THEY SAY LAST YEAR WAS REAL BAD.

SO I SAY WHAT WE ARE REALLY LOOKING AT IS SOMEBODY WHO WANTS SOMETHING FOR WISHFUL THINKING. IT IS NOT IN THE BEST INTEREST OF THIS COMMUNITY.

1.18 AS TO RETIREES' SYSTEMS, I AGREE A HOSPITAL IS NEEDED AND IN FACT I WANT TO SAY I

AGREE WITH MAYOR BOB GRISSOM VERY, VERY MUCH SO AND I ALSO AGREE WITH COUP DEVILLE THE TASK FORCE CHAIRMAN.

WE HAVE TO LOOK AT THIS SITUATION MUCH BETTER THAN WE HAVE EVER DONE IN THE PAST AND WE HAVE TO FIND OUT WHAT IS BEST FOR THE COMMUNITY.

THE AIRFIELD IS AN IMPORTANT PART OF THIS COMMUNITY. AND SO FAR -- AND ALL OF THE STUFF THAT WE HAVE HEARD IN THE DEALINGS WE HAVE HAD IN THE PAST, WE FIND THAT THEY CANNOT GIVE US AN ACTUAL JOB COUNT, A REAL JOB COUNT. THIS IS WHAT WE NEED IN THIS AREA. THIS IS THE MOST IMPORTANT THING THAT WE NEED IN THIS AREA BECAUSE WE HAVE SO MANY PEOPLE THAT ARE OUT OF WORK.

I THINK THIS COULD BE SOMETHING GOOD FOR THE COMMUNITY.

THANK YOU VERY MUCH.

*****

LIEUTENANT COLONEL EDWARD STARR

THANK YOU, SIR.

MR. W. A. ROBERTS, PLEASE.

*****

W. A. ROBERTS

801 66 AVENUE NORTH, NO. 3

MYRTLE BEACH, SOUTH CAROLINA 29572

THANK YOU, SIR. I AM W. A. ROBERTS. I LIVE AT 801 66 AVENUE NORTH, NO. 3 IN MYRTLE BEACH, SOUTH CAROLINA 29572.

1.19 THOSE ITEMS OF MAJOR CONCERN TO ME WERE ALREADY ADDRESSED.

*****

LIEUTENANT COLONEL EDWARD STARR

THANK YOU, SIR.

MR. ED EDELEN, PLEASE.

*****

ED EDELEN

P O BOX 2073

MYRTLE BEACH, SOUTH CAROLINA

THANK YOU, SIR.

1.20 I COME BEFORE YOU TO ASK YOU TO PLEASE CONSIDER THE HISTORIC SIGNIFICANCE OF OUR BELOVED AREA'S OWN BASE AND MOST SPECIFICALLY THE FALTA WHICH IS A LOCAL ACRONYM FOR THE FORWARD ACTION LIVE TRAINING AREA WHICH WAS A

TACTICAL AREA FOR DISPOSAL OF AIRCRAFT.

AS YOU PROBABLY KNOW THEY HID THEM OUT IN THE WOODS TO KEEP THEM WHERE WE COULD KEEP THEM FROM BEING BOMBED OR DESTROYED IN CASE OF AN ATTACK AND IT WAS ALSO USED FOR A LIVE TRAINING AREA FOR DEPLOYMENTS TO EUROPE.

THE NATIONAL DEPARTMENT OF HISTORY AND ARCHIVES HAS VISITED THE SITE ON NUMEROUS OCCASIONS IN ORDER TO DETERMINE ITS HISTORIC SIGNIFICANCE ALONG WITH THE TWO BOMB SITES THAT ARE THERE AND THEY HAVE PROPOSED IT FOR THE NATIONAL HISTORIC REGISTER WHICH WAS ALLUDED TO TONIGHT.

WE WOULD ASK YOU TO WEIGH HEAVILY ON THAT ESPECIALLY BECAUSE OF THE FACT IT IS THE ONLY REMAINING TACTICAL DISPOSAL AREA REMAINING IN THE UNITED STATES TODAY. YOU KNOW IT IS A ONE-OF-A-KIND.

THE SMITHSONIAN NATIONAL AIR AND SPACE MUSEUM CAME DOWN. THEY TOURED THE SITE AND THEY FELT ITS HISTORIC SIGNIFICANCE WAS AWESOME. THEY SAID THAT ONE-OF-A-KIND IS RARE IN PRESERVING ANYTHING IN HISTORY ESPECIALLY

SOMETHING IN THE PRISTINE CONDITION THAT OUR FALTA IS IN.

SOMETHING OF EQUAL IMPORTANCE THAT WE SHARE IS THAT WE HAVE THE RARE OPPORTUNITY TO PRESERVE THIS HISTORIC SITE AND USE IT TO FURTHER PROMOTE AVIATION AS IT HAS DONE FOR THE LAST FIFTY YEARS.

NOW THIS WOULD BE DONE THROUGH THE PROPOSAL THAT HAS BEEN RECOMMENDED BY THE TASK FORCE THROUGH AN AIR AND SPACE MUSEUM WHICH WOULD BE LOCATED ON THE FALTA. IT WOULD NOT DESTROY ANY OF IT. THE TAXI-WAYS, RUNWAYS AND SUCH WOULD REMAIN IN THE EXACT CONDITION THEY ARE IN NOW.

THEY WENT ON TO SAY THAT IT WAS OF SUCH SIGNIFICANCE THAT THEY WOULD KILL FOR SUCH A LOCATION. THEY SAID THAT NOWHERE IN THE WORLD HAVE THEY EVER SEEN A PLACE THAT THEY COULD BETTER DISPLAY AVIATION AND CARRY ON THE HERITAGE OF OUR MYRTLE BEACH AIR FORCE BASE AND THE HERITAGE OF ALL AVIATION IN SUCH A HISTORIC SETTING.

FOLLOWING THAT, THE PUBLIC INTEREST

IS GREAT. OUR DEPARTMENT OF RECREATION AND TOURISM HERE FOR THE STATE, DRT, CONDUCTED SURVEYS AND THEY FOUND THAT OF THE THINGS THAT TOURISTS LIKE THAT COME TO MYRTLE BEACH, NATURALLY THEY THOUGHT THE BEACH WAS NUMBER ONE. THAT GOES WITHOUT SAYING.

BUT NUMBER TWO, 32 PERCENT OF THE VISITORS SAID THAT THEY CAME HERE TO SEE SOMETHING OF HISTORIC SIGNIFICANCE, SOMETHING IN THE CATEGORY OF BROOKGREEN GARDENS OR MUSEUMS AND WE ARE LACKING IN THAT.

WE NEED TO PROVIDE THIS 32 PERCENT WITH SOMETHING TO SEE WHEN THEY COME HERE TO THE BEACH TO REMEMBER AND TAKE BACK HOME AND EACH ONE MIGHT TELL TEN MORE TO COME HERE. SO IT HAS A VERY STRONG ECONOMIC REASON THAT WE WOULD LIKE TO SEE PRESERVED.

THE THIRD MOST POPULAR ACTIVITY WAS GOLF AND WE ALL KNOW HOW MUCH PUBLICITY AND HOW MANY TOURISTS THAT BRINGS TO OUR AREA.

AND HERE IS SOMETHING THAT THE PEOPLE ARE TELLING US, THE TOURISTS ARE TELLING US THEY WANT AND THAT IT IS OF GREATER INTEREST THAN

GOLF ITSELF.

SO WE WOULD ASK YOU TO ALLOW FALTA TO SURVIVE AND BE ENJOYED BY THE MILLIONS OF PEOPLE THAT WOULD COME HERE AND DESIRE TO SEE THESE HISTORIC SITES.

IN SUMMARY I THINK THE SIGNIFICANCE OF THE RECOVERY DURING THE REDEVELOPMENT IS THAT IT WOULD PROVIDE APPROXIMATELY 316 JOBS. THESE ARE YEAR-ROUND JOBS. IT WILL ATTRACT APPROXIMATELY ONE MILLION AND HALF VISITORS. SO THIS NOT ONLY PRESERVES A VERY UNUSUAL CIRCUMSTANCE OF ONE OF A KIND BUT IT PROVIDES OUR COMMUNITY WITH JOBS AND PROVIDES A LOT OF ENTERTAINMENT FOR THE MILLION AND A HALF TOURISTS THAT THEN WILL SPEND MONEY THROUGHOUT OUR RESORT RELATED FACILITIES.

I WOULD SERIOUSLY THANK YOU FOR CONSIDERING THIS AND ANY ADDITIONAL INFORMATION YOU MIGHT LIKE ME TO GIVE YOU. THE DEPARTMENT OF HISTORY AND ARCHIVES HAS ASKED ME TO REFER YOU TO THEM. THEY WILL ASSIST IN ANY STUDIES THAT YOU MIGHT NEED.

*****

LIEUTENANT COLONEL EDWARD STARR

THANK YOU.

I DO NOT HAVE ANY MORE CARDS THAT INDICATE ANYONE WANTS TO SPEAK. BUT I WILL ASK YOU IF THERE IS ANYONE ELSE WHO HAS ANY QUESTION FOR THE PANEL?

(NO RESPONSE.)

LIEUTENANT COLONEL EDWARD STARR

OR DOES ANYONE ELSE WISH TO MAKE ANY FURTHER COMMENT?

(NO RESPONSE.)

LIEUTENANT COLONEL EDWARD STARR

APPARENTLY NOT.

THANK YOU FOR COMING TONIGHT. THANK YOU FOR YOUR COURTESTY.

THE MEETING WILL BE ADJOURNED.

*****

(MEETING ADJOURNED AT 9:00 P.M.)

C E R T I F I C A T E

I, SYLVIA ARROWWOOD, A CERTIFIED COURT REPORTER DO HEREBY CERTIFY THAT THE FOREGOING 75 PAGES ARE A TRUE AND ACCURATE TRANSCRIPTION OF THE PUBLIC MEETING HELD ON THURSDAY, NOVEMBER 12, 1992 AT THE MARTINIQUE HOTEL IN MYRTLE BEACH, SOUTH CAROLINA COMMENCING AT 7:00 P.M. AND ENDING AT 9:00 P.M.

SYLVIA ARROWWOOD-COURT REPORTER
HAYES/SCHMITT REPORTING
803-248-2231

DATED TUESDAY, NOVEMBER 17, 1992

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Centers for Disease Control
Atlanta GA 30333

December 1, 1992

Lt Col Gary Baumgartel
AFCEE/ESE
Brooks AFB, Texas 78235-5000

Dear Lt Col Baumgartel:

We have completed our review of the Draft Environmental Impact Statement (DEIS) for the Disposal and Reuse of Myrtle Beach Air Force Base (AFB), South Carolina. We are responding on behalf of the U.S. Public Health Service.

We have reviewed the DEIS for potential adverse impacts on human health, and we believe related issues have been addressed. Although the U.S. Environmental Protection Agency has not proposed Myrtle Beach AFB for listing on the National Priorities List (NPL), we note that there does exist a variety of contaminated sites requiring further attention. In addition to planned remediation plans, we encourage appropriate restrictions on future land uses, on a site specific level as discussed in the DEIS, to help ensure protection of public health. We concur that adequate implementation of the Management Action Plan should result in a consistent and thorough review of all potential hazardous substances sites on Myrtle Beach AFB.

2.1

Thank you for the opportunity to review and comment on this draft document. Please ensure that we are included on your mailing list to receive a copy of the Final EIS, and future DEIS's which may indicate potential public health impacts and are developed under the National Environmental Policy Act (NEPA).

Sincerely yours,

Kenneth W. Holt

Kenneth W. Holt, M.S.E.H.
Special Programs Group (F29)
National Center for Environmental Health

U.S. Department of Transportation
Federal Aviation Administration

800 Independence Ave., S.W.
Washington, D.C. 20591

DEC 3 1992

Lt. Col. Gary Baumgartel
AFCEE/ESE
Brooks AFB, TX. 78235-5000

Dear Colonel Baumgartel:

This office has reviewed the Draft Environmental Impact Statement (DEIS) for the Disposal and Reuse of Myrtle Beach Air Force Base, South Carolina. We have the following comment to provide:

3.1 On page 1-5, paragraph 3, in the sentence, "These items also satisfy the requirements of the FAA (5050.4A) for environmental impact documentation," FAA Order 1050.1D should be identified instead of Order 5050.4A since Order 1050.1D is the agency's environmental order.

Thank you for the opportunity to comment on this DEIS.

Sincerely,

for Louise E. Maillett
Director
Office of Environment and Energy

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

DEC 1 1992

Lieutenant Colonel Gary Baumgartel
AFCEE/ESE
Brooks AFB, TX 78235-5000

Subject: Draft Environmental Impact Statement (EIS) for the Disposal and Reuse of Myrtle Beach Air Force Base (MBAFB), South Carolina

Dear Lieutenant Colonel Baumgartel:

Pursuant to Section 309 of the Clean Air Act and Section 102 (2)(C) of the National Environmental Policy Act (NEPA), EPA, Region IV has reviewed the subject document which discusses the disposal and subsequent reuse potential(s) for MBAFB. A Socioeconomic Impact Analysis accompanied the EIS to provide an assessment of MBAFB's current socioeconomic characteristics together with its operational effects on the surrounding region. A comparison of alternative reuses with the post-closure condition for activities related to the site was also included. The latter scenario assumes the base remains solely in a caretaker status and is not redeveloped.

The EIS's major focus was the evaluation of the possible future uses of the property and the range of environmental consequences each option would engender. Furthermore, the immediate eventualities of ceasing Air Force operations were also examined to provide a basis of comparison. The long-term outcomes of this no-action alternative primarily revolve around the continued operation of the Myrtle Beach Jetport and Air Force oversight of the property, especially in terms of the contractors responsible for the management and disposition of hazardous materials and waste. In this instance the Air Force would ensure that hazardous substance practices are in compliance with pertinent regulations until the site is remediated. However, when the base or parts thereof are sold liability for future actions become the responsibility of the new owners.

The preferred plan for the future use of base was formulated by the Myrtle Beach AFB Redevelopment Task Force. Its plan envisioned expanding the existing aviation facilities and a number of initiatives to promote tourism. A destination resort, educational complex, air museum, golf course, and associated housing round out the plan. A second runway is anticipated after 2010 as traffic increases and the present

facility/associated infrastructure reach saturation. This aspect of the aviation upgrade along with related aircraft industries which will locate in the vicinity in response to increased airport operations are discussed in general terms. However, as the details of implementing these upgrades become known, supplemental NEPA documentation may well be needed.

A number of other alternatives to include the noted "no-action" possibility were developed to compare/contrast the impacts of reusing MBAFB real estate/facilities pursuant to the task force's proposal. While the no-action (caretaker status) alternative arguably has the least adverse impacts on most elements of the natural and human environment, its selection is contrary to pertinent federal laws/regulations as well as the project's objectives of stimulating economic growth in the region.

4.1

In general, the document provides a comprehensive insight into the consequences of the proposed reuse scenario together with the other notional choices. All options including the no-action choice will result in various types of problems over the life of the project. The specifics of these difficulties and their potential mitigation have been resonably described given the uncertain nature of all these proposals. For example, it is likely that traffic congestion will result on the existing road network in the vicinity of the suggested resort area.

Several major roadway improvements are planned to alleviate this congestion. Additionally, new roadways are under development, viz., Conway Bypass and the Carolina Bays Parkway, which should further improve the traffic situation. Of course, there is no guarantee that any/all of these projects will be funded and built and each one of these improvements comes with its own set of attendant consequences, good and bad.

Other examples of potential problems include short- and long-term hazardous and solid waste disposition, deposition of fill material in wetlands for non-water dependent purposes, land use and property value conflicts, and a whole spectrum of possible clashes resulting from the shift from primarily military to civilian airspace use. All of the range of eventualities were discussed with the caveat that the actual future of MBAFB will only be known after it occurs. At that point the Air Force will not be in a position of authority/responsibility to control these events other than those that remain its responsibility, e.g., hazardous waste sites resulting from previous Air Force activities.

On the basis of our review a rating of EC-2 was assigned. That is, we have a degree of environmental concern about the uncertainity associated with this proposal. We have no doubt that the Air Force intends to act in good faith in regard to its responsibilities both in terms of remediation of existing problems and setting up the framework to address future eventualities. However, given the fact that all the proposals are notional in nature, the precise environmental future of the site will only be truly known when it occurs from the array of potential choices. Since the time frame for all selections could be protracted, the additional information we seek may only be available after the record of decision for this initial action is finalized. Depending on the particular alternative and/or mix of options which ultimately eventuate, additional NEPA evaluation may be necessary by the federal agency having purview over these subsequent specific actions. 4.1

Thank you for the opportunity to comment. If we can be of future assistance, Dr. Gerald Miller (404-347-3776) will serve as initial point of contact.

Sincerely yours,

Heinz J. Mueller, Chief
Environmental Policy Act
Federal Activities Branch

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Affairs
Richard B. Russell Federal Building
75 Spring Street, S.W.
Atlanta, Georgia 30303

December 4, 1992

ER-92/958

Lieutenant Colonel Gary Baumgartel
Chief of Environmental Planning Division
AFCEE/ESE
Brooks Air Force Base, Texas 78235-5000

Dear Lieutenant Colonel Baumgartel:

This responds to the request for the Department of the Interior's comments on the Draft Environmental Impact Statement and the Socioeconomic Impact Analysis Study for the Disposal and Reuse of Myrtle Beach Air Force Base, Horry County, South Carolina.

COMMENTS ON PARK AND RECREATION RESOURCES

5.1

We are pleased that all the action alternatives consider use of the base for park and recreation purposes. It is difficult to determine from the alternatives exactly which areas will be used for these purposes. In this regard, the National Park Service has received two applications for portions of Myrtle Beach Air Force Base for public park and public recreation area purposes. These properties will make excellent additions to the park systems of the State of South Carolina and the city of Myrtle Beach. Due to excellent local cooperation, there is no overlap in the areas under application. We, therefore, are strongly supportive of these applications and an alternative which includes these areas. Based upon information recently submitted it appears that the Myrtle Beach Air Force Base possess outstanding potential for public park and recreation use. We have recommended that the highest and best use for certain portions of the base is for park and recreation purposes.

The South Carolina Department of Parks, Recreation and Tourism proposes to acquire approximately 117 acres for an addition to the adjacent Myrtle Beach State Park. This property was originally part of the State park prior to the reactivation of the base in the 1950's. The State proposes to utilize the existing campground to expand the State park camping facilities; to provide nature trails and environmental exhibits; and to utilize an existing structure as a park administrative/maintenance building.

The city of Myrtle Beach proposes to acquire approximately 664 acres in eight separate parcels. The city has developed a plan to continue the existing recreation uses such as golf, swimming, softball, soccer, etc., and to rehabilitate certain structures for parks department offices, equipment storage, and maintenance. In order to enhance the city's operation and delivery of recreation services, they propose to develop a tree farm/nursery to initiate an urban forestry program for the maintenance of parks and street right-of-ways. As there is no existing city-owned public boat ramp in Myrtle Beach, they have proposed to develop a ramp and docking facilities on the Intracoastal Waterway. In order to help offset the loss of revenue associated with the base closure, the city has proposed to develop a five-field softball complex suitable for tournament play. 5.1

The population of coastal South Carolina is growing significantly and development is burgeoning to support tourism, retirement, and related growth. Private development has escalated land costs which thus financially limit expansion possibilities for both the city and State park systems. The South Carolina Statewide Comprehensive Outdoor Recreation Plan shows high regional participation preferences for the activities proposed in these applications.

We recommend that the Final Environmental Impact Statement address the needs indicated by the city of Myrtle Beach. 5.2

COMMENTS ON FISH AND WILDLIFE RESOURCES

General Comments

All the action alternatives for reuse of the Myrtle Beach Air Force Base discuss the potential loss or alteration of approximately 1,296 acres of native, commercial forest lands, including approximately 167 acres of forested wetlands. This potential wetland impact acreage figure is substantial and is subject to review through the Section 404 Clean Water Act permitting process. This permitting process, and the role of involved resource agencies, should be clarified. 5.3

An effort should be made to identify biological resources, both wetland and upland habitat, that are significantly valuable relative to the remaining property. Such areas would represent particularly valuable fish and wildlife habitat, i.e., forested corridors, water quality filtration or recharge areas, flood buffer areas, diverse plant communities, or potentially protected species recovery areas, etc. These areas should be identified and discussed in final documents on this matter to ensure that areas to be avoided, restored and/or preserved and such actions would be incorporated as a subalternative to all proposed alternatives discussed in the document. 5.4

Specific Comments

Section 3.4.5.3 Endangered, Threatened and Special Concern Species, Table 3.4-20, pg. 3-137.

5.5 The protected species list has been updated since April 1992 when the information was first sought to be included in this study. Since then one plant species, Chaff-seed Schwalbea americana, was added to the endangered list (upgraded from proposed endangered status). Please contact the Charleston, South Carolina, Field Office of the U.S. Fish and Wildlife Service (Service) for an updated list.

Section 4.4.5 Biological Resources, Sensitive Habitats, Paragraph 4, pg. 4-185.

5.6 It is misleading to state that wetland fill between 1 and 10 acres is an activity covered by the existing authorization of a nationwide permit. Such permit requests are reviewed on a case-by-case basis by both Federal and State resource agencies, and are not necessarily automatically authorized following prior notification to the U.S. Army Corps of Engineers (Corps). In addition, notification to the Corps and the South Carolina Coastal Council (SCCC) is required, not recommended, for potential wetland impact projects involving fill of less than 1-acre in the coastal zone counties. Also, it should be stated that the SCCC must issue Coastal Zone Consistency Certification before wetland fill is authorized. Resource agencies such as the South Carolina Wildlife and Marine Resources Department, the Service, the National Marine Fisheries Service, and/or the South Carolina Department of Health and Environmental Control play a significant role in providing input to the permitting agencies concerning the potential adverse effects to fish and wildlife resources and water quality of proposed wetland alterations.

Section 4.4.5 Biological Resources, Mitigation Measures, Paragraph 7, pg. 4-185.

5.7 The mitigation process should be clarified in this section. A step-wise, sequential application of the elements of mitigation through avoidance, minimization, and finally, compensation for unavoidable impacts would be appropriate. Compensation for unavoidable impacts may include preservation or enhancement of existing valuable wetland resources, restoration of previously impacted wetland resources, or creation of wetland habitat at a ratio acceptable to the resource agencies.

4

SUMMARY COMMENTS

The documents need to specifically address how each alternative, particularly the preferred alternative, addresses State of South Carolina and the city of Myrtle Beach requests for use of the base for park and recreation purposes.

The documents discuss the potential loss or alteration of a significant amount of forested upland and wetland resources. The permitting process and mitigation relative to wetland impacts should be discussed in more detail. An effort should be made to identify specific sensitive areas of ecological significance that should be conserved and/or restored as part of any preferred alternative. Finally, the updated document should include the most recent protected species list and analysis.

We appreciate the opportunity to provide these comments.

Sincerely,

James H. Lee

James H. Lee
Regional Environmental Officer



December 2, 1992

Lt. Col. Gary Baumgartel
AFCEE/ESE
Brooks AFB, TX 78235-5000

SOUTH CAROLINA COASTAL COUNCIL

Ashley Corporate Center
4130 Faber Place
Suite 300
Charleston, S.C. 29405
(803) 744-5838
FAX 744-5847

William W. Jones, Jr.
Chairman

H. Wayne Beam, Ph.D.
Executive Director

RE: Draft EIS for
Disposal/Reuse of Myrtle
Beach Air Force Base

Dear Lt. Col. Baumgartel:

6.1

The staff of the S. C. Coastal Council has reviewed the above referenced Draft Environmental Impact Study (DEIS) and has the following comments. While the SCCC supports the responsible reuse of the MB Air Force Base, there will be significant environmental concerns during any reconstruction in the area. Any freshwater wetlands impacts should be minimized and are permitted for commercial/residential development only when no feasible alternatives exist or an overriding public interest can be demonstrated. The Coastal Council with the Corps of Engineers and other involved agencies will review any wetland impacts to determine consistency with the S. C. Coastal Zone Management Program (CZMP). Storm water management planning will also be analyzed to determine compliance with the CZMP and/or the S. C. Storm Water Management and Sediment Reduction Act. Impacts on archaeological and historical sites will reviewed for consistency as well.

The S. C. Coastal Council looks forward to coordinating with the Department of the Air Force and other involved parties in assuring timely and reasonable resolution of any environmental concerns related to this project. Thank you for the oppurtunity to comment on this draft EIS and if you have any questions or comments please do not hesitate to call Joe Fersner, staff engineer, at (803) 744-5838.

Sincerely,

H. Stephen Snyder
Director of Planning
and Certification

0217f:JJF

cc: Dr. H. Wayne Beam
Mr. Christopher L. Brooks
Mr. Joseph Fersner, P.E.

South Carolina Department of Archives and History

1430 Senate Street, P.O. Box 11,669, Columbia, South Carolina 29211 (803) 734-8577
State Records (803) 734-7914; Local Records (803) 734-7917

December 7, 1992

Lt. Col. Gary Baumgartel
AFCEE/ESE
8106 Chenault Road
Brooks AFB, TX 78235-5000

Re: Myrtle Beach AFB Closure
Draft Environmental Impact Statement (DEIS)
Myrtle Beach, Horry County
EIS-921011-013
EIS-921011-014

Dear Lt. Col. Baumgartel:

Mr. Gary D. Vest, Deputy Assistant Secretary of the Air Force has provided a copy of the Draft Environmental Impact Statement (DEIS) for the closure of Myrtle Beach AFB to this office for comment. Mr. John Zemp of the SC State Clearinghouse has provided additional information. Myrtle Beach AFB was recommended for closure by the 1991 Defense Base Closure and Realignment Commission.

We have reviewed Section 3.4.6 of the DEIS and have the following comments:

Section 3.4.6.1 Prehistoric Resources

We do not concur with the findings in this section and with Table 3.4-21, Myrtle Beach AFB Archaeological Sites. Section 3.4.6.1 states that Site 38HR114 is potentially eligible for the NRHP (National Register of Historic Places) and Table 3.4-21 states that NRHP eligibility of the site is undetermined. Site 38HR114 was determined eligible for the NRHP by the State Historic Preservation Office in 1980. 7.1

Section 3.4.6.2 Historic Structures and Resources

We concur with the historic overview entitled "Pre-Base and Base History." We note that the DEIS states in this section "Evaluations and determinations of eligibility for the NRHP for the two Norden Bomb Sight Vaults and the FOLTA are currently under consideration by the Air Force and the SHPO." We are not aware of any ongoing determinations of eligibility regarding these structures. The two Norden Bomb Site Vaults (Buildings 430 and 431), the World War II Aircraft Parking and Cantonment Area (FOLTA), and the CCC Shed (Building 172) were all determined eligible for the National Register of Historic Places by the State Historic Preservation Office in 1980. We do concur that the Butler Hanger (Building 472) is not eligible for the NREP. 7.2

We further note that Table 3.4-22 (Pre-1945 Structures and Facilities) states in the comments section that the NHRP eligibility of Buildings 172, 430, and 431 is undetermined. As stated above, these structures were determined eligible in 1980.

Please refer to our letter of November 18, 1991, to Lt. Col. Tom Bartol, USAF, regarding eligibility of these structures.

7.3

Section 4.4.6.3 Traditional Resources

7.4

We do not feel that we are able to comment on this section without a better understanding of what is meant by "region" in this context. The section also states "Further consultation has been initiated with the South Carolina Department of Archives and History to confirm this assessment." We are not aware that such consultation has been initiated.

We understand that the Air Force proposes to enter into a Memorandum of Agreement (MOA) with the South Carolina State Historic Preservation Office and the Advisory Council on Historic Preservation for the treatment of cultural resources. We look forward to working with the Air Force and the Advisory Council on this MOA.

If you have any questions, or if we can be of further assistance, please call either Ms. Nancy Brock, Review and Compliance Branch Supervisor, or Mr. Ian Hill, Intergovernmental Review Coordinator, at 803/734-8609.

Sincerely,

Mary Watson Edmonds

Mary Watson Edmonds
Deputy Historic Preservation Officer

cc: Mr. Ralston Cox
Advisory Council on Historic Preservation

Mr. Ed Edelin
Myrtle Beach Air & Space Museum

Mr. Doug McKay
Governors Office

Mr. John Zemp
SC State Clearinghouse

On behalf of the City of Myrtle Beach I would like to thank you for being here this evening and allowing the public to comment on the Draft Environmental Impact Statement. The City will provide a written proposal before the December 7, 1992 deadline, but briefly, let me address a few points:

USAF desire for community rebound from base closure is evident, and we appreciate that. Several areas of discussion exist between DEIS and EDAW proposal sponsored by the Task Force. In the DEIS proposed plan a new runway is planned for 2002, based on LPA's study of operations and capacity at MBAFB. FAA & SCAC do not agree totally with LPA forecast, therefore several other alternatives of increasing capacity for general aviation need to be considered.

In the DEIS expanded Airfield/Resort Recreational & Expanded Airfield/Resort-Commercial Alternative, the timeframe for a new runway is 2010. If there is a need for an expanded airfield these alternatives support the concept of good interim land use and adopting a "wait & see" attitude. Changing technology in location of parallel runways and potential location of a VFR runway within existing airfield areas needs to be considered.

While the City is waiting for a review of the Citizens Report on Aviation and has no official position on it at this time, it nonetheless should be considered by the USAF, along with recent comments by SCAC, FAA and potential technology advances. Existing Airfield/Mixed Use Alternative best addresses the problems of closure. Allowing for sufficient airfield support and some additional land for aviation related industry is in the best interest of the community. Redevelopment can occur in stages but will allow the

City to plan for and fund infrastructure needs. While this plan best addresses community needs, several aviation needs should be addressed. The location of an open space/recreation corridor in the last EDAW plan should be included. Also, the proposed VFR in close runway should be considered and shown. Including an additional 200-300 acres to the airfield (military apron, hangers, tower area and armament area) would provide an income area to airfield and allow future runway expansion area based on new technology. (Similar to #2 of Interim Land Use by EDAW) this scenario has three runway alternatives.

Other points to consider:

1. All alternatives create an expanded use different and more intense than uses by USAF. While this is necessary to stimulate the economy, it will create a need for City provided infrastructure. Our ability to provide should be balanced by the City's ability to raise funds on the site.
2. Any development that occurs must be sensitive to our tourism base and the natural environment that exists on and around the base today. A decrease in noise levels for instance, should continue long term.
3. Any development west of airfield creates new drainage into a basin that drains into the Intracoastal Waterway. This is the source of the City's drinking water so particular attention needs to be paid to storm water management.
4. All the alternatives show the highways around the base at an "EF" status in 1998. Any development must allow the

community to plan for other transportation methods or solutions. Good recovery cannot occur unless we are able to move occupants from the base area without unusual delay. The suggestion by the DEIS that the Carolina Bays Highway and Conway By-Pass will help traffic is simply not true. Major interchange construction at By-Pass 17 and improvement of access on Business 17 must be planned.

5. The City's request for land from the Department of Interior should be considered. The community has a shortfall of green space as a whole. The attempt to allow FAA to get control of land, giving it to the County and requiring the County to lease it to the City for recreation is burdensome. The future aviation requirements quite possibly will not include this land, and if it is needed, the mechanism exists for transfer. This request for recreation land should be a strong one.
6. Finally, this is the City's last chance to comment publicly to the USAF about what is best for 4,000 acres within our City limits. If we want to encourage job creation and controlled redevelopment, it is time to let the public and the USAF understand that we stand behind our Air Base Redevelopment Commission and the recommended changes to the DEIS and EDAW draft. Your report states that "Redevelopment could result in zoning and land use conflicts and could require rezoning of property." This is most definitely the case. Despite all of the discussion by the Air Force, FAA, the County, the City, through the

Redevelopment Commission, the Planning and Zoning Commission and ultimately City Council must be convinced that the use or uses are in the best interest of the City. We hope that our input through the process will be taken seriously in order to avoid land use and zoning problems in the future.

Written Comment Sheet

Draft Environmental Impact Statement
Disposal and Reuse of Myrtle Beach AFB, South Carolina

Thank you for attending this hearing. Our purpose for hosting this hearing is to summarize for you the environmental consequences of the disposal and reuse of Myrtle Beach AFB, and afford you an opportunity to bring to our attention environmental issues that you feel have not been adequately analyzed in the Draft Environmental Impact Statement.

Date: 12/3/92

SEE ATTACHED

Name: Citizens' Committee

Address: c/o Ed Shaw, 5701 Country Club Drive, MBSC 29577
Street Address City/State Zip Code

Please hand this form in or mail to:

AFCEE/ESE
Attn: Lt Col Gary Baumgartel
8106 Chennault Road
Brooks AFB, TX 78235-5318

CITIZENS' COMMITTEE

John Maxwell
City Council

Response to DEIS

Careful review of aviation needs in Myrtle Beach prompted our committee to object to the plan for an additional runway at the Myrtle Beach Jetport. Recent FAA forecasts of air operations are speculative, with a 113% variance. New technology that allows reduction of minimum centerline separation of parallel runways and the resultant factor of less land use must be studied for any future planning.

The DEIS offers five reuse plans. Since three of the five recommend construction of a parallel runway at 4800' separation, we do not support these alternatives. In addition to the objections listed in paragraph 1, the fact that the FAA plans a major air carrier runway versus a general aviation runway causes more concerns. The building of either a 7500' or an 10,500' IFR runway on the land that is now the Air Force community is unacceptable to the citizens of Myrtle Beach. To replace the USAF base and the quality of life on the area outside the airfield with a plan that would create unacceptable levels of air and noise pollution, destroy the community atmosphere of the existing base and strain the infrastructure of the City is not an acceptable recovery plan. Restoration of the economy and employment replacement are goals we all strive for. Those goals will require the City to provide the accompanying infrastructure necessary for redevelopment. This will require expenditures by the community of funds not now available. While the aforementioned goals are a priority, the community has other existing standards that are as important. Maintaining the quality of life that is necessary to sustain our viable tourist economy, providing a mixture of revenue-producing development balanced with open or recreational space, and providing for orderly build-up of infrastructure to replace that which the Air Force now has in place, are necessities just as important to the community as the economic goals.

9.1

Our Citizens' Committee can endorse only the Existing Airfield/Mixed Use alternative. This plan will address all aspects of recovery after closure. We will briefly discuss the aspects as they relate to the DEIS. First we ask this question:

What are the aviation needs of the community?

Air carrier operations at the Myrtle Beach Jetport have never reached 50% of the 46 flights per day allotted by joint use. Projected operations of air carrier by LPA show no need for increased capacity (36,500 operations 2012). General aviation is not a factor. Three GA runways are operated within a twenty-five mile radius of Myrtle Beach - none are at capacity and two have expansion land available. If, in fact, the FAA intends to create

an east coast "gateway" at Myrtle Beach, other criteria must then be studied. No longer are we considering a "downtown" airport convenient to tourists, but now we would be accepting a development that "flies in the face" of airfield development. The sole reason the FAA/County give for planning is "the land is free." No consideration of the land side impact from an environmental standpoint is discussed by the FAA report to Congress or the reuse plans touted by the County. This land side impact would be increased dramatically by the construction of an additional major runway within the city limits.

The consequences of an airfield of the proportions envisioned by LPA and FAA would destroy the quality environment that exists today on the base and in the community. The DEIS addressed several factors that influenced our recommendation of Existing Airfield/Mixed Use Alternative.

1. The existing base is a city within a city. An aesthetically clean community providing non-industrial employment to over 4000 persons. Maintaining that atmosphere during redevelopment is a must. We must not allow a lowering of standards. Proper planning must be long-range and detailed to preserve what standards exist there today. 9.2

2. Any development must be compatible to the existing land use, striving to maintain the balance between development and open space that currently exists. Also, any redevelopment must be reviewed to assess its long-range impact as it relates to the environment.

3. Noise levels have shown a significant decrease with the departure of the military aircraft. This is compatible with our tourist economy and the forest lands of Myrtle Beach State Park. 9.3

4. Traffic. All five plans of the DEIS show the existing highway system at an E & F status most of the year. The system has no room for expansion to meet the existing needs. Highway improvement mentioned in the DEIS are remote geographically or are insignificant in time-frame analysis. No significant highway improvements are planned on any corridor directly adjacent to the Jetport. The resulting increase of automobile traffic and its pollution must weigh heavily on any development, not to mention an airport that generates multiple land vehicle use from a single air vehicle (737 = 148 passengers = 60+ autos). 9.4

5. Surface pollution is at an acceptable level today on the base. Any development west of the existing airfield will create drainage into the intracoastal waterway, a recreational waterway that also provides potable water to the City of Myrtle Beach. The need for controlled development is paramount. 9.5

2

The existing Airfield/Mixed Use Alternative concept addresses all these concerns. Providing continued air service, with accompanying capacity, and allowing mixed use development to occur in a fashion that will ensure that future redevelopment is as good for the community as the Air Force is today. Only by preserving the quality of the base can we significantly enhance our chances of a successful recovery.

Any future aviation needs must be rationally assessed. In a county with a current population of 144,000 and an estimated population of 226,000 residents predicted in twenty years (2010) and a tourist economy that deplanes less than five percent of its tourists, the aviation needs can be handled by the existing system. Any major expansion must follow the normal airport development guidelines. An area should be located away from built-out areas that are noise-compatible and easily accessed by the majority of the area's residents. In the time frame of twenty years reasoned by LPA, the highway system of I-20 (Conway bypass), existing Rt. 9 and the proposed Carolina Bays Parkway will be in place to provide quick access to an airport built in that triangle. That scenario would provide room for airfield growth, rapid transportation to North Carolina and South Carolina beaches and access to major national highways (I-95 and I-20). Following this scenario would mesh well with Alternative #4.

9.6 The USAF should conduct an EIS on the proposed FAA "east coast gateway" to determine the impact of a major runway addition to our downtown airport. This EIS would allow the community to properly assess the FAA and LPA plans which have been shadowed in presentations to the community. Also, a socioeconomic study of employment-generation using the Existing Airfield/Mixed Use Alternative overlaid on the EDAW, Inc.'s Community Redevelopment Plan - Interim Land Use would allow a better perspective when analyzing economic benefits.

We offer these comments in reply to the DEIS, also, we will make any statistical information we have garnered from our independent sources available. We recognize that we are not contracted, paid consultants, but our construction/engineering, FAA and civic experience were used in our statements. Also, any statistical data is derived from existing federal or state sources.

We appreciate the concerns that the USAF have shown regarding our recovery after closure. This community has accepted the challenge to adjust to closure and we realize how important your assistance has been. Ultimately, the City of Myrtle Beach must be part of the decision process and must take a priority over remote entities plans to use land within our city limits. It is the City's responsibility to protect the environment which exists today at the base. With your continued support we will attain our goals.

3

CITY OF MYRTLE BEACH CITIZENS' GROUP

Comments on Draft Environmental Impact Statement
Disposal and Reuse of Myrtle Beach AFB, SC

Our group can only support the Existing Airfield/Mixed Use Alternative - P2-28. We are opposed to the Proposed Action P2-5, Expanded Airfield/Resort Alternative P2-14; Expanded Airfield/Resort-Commercial-Industrial Alternative P2-21; and the No-Action Alternative P2-36. The inclusion in these plans of a second runway is our primary objection. 9.1

The F.A.A. has recently made it very clear that their East Coast Master Plan designates Myrtle Beach as the mid-Atlantic International Gateway Airport. Page V-12, Table 5-3 clearly designates their runway requirement under LPA Summary of General Aviation Area Facility Requirements Myrtle Beach Jetport Master Plan. This 10,000' x 150' with dual parallel high speed exits and ILS on both runways by no stretch of the imagination is a General Aviation Runway. It is for Boeing 747, Lockheed L1011, and McDonnell-Douglas MD11 types of International aircraft. This is the situation you should have addressed in your draft EIS rather than the 5400' X 100' GA runway concept.

The 10,000' X 150' additional runway proposed by the F.A.A. as an airport addition will result in a potential A.S.V. (Annual Service Volume) of 350,000 operations - ref. F.A.A.A.C. 150/5060-5 of 9/23/83, Chapter 2, Paragraph 2-1, diagram 4. L.P.A. claims GA will utilize 107,898 operations of this capacity - ref. L.P.A. Myrtle Beach Jetport Master Plan and Base Re-utilization Study - Interim Report, March 1992 - Chapter IV, P. 18, Table 4-9 - Projections of Aircraft Activity. This will leave 242,102 operations or 121,051 flights available for air carrier aircraft (airlines). Currently, each flight deplanes 40 passengers at Myrtle Beach. If this figure remains constant there will be a potential of deplaning approximately 5,000,000 passengers with the advent of this new runway. L.P.A. only forecasts 682,000 in year 2007 - ref. L.P.A. Interim Report, March 1992, Chapter IV, P. 24, Table 4-14 - Consolidated Forecasts of Jetport Aviation Activity.

We now will be confronted with an increase from 14,000 operations per year (1992) to over 121,000 operations. The current 300,000 passengers arriving in Myrtle Beach annually can grow to approximately 5,000,000. Two hundred five vehicles currently afford these passengers daily ground transportation. This will explode into over 3M vehicles per day. The traffic jams will be beyond comprehension as the existing Business 17 highway tries to accommodate those vehicles not departing the Jetport by Bypass Hwy. 17 - via two traffic lights. There is no contemplated highway construction which will in any way ease this problem. Why not afford us an E.I.S. dealing with all the additional noise, air pollution and traffic congestion this Comments - Citizens' Group

Page 2

massive increase in flights and passenger activity will create? An airport with such activity cannot be tolerated by the community as a downtown airport. It belongs out in the County close to the intersection of the proposed I-20 extension and the also proposed Carolina Bays Parkway. Here you will have road systems servicing the airport as well as being remote from the beach congestion of the growing towns close in to the Jetport.

9.6 Regarding the Socioeconomic Impact Analysis Study, October 1992, we would like to see the job generation figures for the Existing Airfield Mixed Use Alternative utilizing EDAW, Inc. Community Redevelopment Plan - #1 Interim Land Use Plan.

ref:12/1/92

Written Comment Sheet

Draft Environmental Impact Statement
Disposal and Reuse of Myrtle Beach AFB, South Carolina

Thank you for attending this hearing. Our purpose for hosting this hearing is to summarize for you the environmental consequences of the disposal and reuse of Myrtle Beach AFB, and afford you an opportunity to bring to our attention environmental issues that you feel have not been adequately analyzed in the Draft Environmental Impact Statement.

Date: 11/12/92

Enclosed herewith is a letter to Col Baumgartel

Name: Robert L Bellamy Jr.

Address: 3741 RICE HOPE DR MYRTLE BEACH, S.C. 29577
Street Address City/State Zip Code

Please hand this form in or mail to:

AFCEE/ESE
Attn: Lt Col Gary Baumgartel
8106 Chennault Road
Brooks AFB, TX 78235-5318

RLB
ROBERT L. BELLAMY & ASSOCIATES, INC.
CONSULTING ENGINEERS, PLANNERS, & SURVEYORS
4706 OLEANDER DR. MYRTLE BEACH, S.C. 29577 TEL. (803) 449-9453 FAX (803) 449-8359

November 11, 1992

Lt. Col. Gary Baumgartel
AFCEE/ESE
Brooks AFB, Texas 78235-5000

Re: Comments to the draft Environmental Impact Statement (EIS) for the disposal and reuse of
Myrtle Beach Air Force Base, South Carolina

Dear Col. Baumgartel:

In 1991 at a public hearing at the Myrtle Beach High School, I proposed a flood relief canal to direct flood waters of the Waccamaw River to the Atlantic Ocean. It involved a canal around the south and southwest side of the air base property. It was planned so that there would be no interference with the normal hydrological characteristics of the waterway or the ecological environment of aquatic life. In short, I did not think anyone could object because of the way it was planned. Any comment a naysayer might have was taken into account.

When the draft of the EIS concerning the disposal and reuse of the MBAFB was introduced recently, I was surprised by what was asserted on pages 2-40 under "Alternatives Eliminated from Further Consideration". What was asserted was that the floodway was eliminated after consultation with the U.S. Army Corps of Engineers because of hydraulic and salt water concerns in the intracoastal waterway and concern for protection of marine species in the Atlantic Ocean.

Just recently a response was received from Lt. Col. Mark E. Vincent, Dist. Engineer of the Corps of Engineers approving a study resolution to look into the merits of this floodway canal. This means that money will be later appropriated, and the plan is feasible in theory enough to be studied.

This is the culmination of a request by Horry County Council, Mayor Robert M. Grissom, Robert L. Bellamy, Jr., Engineer, and the Honorable Arthur Ravanel. It seems that this casual EIS assertion has pulled the rug from under everyone.

Discussion with Mr. Braxton Kyser and Mr. Richard Jackson, Charleston Corps of Engineers, who oversee this type of study in this area are at a loss of words saying no one has talked to them, and the study that will be funded by the resolution would generate comments as to the viability of this project.

I would like to see the consultation correspondence made available to myself and Congressman Ravanel as to why this alternative was eliminated. I would respectfully request that this proposal be re-evaluated using the proper information and people who would be in charge of the study to decide if it should be eliminated from further consideration.

Lastly, since the resolution by the committee on public works and transportation of the United States House of Representatives requested that the Secretary of the Army review the 1927 study on the Waccamaw River in its relation to this proposed flood relief canal be performed, then there is no alternative but to consider this a viable alternative until it is proven otherwise.

A copy of the floodway proposal is enclosed as it was written to our Honorable Senator Strom Thurmond.

Sincerely yours,

Robert L. Bellamy, Jr., PE/RLS

RLBjr/om

Enclosures

ROBERT L. BELLAMY & ASSOCIATES, INC.
CONSULTING ENGINEERS, PLANNERS, & SURVEYORS

4706 OLEANDER DR. MYRTLE BEACH, S.C. 29577 TEL. (803) 449-9453 FAX (803) 449-8359

July 10, 1992

The Honorable Senator Strom Thurmond
217 Russell Senate Office Building
Washington, D. C. 20510

Dear Senator Thurmond:

Please consider the following:

PROPOSED FLOOD RELIEF CANAL RIGHT OF WAY

PURPOSE: Horry County has experienced in the past flood conditions that cause great damage to property, farm land, and land values. Floods caused by primarily, tropical depressions and snow fall in the Waccamaw tributary basin have backed up water into North Carolina. The undulating river and its associated heavy swamp growth naturally restrict water flow from the upper elevations down ~~to~~ the sea, the lowest elevation.

The ability to use land in the vicinity of any low lying area, (Waccamaw River, Socastee swamp basin, etc.) is controlled by imposed flood way restrictions and elevations. In these areas, no construction is allowed if the proposed construction would cause the flood waters to raise the flood level a perceptible amount.

In the past years, the U.S. Army Corps of Engineers has studied a flood relief "outlet to the sea" through the Murrells Inlet area. Presently all flood waters from the Black, Pee Dee, Bull Creek, and Waccamaw Rivers have to flow to the sea through the Georgetown or Little River Inlet. There are only two outlets for so much water.

SOLUTION: To reduce flood damage, flood restrictions, flood insurance cost to the affected areas, and create more useable property, a strip of land 300 feet wide should be set aside on the South and West sides of the now existing Myrtle Beach Air Force Base. In the future a canal will be constructed that would connect the Intracoastal Waterway with the Atlantic Ocean. This connection will allow flood waters to recede at a greater rate than they now do, thereby, lessening the height and duration of flooding.

WHAT IT WILL TAKE TO DO IT:

1. Money - U.S. Corps of Engineer, (Mr. Braxton Kyser) has stated that the funding for a study could be requested by a Senator and in concert with the county delegation in one fiscal year. That is to say a request for funding and the appropriation of funds could be generally concurrent. Basically the old study of the Murrells Inlet "cut through" could be revived and reconfigured to consider the Myrtle Beach Air Force Base as a flood relief outlet.

   Pending the outcome of the study, the design of such a canal and associated infrastructure would be funded in various ways - navigation - 50% federal, 50% local; Flood control - 75% federal, 25% local. There may be other sources of funding. The construction cost would be funded by the Federal Government when it is available. Since Georgetown County and Horry County will benefit to some extent from this project, there could be a sharing of any expenses.

2. Land - The U.S. Government would set aside at no cost this strip of land around the southern perimeter of the Air Force Base. To make the actual connection, the canal would enter the Air Force Base property on the East side of Harbor Town Subdivision property line on the property of Burroughs and Chapin Company. The canal would exit the Air Force Base property on the southern boundary of Myrtle Beach State Park (State of South Carolina property). There would be a small jetty extending into the ocean for a distance. The sides of the jetty would have ample access for public use - fishing, sightseeing, etc. There are only three property owners involved in the complete project - one (1) state, one (1) federal, and one (1) private.

3. Bridges - There would be two (2) bridges. For a boat mast height of 40' above high tide, the bridge height at U.S. Highway 17 Business would only be about 20' high because of the ground elevation of about 23 MSL. The bridge height on U.S. Highway 17 Bypass would be only 25 feet high because of ground height of 18 feet MSL (Mean Sea Level Datum = 0).

SAFEGUARDS:

Myrtle Beach Water Treatment Plant - The canal would have locks installed at a point where the ground is high. This would prevent a hurricane storm surge from flooding into the Intracoastal Waterway and interfering with the water production of the Grand Strand area.

The locks would normally remain closed, thereby, the normal water flow in the Intracoastal Waterway would remain unchanged. The null point that divides the Waterway flow pattern would be unaffected. That is to say that the treated effluent from the Myrtle Beach and Grand Strand Sewer Treatment Plants would still flow to Georgetown Harbor from the Wacca Wache area where it originates.

Since the Waterway water elevation and the Atlantic Ocean elevation are generally opposite in the Myrtle Beach area (when it is low tide in the Waterway, it is high tide at the beach), then the tides pass each other four times a day. In the canal where the lock would be, the water level would be the same elevation on each side of the lock every six hours. At that time, the locks could be opened, and no water would flow in either direction for a while. Any boat traffic could pass - coming or going at that time. When the time passes and the imbalance of the tides cause the water to flow, the lock would be closed thereby causing the flow of water in the Waterway to be unaffected. This would also render the Little River inlet area unaffected.

In times of flooding, the locks could be left open and allow the flood waters to exit to the Atlantic Ocean. This is the primary purpose of the canal, and the locks prevent any adverse effect to the normal ecological conditions in the Intracoastal Waterway.

EXTRA BENEFITS: Since it is expected that flood ways could be reduced in size and number throughout the county, more property would be available for development. Property owners could have a basin or docks that would have reasonable ocean access. The ultimate land use of the Myrtle Beach Air Force Base could incorporate the ocean access into its planning. The fact that it is located on the edge of the Air Force Base property causes little or no impact on any land use considered therein.

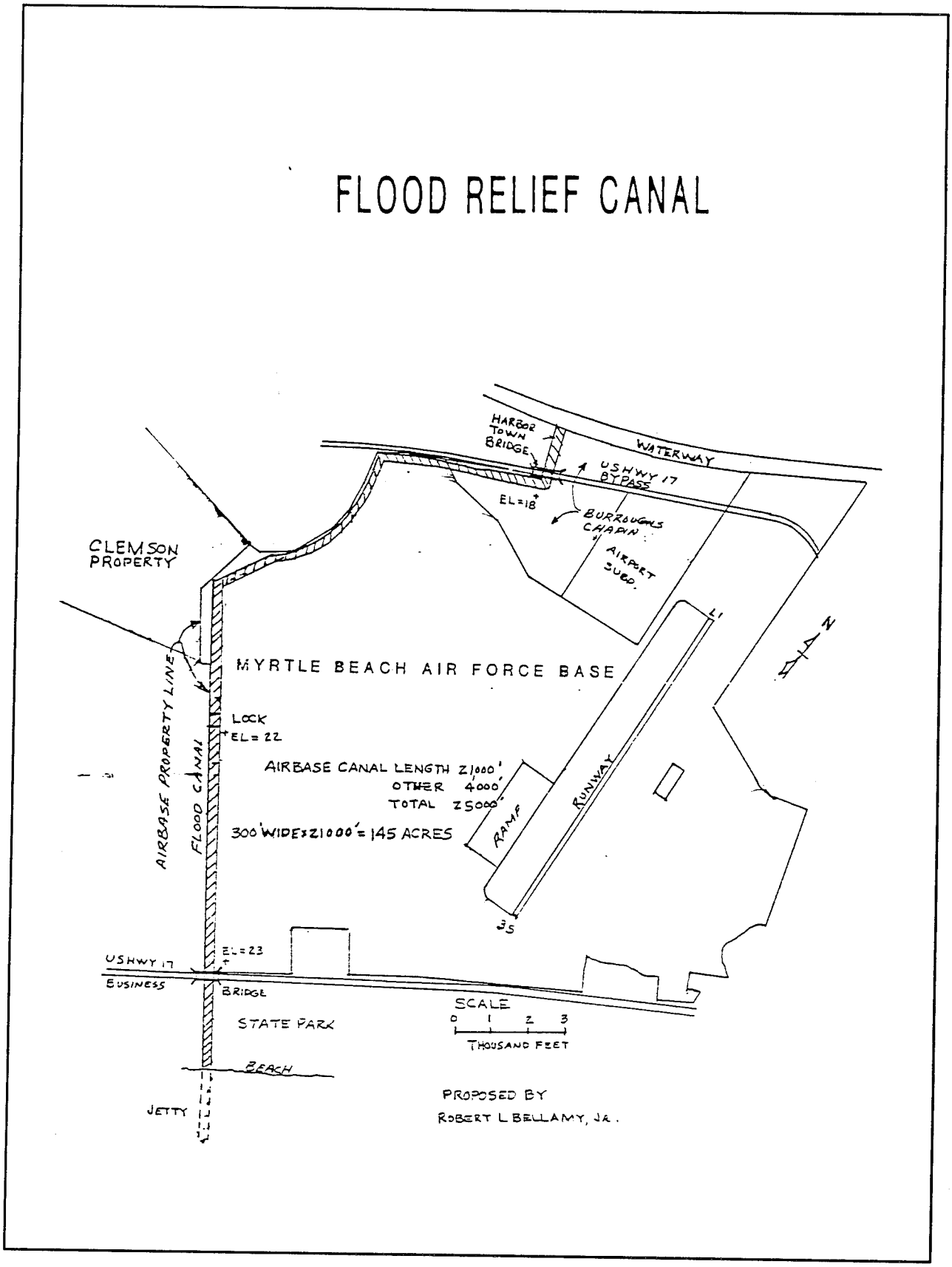
CONCLUSION: The strip of land (21,000 feet long - 145 acres) must be set aside at this time for its eventual use later. Everyone in the county benefits from this project, and it does not favor any special group. The construction of this flood relief canal will generate jobs through associated use, and the far reaching net effect on Horry County would not be equalled by any other use of just 145 acres. This opportunity must be exercised now.

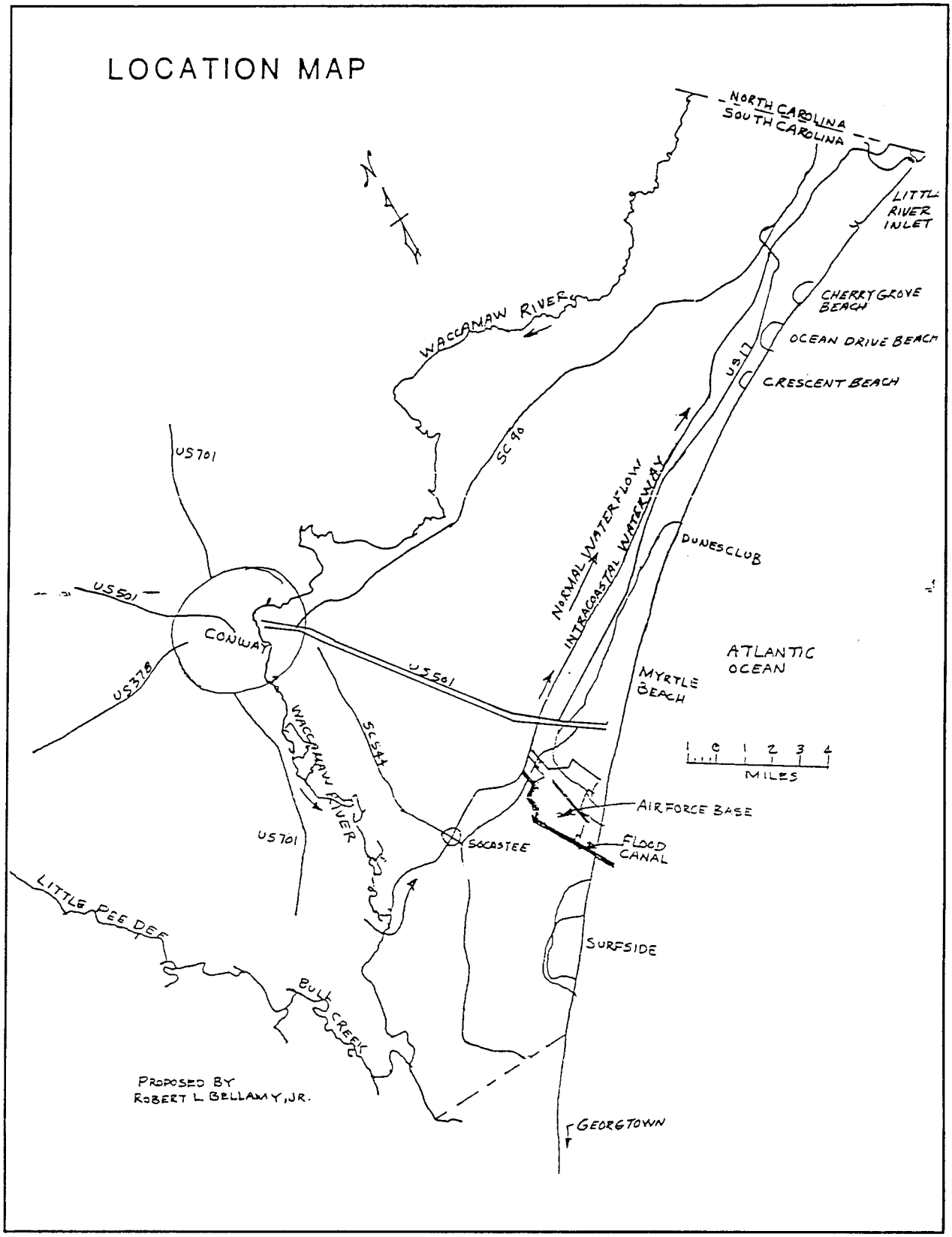
What is needed now is your action to request a study of this project so that the redevelopment task force will give credibility to the project. Hopefully the task force will propose in a final draft report the land for this canal.

Respectfully Submitted,

Robert L. Bellamy, Jr., PE/RLS

RLBjr/om


FLOOD RELIEF CANAL
HARBOR TOWN BRIDGE
WATERWAY
USHWY 17 BYPASS
EL=18
BURROUGHS CHAPIN
AIRPORT SUBD.
CLEMSON PROPERTY
MYRTLE BEACH AIR FORCE BASE
AIRBASE PROPERTY LINE
FLOOD CANAL
LOCK
EL=22
AIRBASE CANAL LENGTH 21000'
OTHER 4000'
TOTAL 25000'
300'WIDE×21000'=145 ACRES
RAMP
RUNWAY
L1
N
35
USHWY 17
BUSINESS
EL=23
BRIDGE
STATE PARK
BEACH
JETTY
SCALE
0 1 2 3
THOUSAND FEET
PROPOSED BY
ROBERT L BELLAMY, JR.


LOCATION MAP
NORTH CAROLINA
SOUTH CAROLINA
LITTLE RIVER INLET
CHERRY GROVE BEACH
OCEAN DRIVE BEACH
CRESCENT BEACH
US 17
WACCAMAW RIVER
SC 90
US 701
NORMAL WATER FLOW
INTRACOASTAL WATERWAY
DUNES CLUB
US 501
CONWAY
US 378
ATLANTIC OCEAN
MYRTLE BEACH
SC 544
0 1 2 3 4
MILES
AIR FORCE BASE
FLOOD CANAL
SOCASTEE
US 701
LITTLE PEE DEE
SURFSIDE
BULL CREEK
PROPOSED BY
ROBERT L BELLAMY, JR.
GEORGTOWN

CITY OF MYRTLE BEACH
CITY HALL
MYRTLE BEACH, SOUTH CAROLINA 29577

OFFICE OF THE
MAYOR

803-626-7645

August 18, 1992

Honorable Arthur Ravenel, Jr.
Member, U. S. House of Representatives
508 Cannon House Office building
Washington, DC 20515

Re: Proposed Horry County Flood Relief Canal

Dear Mr. Ravenel:

I know your schedule is busy and therefore, I will be brief. In an effort to obtain a flood way canal for Horry County, it is felt that a U.S. Army Corps of Engineer study should be performed to evaluate the merits of such a project. In this regard, I am requesting that you initiate a study by the U.S. Army Corps of Engineers to evaluate the flood relief on the Waccamaw River basin using a canal located on the southern side of the Myrtle Beach Air Force Base property.

As you may know, the Myrtle Beach Air Force Base Task Force is studying various land plans that will reduce the impact of lost jobs. Hopefully this canal plan will be shown to have merit and the City/County governments could acquire this property from the U.S. Government at no cost for the use of flood control.

Initiating a study should in no way hamper the efforts of the Redevelopment Task Force and hopefully would inspire them to see the need of this project. Your help and consideration would be greatly appreciated.

Sincerely,

Robert M. Grissom
Mayor

Office of
County
Administrator

P.O. BOX 1236
CONWAY, SC 29526
PHONE: 248-1203
626-1203

August 18, 1992

The Honorable Arthur Ravenel, Jr.
The United States House of Representatives
508 Cannon House Office Building
Washington, DC 20515

RE: Proposed Horry County Flood Relief Canal

Dear Congressman Ravenel;

The Horry County Council has asked me to let you know of their support for a study to be performed by the Corps of Engineers as proposed by Robert L. Bellamy on the feasibility of a drainage flood control project for Horry County. Specifically, this study would examine the feasibility of a floodway canal for relief of the Waccamaw Basin using a canal located on the southern side of the Myrtle Beach Air Force Base.

County Council voted in favor of requesting your assistance in obtaining this study on August 18, 1992. Any effort you may expend in favor of this project will be greatly appreciated.

If you have any questions concerning this matter, please do not hesitate to contact me.

Sincerely,

Douglas E. Freeman
Horry County Administrator

STROM THURMOND
SOUTH CAROLINA
COMMITTEES

ARMED SERVICES
JUDICIARY
VETERANS' AFFAIRS
LABOR AND HUMAN RESOURCES

United States Senate
WASHINGTON, DC 20510-4001

August 17, 1992

Mr. Robert L. Bellamy, Jr.
Robert L. Bellamy and Associates, Inc.
4706 Oleander Drive
Myrtle Beach, South Carolina 29577

Dear Mr. Bellamy:

Thank you for your faxed letter and informative phone contacts of recent date regarding a proposed flood relief canal through the Myrtle Beach Air Force Base.

You may be assured of my interest and concern in this matter, and in an effort to be of assistance, I have contacted the appropriate officials at the Myrtle Beach Air Force Base Redevelopment Commission on your behalf. Upon receiving a reply to my inquiry, I will get back in touch with you.

With kindest regards and best wishes,

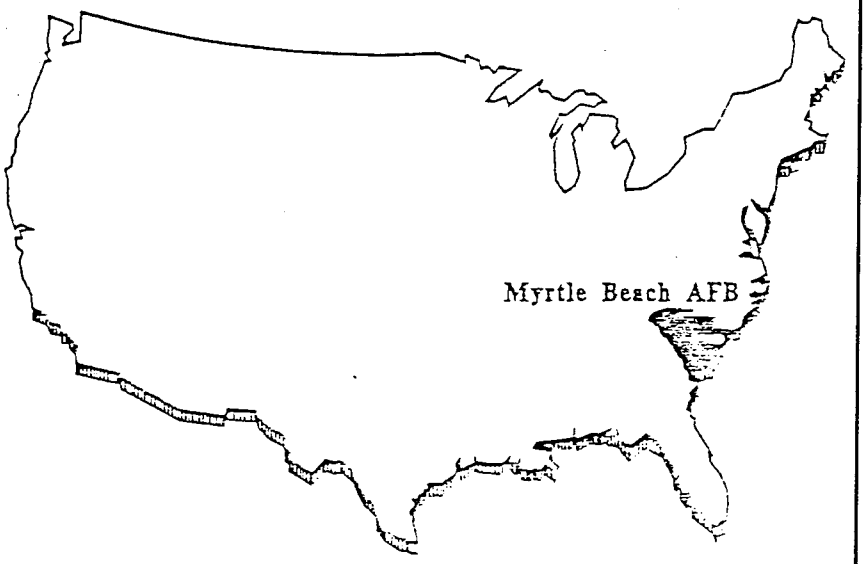
Sincerely,

Strom Thurmond

Strom Thurmond.

ST/hc

DRAFT
ENVIRONMENTAL IMPACT STATEMENT
OCTOBER 1992



DISPOSAL AND REUSE OF
MYRTLE BEACH AIR FORCE BASE
SOUTH CAROLINA

- Destination resort
- Industrial expansion
- Army Reserve unit
- Mass transit facility
- Fireworks storage area
- Homeless facilities
- Drug treatment facility
- Family housing
- Wildlife refuge

2.4 ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION

Other reuse proposals submitted for Myrtle Beach AFB were either addressed as alternatives or other land use concepts and fell within the context of the reuse alternatives described above or were considered and eliminated from detailed analysis. The following options were considered and eliminated.

- Retention of the Base Exchange, Commissary, medical facility, and golf course under Air Force operation. This alternative was eliminated because the base is scheduled to close in March 1993, pursuant to Public Law 101-510.

- Floodway corridor. The purpose of this proposal was to provide a waterway connecting the Intracoastal Waterway and the Atlantic Ocean to provide flood relief and a boating thoroughfare. The floodway corridor was eliminated after consultation with the U.S. Army Corps of Engineers because of hydraulic and salt water concerns in the Intracoastal Waterway and concern for protection of marine species in the Atlantic Ocean.

- Free and foreign trade zone. This alternative was eliminated because of excess competition resulting in low market feasibility.

2.5 INTERIM USES

Interim uses include predisposal short-term uses of the base facilities and property. Predisposal interim uses are conducted under lease agreements with the Air Force. The terms and conditions of the lease would be arranged to ensure that the predisposal interim uses do not prejudice future disposal and reuse plans of the base. The continuation of interim uses beyond disposal would be arranged with the new property owner(s).

A baseline representing conditions at the point of closure is used for the environmental analysis. The interim uses that could occur prior to property disposal are not considered within this baseline with the exception of continuing operation of the Myrtle Beach Jetport.

DEPARTMENT OF THE ARMY
CHARLESTON DISTRICT, CORPS OF ENGINEERS
P. O. BOX 919
CHARLESTON, SC 29402-0919

OCT 29 1992

OCT 30 1992

Planning Branch

(General) Arthur Ravenel, Jr.
[illegible]
[illegible] House Office Building
Washington, DC 20515

Dear Mr. Ravenel:

I am enclosing the resolution for a Waccamaw River, Horry [illegible] South Carolina study which you requested on August 17. [illegible] resolution has been approved by the Chief of Engineers' [illegible].

Respectfully,

Original Signed

MARK E. VINCENT
Lieutenant Colonel, U.S. Army
District Engineer

[illegible]
Honorable Arthur Ravenel, Jr.
[illegible] House Office Building
Washington, DC 20515
[illegible], South Carolina 29482

R E S O L U T I O N

Waccamaw River, Horry County, South Carolina

Resolved by the Committee on Public Works and Transportation of the United States House of Representatives that the Secretary of the Army is hereby requested to review the report on Waccamaw River submitted to Congress in December 1927, published as House Document 82, Seventieth Congress, First Session, and other pertinent reports to determine whether any modification of the recommendations contained therein are advisable at the present time in the interest of flood control, navigation and environmental restoration with particular emphasis on a flood control canal in Horry County, South Carolina, from the AIWW to the Atlantic Ocean.

Written Comment Sheet

Draft Environmental Impact Statement
Disposal and Reuse of Myrtle Beach AFB, South Carolina

Thank you for attending this hearing. Our purpose for hosting this hearing is to summarize for you the environmental consequences of the disposal and reuse of Myrtle Beach AFB, and afford you an opportunity to bring to our attention environmental issues that you feel have not been adequately analyzed in the Draft Environmental Impact Statement.

Date: 11/12/92

A written request was submitted beforehand on behalf of Horry County and its Department of Airports requesting that the USAF ensure the Horry County Masterplan, a copy of which was submitted with the request, is adequately considered in the EIS.

Name: Emma Ruth Brittain

Address: P.O. Box 1533 Conway, S.C. 29526
Street Address City/State Zip Code

Please hand this form in or mail to:

AFCEE/ESE
Attn: Lt Col Gary Baumgartel
8106 Chennault Road
Brooks AFB, TX 78235-5318

Written Comment Sheet

Draft Environmental Impact Statement
Disposal and Reuse of Myrtle Beach AFB, South Carolina

Thank you for attending this hearing. Our purpose for hosting this hearing is to summarize for you the environmental consequences of the disposal and reuse of Myrtle Beach AFB, and afford you an opportunity to bring to our attention environmental issues that you feel have not been adequately analyzed in the Draft Environmental Impact Statement.

Date: November 22,1992

This is a formal written request to further consider a Foreign Trade Zone as a part of the redevelopment plan for Myrtle Beach Air Force Base.

In your Draft Environmental Impact Statement of October 1992, in section 2-40 "a free and foreign trade zone" (your wording)was listed as one of three subjects to be"eliminated from further consideration" because of excessive competition in this case.

I respectfully submit that a Foreign Trade Zone concept should receive further due consideration as a potential source of employment in the redevelopment plan, although admittedly not a major part.

Certain Foreign Trade Zones at former U.S.military installations that have closed are very active, employ people and pay local taxes as well. It seems we can agree these are factors needed in any realistic redevelopment plan.

Name: James R. Clark Jr.

Address: 309 Sunset Trail, Myrtle Beach, S.C. 29577
Street Address City/State Zip Code

copies to: Mayor of Myrtle Beach, Horry County Council Chairman, Waccamaw Regional Planning Council, S.C.House Member, S.C. State Senator,U.S.Congressman Arthur Ravenel ,
U.S.Senator Strom Thurmond
U.S.Senator Fritz Hollings

Please hand this form in or mail to:

AFCEE/ESE
Attn: Lt Col Gary Baumgartel
8106 Chennault Road
Brooks AFB, TX 78235-5318

J. R. Clark Associates
CONSULTANTS
309 Sunset Trail • P.O. Box 7071
Myrtle Beach, South Carolina 29577-2121
Tel. 803-449-7979

JUNE 8, 1992

Chairman C. "Coupe"Edsel DeVille
Myrtle Beach Air Base Redevelopment Task Force
P.O.Box 15974
Surfside Beach, S.C. 29587

Dear Chairman DeVille:

Since January 1991 when I first began attending meetings about base closure, my firm has been voluntarily engaged in a detailed examination of Foreign Trade Zones. Here are some insights I would like to share with you and the other members of the Task Force, concerning FOREIGN TRADE ZONES, and their specialized activities.

There are approximately three hundred and seventy Foreign Trade Zones (FTZ) and FTZ Sub Zones in the United States. There has been a dramatic increase in their activity since 1984. Many zones are thriving. Some are inactive. Two thousand two hundred and ten firms participated in FTZ activities in 1990 and about two hundred and sixty thousand people were employed in them during that year. FTZs tend to keep U.S. industries at home rather having them go to Mexico, offshore or overseas. FTZs also usually create new additional jobs and at a higher skill level. What happens in a FTZ ? Products are either:

assembled	manufactured	cleaned	stored	displayed
processed	sampled	relabeled	tested	repackaged
repaired	salvaged	or destroyed.		

At this time we do not know for certain if we can have an FTZ in this area. My gut feeling is we can and the the Air Base property would be a likely place. In any event to have an FTZ we must as a first step "establish a need"for FTZ services here. Then the other prerequisites of filing a formal application with the Foreign Trade Zone Board, and having a United States Customs Port of Entry established would follow.

During 1991 to further qualify my firm made voluntary personal visits to FTZs in North and South Carolina and the S.C.Ports Authority collecting information about these unique zones. During May of this year I visited the Foreign Trade Zones Board in Washington, D.C. and spoke for some time with staff members personally. Mr. John Da Ponte Jr. the Executive Secetary of the FTZ Board was also able to give me some of of his valuable time for questions, answers and comments. These visits combined with extensive research has provided this firm J R Clark & Associates with the most current and accurate information about FTZs that is available. AN FTZ COULD WELL BE ONE OF THE PIECES OF THE MYRTLE BEACH AIR BASE'S REDEVELOPMENT, AND A VERY POSITIVE ONE, ALBEIT NOT A MAJOR PART.

J. R. Clark Associates
CONSULTANTS
309 Sunset Trail • P.O. Box 7071
Myrtle Beach, South Carolina 29577-2121
Tel. 803-449-7279

THE QUESTION IS WHAT SHOULD WE DO ABOUT A FTZ? My answer is this. We must establish if there is a need for FTZ services in the area. One of the best ways to do this is to conduct a professional thoughtfully prepared survey of industries and commercial businesses in this area. Initially these companies must be"educated" if they are not already aware of FTZ benefits and current developments. And in the same survey they should be given an opportunity to carefully respond to questions concerning how their companies could benefit from FTZ SERVICES, WHAT FACILITIES THEY WOULD NEED, AND ADDITIONAL EMPLOYMENT REQUIREMENTS.

REMEMBER FTZs TEND TO KEEP U.S. JOBS IN THE U.S. NOT OUTSIDE OUR SHORES. THE AVERAGE FTZ ZONE EMPLOYS ONE HUNDRED PEOPLE APPROXIMATELY, AND AT HIGHER SKILLED JOBS. FTZS WILL PRODUCE TAX REVENUE FOR THE COMMUNITIES, CITY COUNTY AND STATE, something we are all beginning to appreciate the importance of more and more.

It is our recommendation that such an FTZ survey be completed no later than December 1992. My firm has a preliminary questionnaire ready for review. We are prepared to do this survey as soon as agreed.

Best wishes.

James R. Clark Jr.

James R. Clark Jr.
Owner

Note: An initial proposed compensation for the FTZ Survey and formal report has been forwarded to Mr. Clifford Rudd, Redevelopment Coordinator today.

Nov. 27, 1992

To: Lt. Col. Gary Baumgartel

Subject: The Reconfiguration of Myrtle Beach AFB

I recommend an agreement be established between the Federal Government agencies and the State of South Carolina.

I. Under this agreement

(A) The US Air Force will continue to provide communication and control functions for all air traffic to the air field until the FAA and other support agencies can fully assume the necessary responsibilities.

(B) The Dept. of Defense will ask the state of South Carolina to designate specific portions of the air base as a Retirement Community for only DoD retired personnel.

(C) The DoD would furnish funds to upgrade the present housing in order to sell these facilities to retired military and DoD personnel (below the rank of General or Admiral) at a 5-10% over the basic cost of these facilities. 13.1

(D) Monies from these sales would go to the DoD as part payment for the release of the Air Base.

(E) Specify that the upgraded housing, the library, the Airman's Club, the NCO Club, the Officers Club, the Golf Clubhouse, the Golf Course and ancillary facilities, plus other units deemed pertinent, be designated

01 DEC

as parts of this Retirement Community for DoD personnel.

(F) The State of South Carolina would select a purely civilian management staff to operate the housing complex of this community, setting forth rules similar to those used by the Jensens Corp. of Garden City, S.C.

(G) An Advisory and Coordinating Committee would be elected from the Retirement Community to advise and assist the Managerial Staff. After 18 months of operation, this committee would have the power to make necessary changes in the operation of all functions in the Retirement Community.

(H) The remainder of the Air Base would be open to private enterprises. However, NO AIR, water, or land pollution would be permitted by these enterprises.

(I) Residents of the "Retirement Community" would receive a 9% reduction in cost of all goods and services issued by these enterprises.

(J) Residents of this "Retirement Community" would also receive a 9% reduction in their South Carolina State Income Taxes.

II. The value of this plan is manyfold and significant

(A) The Federal Government in the next few years will be releasing many career military people (about ½ million). They will be dumped on a weak national economy. Earlier these people were promised use of many military

13.2

a stabilizing facet to their growth. This Retirement Community would be just such an addition.

(F) Employees presently used in the clubs and other retirement functions would be retained. Also an increase in areas of maintenance, service and security, plus others, would require additional personnel and service.

This plan implementation could be used as a prototype for many other bases, especially those located in the Sun Belt. I Sincerely hope it will be seriously considered and implemented.

Frederick S Tuttle

Written Comment Sheet

Draft Environmental Impact Statement
Disposal and Reuse of Myrtle Beach AFB, South Carolina

Thank you for attending this hearing. Our purpose for hosting this hearing is to summarize for you the environmental consequences of the disposal and reuse of Myrtle Beach AFB, and afford you an opportunity to bring to our attention environmental issues that you feel have not been adequately analyzed in the Draft Environmental Impact Statement.

Date: November 23, 1992

SEE STATEMENT ATTACHED HERETO.

Name: DEAN R. GUYTON

Address: 11054 Highway 707, Murrells Inlet, South Carolina 29576
Street Address City/State Zip Code

Please hand this form in or mail to:

AFCEE/ESE
Attn: Lt Col Gary Baumgartel
8106 Chennault Road
Brooks AFB, TX 78235-5318

As an employee at MBAFB for 16 years and a citizen of the local area for 40 years, I would like to voice my concern about the continuous loss of wetlands across the nation and especially in the local area. As stated in Paragraph 4 of your summary, "the environmental responsibility rests with the future owners." Let me assure you, the goal of local industry is to develop and the goal of local government is to produce real estate that has a large tax base, neither of which is to the the benefit of the environment or the preservation of wetlands. I feel the Federal Government should retain possession of all wetlands to ensure their protection. As stated in your pamphlet, 167 acres of wetlands would be disturbed (destroyed). If there has to be any compromise with the wetlands on this installation, I hope there will not be any compromise on the particular wetland which is approximately 75 acres in size and located on the east side of the base between the campground/housing area and Headquarters Building/shopping center area. This wetland contains cypress trees, tupelo gum trees and bay trees including an unusual type of bay tree which blooms twice a year and which, according to a former employee of grounds maintenance at MBAFB, has been investigated by Clemson University. The area is also home to other plant life indigenous to wetlands and a variety of birds and animals. The US Army Corp of Engineers has identified this area as a wetland and has denied MBAFB permission to extend their campground into this sensitive area. 14.1

There are many other citizens that I have talked with who share my thoughts on this matter but who feel the system will not consider their voices. So please be vigilant in your environmental decisions and preserve this wetland for the benefit of all.

Thank You,

Dean R Guyton

Dean Guyton

Written Comment Sheet

Draft Environmental Impact Statement
Disposal and Reuse of Myrtle Beach AFB, South Carolina

Thank you for attending this hearing. Our purpose for hosting this hearing is to summarize for you the environmental consequences of the disposal and reuse of Myrtle Beach AFB, and afford you an opportunity to bring to our attention environmental issues that you feel have not been adequately analyzed in the Draft Environmental Impact Statement.

Date: 12/3/92

SEE ATTACHED

Name: Eugene S. STroman

Address: 654 Burcale Road, Myrtle Beach,SC 29577

Street Address City/State Zip Code

Please hand this form in or mail to:

AFCEE/ESE
Attn: Lt Col Gary Baumgartel
8106 Chennault Road
Brooks AFB, TX 78235-5318

I have attended all but one meeting of the Myrtle Beach AFB Task Force. I have listened to many presentations by LPA consultants, representing the Jetport and Horry County, and EDAW consultants, representing the Task Force and funded by federal money.

LPA was commissioned to study the County Airport viability as to expansion and what it would require to make the Jetport independent of all taxes. EDAW's responsibility was to give their ideas as to the way usage of the land - other than terminal or runway - that could be used to generate jobs as a replacement to the Air Force.

Let me introduce you to Myrtle Beach "Grand Strand." To the locals, the Grand Strand includes the following: North Myrtle Beach, unincorporated County areas like Socastee, Myrtle Beach, Surfside Beach, Garden City, and Murrell's Inlet. This is a span of approximately 35 miles. Since my arrival here in 1975 to open a business, I have witnessed a thriving area. During that time we saw condos come to the area and in a short time the area seemed to be overbuilt. That growth helped establish the room rates at our motels allowing them to increase their rents about 8% to 10% annually. The area grew by leaps and bounds, but over the past five years, we have had a slowdown. We would like to think it can happen regardless of how we involve ourselves. However, promises made regarding development of roads for the area have never been fulfilled. The condition of the beaches is deteriorating. They are dirty and, in addition, are not patrolled regularly for safety.

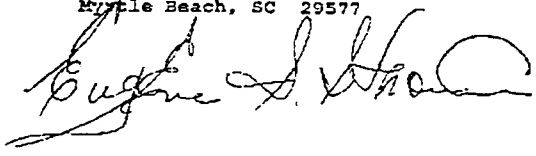
With so many golf courses, we have the title "Golf Capital of the World." With that reputation, golf fees rose, but now it is generally considered that our prices are much higher than the market can handle. 15.1

The expanded Jetport terminal is ahead of its time. It is like putting the cart before the horse. American Airlines has downsized their flights at this airport for the past three years.

What is the future for Myrtle Beach? What should the area look like? Fifteen years from now we would have an interstate highway connection to I-20/I-95 in Florence, another bypass around Myrtle Beach, Conway bypass, and two entry roads - one to the Briarcliff area, the other at Garden City. Clean beaches, better patrolled for safety; Golf courses with stabilized prices, and a Jetport equal to the needs of the area which means we only need one runway in this downtown (built-up) area. As growth and traffic continue to grow in the more distant future the place for a large regional airport is at the intersection of the new interstate type highways to move traffice within the region.

During the EIS meeting on November 12 at the Martinique Hotel it was obvious that the public was not involving themselves. This has been evident in other base closings. Many citizens believe that the local authorities have already made a decision. We do not need wishful thinking of a consultant group or the F.A.A. to leave this area and elephant to carry around on the budget of a house cat.

Eugene S. Stroman
654 Burcale Road
Myrtle Beach, SC 29577



Written Comment Sheet

Draft Environmental Impact Statement
Disposal and Reuse of Myrtle Beach AFB, South Carolina

Thank you for attending this hearing. Our purpose for hosting this hearing is to summarize for you the environmental consequences of the disposal and reuse of Myrtle Beach AFB, and afford you an opportunity to bring to our attention environmental issues that you feel have not been adequately analyzed in the Draft Environmental Impact Statement.

Date: 11/30/92

Mostly I have heard the concerns of Retirement or near Retirement aged citizen & business ~~con~~ concerns related to MBAFB re useage - Being middle Aged with approx 20 years to have to deal with the final outcome of the DOD's AF useage plan, I add the following Comments:

16.1 1) We need ~~year~~ year Around employment with above average pay scales. The Myrtle Beach area has enough seasonal, minimum wage jobs already - I do address this to the "Amusement Park" and/or Air/Space museum idea

16.2 2) The county should have the final say in the outcome.

Name: B. Holt

Address: 790 Knotty Branch Rd Conway SC 29527
Street Address City/State Zip Code

Please hand this form in or mail to:

AFCEE/ESE
Attn: Lt Col Gary Baumgartel
8106 Chennault Road
Brooks AFB, TX 78235-5318

of the base. The closure of the base effects more people in the county, than does the City of Myrtle Beach on it's own; Also the county has spent more money on the jetport than has the city spent on the base. The recreation facilities should go to the people of the whole county, just not the people of Myrtle Beach.

3) Some of the buildings should be offered to local & State Government to locate their offices there. 16.3

4) I hope the final useage of the MBAFB will benefit the majority of the citizen of Horry County rather than a few citizen that live within the limits of Myrtle Beach. 16.4

5.) I don't see any need now or in the future for a 2nd runway at the M.B. jetport - 1 airline just quit service here last week, the need won't be here in the future. 16.5

6.) The housing units at the MBAFB should be sold by bid to anyone who can afford them. The housing units are somewhat old, but seem to be in good repair. 16.6

Letters to the editor / The

If Shaw overcrowded, why not use MB AFB?

■ While visiting Shaw Air Force Base Hospital recently, I noticed that the waiting rooms were so crowded that people would have been hanging from the rafters if they had had any.

We asked a lady sitting next to us if this is the way it was all the time. She said yes and it was mainly because personnel from Homestead Air Force Base had been sent her to await reassignment.

She also said that the base was so overcrowded that it was impossible to find a place to live and many had to look for housing off the base.

Now it would seem to me that the people in Washington would have sense enough to know that just 100 miles to the east, at Myrtle Beach AFB, there are all kinds of empty buildings and housing units just waiting for someone to move in.

I am unable to understand even at the behest of Senators Hollings and Thurmond, why Myrtle Beach AFB is not being used to house Homestead personnel. Further, there is a perfectly good base sitting empty, while local governments quibble over what to do with it, that could be used as a replacement for Homestead. And there is plenty of room for expansion.

Naturally, this solution is too simple.

Wilton Hockenberry
Surfside Beach

Recd from
MSgt RE Carmichael Ret.
5809 Honeysuckle Ln
Myrtle Beach SC
29575

P.S. A V.A. Cemetary is badly needed

17.1

Summer and Georgia areas who are in a bind because of the Homestead disaster.

I have spoken with people from all over this country who want to know why MBAFB wasn't utilized. My answer is politics, oceanside property and greed.

With the latest changes that allow bases that are closing to keep the commissary and exchange services open, why wasn't this promoted for MBAFB? This could have been in the best interest of both military and civilian goals.

I am not the only person embarrassed with the actions of our city, county, state and last but not least, the base redevelopment team.

Are there only a few people who can read between the lines? The hurry-up-and-get-out atmosphere is obvious beyond any doubt.

Ellen Eaton
Myrtle Beach

this is the view of the majority here

Base unused

■ Why not? That is a question that has been asked from the East Coast to the West Coast. We have family and friends living in the

17.2

Ed Edelen
Box 2073
Myrtle Beach, SC
29578

December 5, 1992

Lt Col Gary Baumgartel
Chief EPD
AFCEE/ESE
8106 Chenault Road
Brooks Air Force Base, TX 78235-5318

RE: Biological and Cultural Resources - Myrtle Beach Air Force Base

Dear Sir;

Our community appreciates your deep concern for the future way of life on the base property. The local residence and business concerns have been very ably represented. I want to be sure those who cannot speak for themselves are heard --- the WILDLIFE and the HISTORICAL AREAS.

Both can be preserved in one area - the FOLTA. This historic tactical aircraft disbursal area with two Norden bomb site vaults, taxi ways, 24 revetments and a "firing in range" for aircraft cannon is in excellent condition. It is the last remaining in tact in the United States according to the Air Force and the Department of Archives and History. It has been proposed for and will be placed on the National Register of Historic Places The Smithsonian National Air and Space Institute toured the FOLTA in 1992. They stated that it's historic significance is awesome and "one of a kind." They felt of equal importance was that this FOLTA provides a rare opportunity to preserve Air Force aviation history by keeping it in aviation as an Air and Space Museum. They said "we would kill for such a one of a kind historic aviation site to display aircraft. It is located in the heart of the major tourist center on the Mid-Atlantic."

18.1

Public interest in museums is strong now. Air and Space Museums attract more visitors by far than any other museums. PRT - Park,

Recreation and Tourism Department of South Carolina - found in a recent study of what the millions of tourists most wanted in Myrtle Beach was:

1. Beach was naturally first.
2. Historic museums was second with 32%.
3. Golf was third.

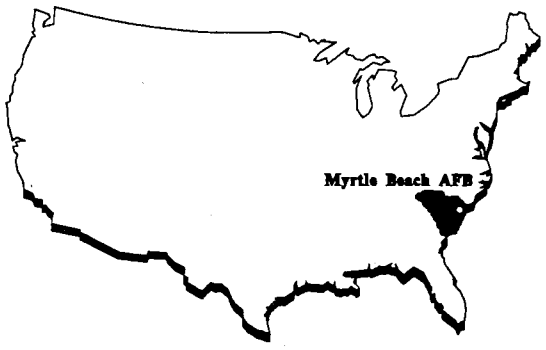
Wildlife, especially the owls, alligators and coastal birds, make their home in the natural habitat of the FOLTA. Since most of this will be left natural to preserve the camoflage intent to hide aircraft in the woods, wildlife will also still have a home.

Please allow this one of a kind historic Air Force FOLTA to survive. It then can be enjoyed by millions of visitors and untold wildlife. In addition the museum will employ 316 and be a major source of revenue to support the jetport. It will be operated by a no-profit corporation but is estimated to attract 1 1/2 million visitors annually. This is expected to generate $1 profit per visitor; therefore, about 1 1/2 million profit for the jetport. These tourists will naturally spend much more in our motels, restaurants, etc.

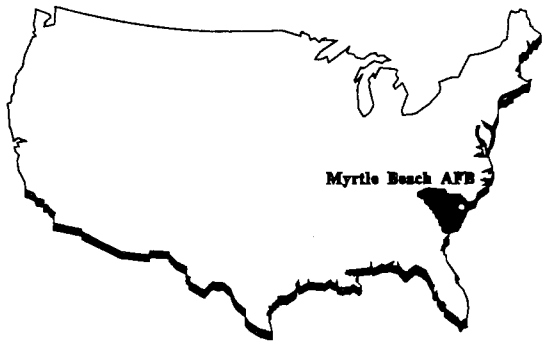
Thank you,

Ed Edelen

Ed Edelen, President
Myrtle Beach Air & Space
Education Museum



APPENDICES



APPENDIX A

APPENDIX A

GLOSSARY OF TERMS AND ACRONYMS/ABBREVIATIONS

GLOSSARY OF TERMS

100-Year Flood Zone. Land area having a 1-percent chance of being flooded during a given year.

A-Weighted Sound Level (dBA). A number representing the sound level that is frequency weighted according to a prescribed frequency response established by the American National Standards Institute (ANSI S1.4-1971) and accounts for the response of the human ear.

Acoustics. The science of sound that includes the generation, transmission, and effects of sound waves, both audible and inaudible.

Advisory Council on Historic Preservation. A 19-member body appointed, in part, by the President of the United States to advise the President and Congress and to coordinate the actions of federal agencies on matters relating to historic preservation, to comment on the effects of such actions on historic and archaeological cultural resources, and to perform other duties as required by law (Public Law 89-655; 16 USC 470).

Aesthetics. Referring to the visual perception of natural features and spatial patterns.

Air Traffic Control (ATC). A service operated by an appropriate authority to promote the safe, orderly, and expeditious flow of air traffic.

Air Carrier. A person who undertakes directly by lease, or other arrangement, to engage in air transportation.

Aircraft Operation. A takeoff or landing at an airport.

Airport Radar Service Area (ARSA). Regulatory airspace surrounding designated airports wherein air traffic control provides vectoring and sequencing on a full-time basis for all IFR and VFR aircraft.

Airport Surveillance Radar (ASR). Approach control radar used to detect and display an aircraft's position in the terminal area. ASR provides range and azimuth information, but does not provide elevation.

Air Route Traffic Control Center (ARTCC). A facility established to provide air traffic control service to aircraft operating on IFR flight plans within controlled airspace and principally during the enroute phase of flight.

Airport Traffic Area. Airspace within a radius of 5 statute miles of an airport with an operating control tower, encompassing altitudes between the surface and 3,000 feet AGL, in which an aircraft cannot operate without prior authorization from the control tower.

Airway/Federal Airway. A control area or portion thereof established in the form of a corridor, the centerline of which is defined by radio navigational aids.

Altitude. The height of a level, point, or object measured in feet above ground level (AGL) or from mean sea level (MSL).

Ambient Air Quality Standards. Standards established on a state or federal level that define the limits for airborne concentrations of designated "criteria" pollutants (nitrogen dioxide, sulfur dioxide, carbon monoxide, total suspended particulates, ozone, and lead), to protect public health with an adequate margin of safety (primary standards) and to protect public welfare, including plant and animal life, visibility, and materials (secondary standards).

Annoyance. Any negative subjective reaction to noise on the part of an individual or group.

Approach Control Service. Air traffic control service provided by an approach control facility for arriving and departing VFR/IFR aircraft and, on occasion, enroute aircraft.

Aquifer. The water-bearing portion of subsurface earth material that yields or is capable of yielding useful quantities of water to wells.

Archaeology. A scientific approach to the study of human ecology, cultural history, and cultural process.

Arresting System. A safety device consisting of engaging or catching devices used to prevent aircraft from overrunning runways when the aircraft cannot be stopped after landing or during aborted takeoff.

Arterial. Signalized street that serves primarily through-traffic and provides access to abutting properties as a secondary function.

Artifact. An object produced by human workmanship, especially a tool, weapon, or ornament of archaeological or historical interest.

Artificial Recharge. Spreading of water in infiltration ponds or direct injection of water in wells to replenish groundwater.

Asbestos. A carcinogenic substance formerly used widely as an insulation material by the construction industry; often found in older buildings.

Attainment Area. A region that meets the National Ambient Air Quality Standards for a criteria pollutant under the Clean Air Act.

Average Annual Daily Traffic (AADT). For a one-year period, the total volume passing a point or segment of a highway facility in both directions, divided by the number of days in the year.

Average Travel Speed. The average speed of a traffic stream computed as the length of a highway segment divided by the average travel times of vehicles traversing the segment, in miles per hour.

Background Traffic. Traffic that is not travelling to or from the development being analyzed.

Biophysical. Pertaining to the physical and biological environment, including the environmental conditions crafted by humans.

Biota. The plant and animal life of a region.

Capacity. The maximum quantity of a public service that can be supplied due to existing limitations of public infrastructure.

Carbon Monoxide (CO). A colorless, odorless, poisonous gas produced by incomplete fossil-fuel combustion. One of the six pollutants for which there is a national ambient standard. See Criteria Pollutants.

Class I, II, and III Areas. Under the Clean Air Act, clean air areas are divided into three classes. Very little pollution increase is allowed in Class I areas, some increase in Class II areas, and more in Class III areas. National parks and wilderness areas receive mandatory Class I protection. All other areas start out as Class II. States can reclassify Class II areas up or down, subject to federal requirements.

Commercial Aviation. Aircraft activity licensed by state or federal authority to transport passengers and/or cargo for hire on a scheduled or nonscheduled basis.

Comprehensive Plan. A public document, usually consisting of text, maps, and supporting data materials, adopted by local government legislative body, which includes goals, policies and proposals for the future utilization of land.

Confined Aquifer. An aquifer that is generally confined between two low permeable units. Water level in a well usually rises above the top of the aquifer. Same as artesian aquifer.

Cone of Depression. A depression in the water table that develops around a well from which water is being withdrawn.

Contaminants. Undesirable substances rendering something unfit for use.

Control Zone. Controlled airspace with a normal radius of 5 statute miles from a primary airport plus any extensions needed to include instrument arrival and departure paths, encompassing altitudes between the surface and 14,449 feet MSL.

Corrosive. A material that has the ability to cause visible destruction of living tissue and has a destructive effect on other substances. An acid or a base.

Council on Environmental Quality (CEQ). Established by the National Environmental Policy Act (NEPA), the CEQ consists of three members appointed by the President. CEQ regulations (40 CFR Parts 1500-1508, as of July 1, 1986) described the process for implementing NEPA, including preparation of environmental assessments and environmental impact statements, and the timing and extent of public participation.

Criteria Pollutants. The Clean Air Act required the Environmental Protection Agency to set air quality standards for common and widespread pollutants after preparing "criteria documents" summarizing scientific knowledge on their health effects. Today there are standards in effect for six "criteria pollutants": sulfur oxide (SO_2), carbon monoxide (CO), particulate matter less than 10 microns in diameter (PM_{10}), nitrogen dioxide (NO_2), ozone (O_3), and lead (Pb).

Cultural Resources. Prehistoric and historic districts, sites, buildings, objects, or any other physical evidence of human activity considered important to a culture, subculture, or a community for scientific, traditional, religious, or any other reason.

Cumulative Impacts. The combined impacts resulting from all activities occurring concurrently at a given location.

Day-Night Average Sound Level (DNL). The 24-hour average-energy sound level expressed in decibels, with a 10-decibel penalty added to sound levels between 10:00 P.M. and 7:00 A.M. to account for increased annoyance due to noise during night hours.

Decibel (dB). A unit of measurement on a logarithmic scale which describes the magnitude of a particular quantity of sound pressure or power with respect to a standard reference value.

Demand. The average daily amount of a public service, i.e., potable water, sanitary sewerage, electricity, etc., required by the public.

Destination Resort. A resort complex that is the focal point of a visitor's trip to the area.

Discharge. Release of groundwater in springs or wells, through evapotranspiration, or as outflow from the basin.

Distance Measuring Equipment (DME). Equipment (airborne and ground) used to measure, in nautical miles, the slant range distance of an aircraft from the DME navigation aid (or VOR).

Drawdown. The distance between the static water level and the surface of the cone of depression.

Easement. A right or privilege (agreement) that a person may have on another's property.

Effluent. The outflow of safe, processed water from a sanitary sewer treatment facility.

Endangered Species. A species that is threatened with extinction throughout all or a significant portion of its range.

Environmental Impact Analysis Process. The process of conducting environmental studies as outlined in Air Force Regulation 19-2.

Environmental Protection Agency (USEPA). The independent federal agency, established in 1970, that regulates environmental matters and oversees the implementation of environmental laws.

Erosion. Wearing away of soil or rock by weathering and the action of streams, wind, rain, and groundwater.

Existing Land Use. The current use of a parcel of land, typically designated using an approved land use coding system.

Fleet Mix. Combination of aircraft used by a given agency.

Fossil. A remnant or trace of an organism of a past geologic age, as a skeleton or leaf imprint, embedded in the earth's crust.

Freeway. A multilane divided highway having a minimum of two lanes for exclusive use of traffic in each direction and full control of access and egress.

Frequency. The time rate (number of times per second) that the wave of sound repeats itself, or that a vibrating object repeats itself -- now expressed in Hertz (Hz), formerly in cycles per second (cps).

Functional Hierarchy of Roadways. Classification of roadways by the relative importance of the movement and access function assigned to them.

Fungicides. Any substance that kills or inhibits the growth of fungi.

Future Land Use. The proposed use of parcel of land, normally designated in the context of a Comprehensive Plan.

General Aviation (GA). All aircraft that are not commercial or military aircraft.

Geomorphic. Pertaining to the form of the earth or its surface features.

Ground Controlled Approach (GCA). A radar approach system operated from the ground by air traffic control personnel transmitting instructions to the pilot by radio. The approach may be conducted by ASR only or with both surveillance and precision approach radar (PAR).

Groundwater Recharge. Absorption and addition of water to the zone of saturation.

Groundwater Basin. Subsurface structure having the character of a basin with respect to collection, retention, and outflow of water.

Groundwater. Water within the earth that supplies wells and springs.

Habituate. To become accustomed to frequent repetition or prolonged exposure.

Hazardous Waste. A waste, or combination of wastes, that, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may either cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible illness; or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed. Regulated under the Resource Conservation and Recovery Act (RCRA).

Hazardous Material. Generally, a substance or mixture of substances that has the capability of either causing or significantly contributing to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness; or posing a substantial present or potential risk to human health or the environment. Use of these materials is regulated by Department of Transportation (DOT), Occupational Safety and Health Administration (OSHA), and Superfund Amendments Reauthorization Act (SARA).

Heavy metals. A metal (e.g., lead, mercury, cadmium, and chromium) of atomic weight greater than sodium (a.w.-22.9 grams/molecule) that forms soaps on reaction with fatty acids.

Herbicides. A pesticide, either organic or inorganic, used to destroy unwanted vegetation, especially various types of weeds, grasses, and woody plants.

Hydraulic Gradient. The rate of change in total head per unit of distance of flow in a given direction.

Hydrocarbons (HC). Any of a vast family of compounds containing hydrogen and carbon. Used loosely to include many organic compounds in various combinations; most fossil fuels are composed predominately of hydrocarbons. When hydrocarbons mix with nitrogen oxides in the presence of sunlight, ozone is formed; hydrocarbons in the atmosphere contribute to the formation of ozone.

IFR Military Training Routes (IR). Routes used by DOD aircraft for the purpose of conducting low-altitude navigation and tactical training in both IFR and VFR weather conditions below 10,000 feet MSL at airspeeds in excess of 250 knots indicated airspeed.

Impacts. An assessment of the meaning of changes in all attributes being studied for a given resource; an aggregation of all the adverse effects, usually measured using a qualitative and nominally subjective technique. In this EIS, as well as in the CEQ regulations, the word impact is used synonymously with the word effect.

Infiltration and Inflow. The act of stormwater entering the degraded sections of a sanitary sewer collector system made of clay/tile.

Infrastructure. The basic installations and facilities on which the continuance and growth of a community, state, etc., depend; e.g., roads, schools, power plants, transportation, and communication systems, etc.

Instrument Flight Rules (IFR). Rules governing the procedures for conducting instrument flight. Also a term used by pilots and controllers to indicate type of flight plan.

Instrument Landing System (ILS). A system of radio navigation intended to assist aircraft in landing that provides lateral and vertical guidance, including indications of distance from the optimum point of landing.

Instrument Approach Procedure/Instrument Approach. - A series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a landing, or to a point from which a landing may be made visually.

Internal Capture. Trips made between on-site land uses of the development being analyzed. Internal trips are assumed to not impact the external road network.

Interstate. The designated National System of Interstate and Defense Highways located in both rural and urban areas; they connect the east and west coasts and extend from points on the Canadian border to various points on the Mexican border.

Lead (Pb). A heavy metal used in many industries, which can accumulate in the body and cause a variety of negative effects. One of the six pollutants for which there is a national ambient air quality standard. See Criteria Pollutants.

L_{eq}. The equivalent steady state sound level that in a stated period of time would contain the same acoustical energy as time-varying sound level during the same period.

Level of Service (LOS). In transportation analyses, a qualitative measure describing operational conditions within a traffic stream and how they are perceived by motorists and/or passengers. In public services, a measure describing the amount of public services (e.g., fire protection and law enforcement services) available to community residents, generally expressed as the number of personnel providing the services per 1,000 population.

L_{max}. The highest A-weighted sound level observed during a single event of any duration.

Loam, Loamy. Rich, permeable soil composed of a mixture of clay, silt, sand, and organic matter.

Local Roads. Roads that carry primarily local traffic between different parts of a community.

Loudness. The qualitative judgement of intensity of a sound by a human being.

Magnet School. A school that specializes in one area of learning, such as gifted and talented, arts, science, etc., and draws students from a larger area than a neighborhood school.

Masking. The action of bringing one sound (audible when heard alone) to inaudibility or to unintelligibility by the introduction of another sound.

Midden. A refuse heap.

Military Operations Area. Airspace areas of defined vertical and lateral limits established for the purpose of separating certain training activities, such as air combat maneuvers, air intercepts, and acrobatics, from other air traffic operating under instrument flight rules.

Mineral Resources. Mineral deposits that may eventually become available; known deposits not recoverable at present or yet undiscovered.

Mineral. Naturally occurring inorganic element or compound.

Mitigation. A method or action or series of actions proposed to reduce or eliminate adverse impacts.

Modal Split. The division of travel between transit and automobiles.

Multiple Family Housing. Townhouse or apartment units that accommodate more than one family though each dwelling unit is only occupied by one household.

National Airspace System (NAS). The common network of U.S. airspace; air navigation facilities; equipment and services; airports or landing areas; aeronautical charts; information and services; rules, regulations, and procedures; technical information; and manpower and material. (Includes system components shared jointly with the military.)

National Priority List. A list of sites (federal and state) that contain hazardous materials that may cause an unreasonable risk to the health and safety of individuals property, or the environment.

National Register of Historic Places. A register of districts, sites, buildings, structures, and objects important in American history, architecture, archaeology, and culture, maintained by the Secretary of the Interior under authority of Section 2(b) of the Historic Sites Act of 1935 and Section 101(a)(1) of the National Historic Preservation Act of 1966, as amended.

National Ambient Air Quality Standards (NAAQS). Section 109 of the Clean Air Act requires USEPA to set nationwide standards, the National Ambient Air Quality Standards, for widespread air pollutants. Currently, six pollutants are regulated by primary and secondary NAAQS carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter (PM_{10}), and sulfur dioxide. See Criteria Pollutants.

National Environmental Policy Act (NEPA). Public Law 91-190, passed by Congress in 1969. The Act established a national policy designed to encourage consideration of the influences of human activities (e.g., population growth, high-density urbanization, industrial development) on the natural environment. NEPA also established the Council on Environmental Quality. NEPA procedures require that environmental information be made available to the public before decisions are made. Information contained in NEPA documents must focus on the relevant issues in order to facilitate the decision-making process.

Native Vegetation. Plant life that occurs naturally in an area without agricultural or cultivational efforts. It does not include species that have been introduced from other geographical areas and become naturalized.

Native Americans. Used in a collective sense to refer to individuals, bands, or tribes who trace their ancestry to indigenous populations of North America prior to Euro-American contact.

Nitrogen oxides (NO_x). Gases formed primarily by fuel combustion, which contribute to the formation of acid rain. Hydrocarbons and nitrogen oxides combine in the presence of sunlight to form ozone, a major constituent of smog.

Nitrogen Dioxide (NO_2). Gas formed primarily from atmospheric nitrogen and oxygen when combustion takes place at high temperature. NO_2 emissions contribute to acid deposition and formation of atmosphere ozone. One of the six pollutants for which there is a national ambient standard. See Criteria Pollutants.

Noise Attenuation. The reduction of a noise level from a source by such means as distance, ground effects, or shielding.

Noise Contour. A curve connecting points of equal noise exposure on a map. Noise exposure is often expressed using the average day-night sound level, DNL.

Noise. Any sound that is undesirable because it interferes with speech and hearing, or is intense enough to damage hearing, or is otherwise annoying (unwanted sound).

Nonattainment Area. An area that has been designated by the USEPA or the appropriate state air quality agency, as exceeding one or more National or State Ambient Air Quality Standards.

Nonprecision Approach Procedure/Nonprecision Approach. - A standard instrument approach procedure in which no electronic glide slope is provided; e.g., VOR, NDB, LOC or ASR.

Overdraft. Excessive withdrawal of groundwater that produces depletion of groundwater reserves and/or intrusion of water of undesirable quality.

Ozone (ground level). A major ingredient of smog. Ozone is produced from reactions of hydrocarbons and nitrogen oxides in the presence of sunlight and heat. Some 68 areas, mostly metropolitan areas, did not meet a December 31, 1987 deadline in the Clean Air Act for attaining the ambient air quality standard for ozone.

Paleontology. The study of fossils.

Passenger Car Equivalent. The number of passenger cars that are displaced by a single heavy vehicle of a particular type under prevailing roadway, traffic, and control conditions.

PCB equipment. Equipment that contains a concentration of PCBs of 500 ppm or greater and regulated by the USEPA.

PCB items. Equipment that contains a concentration of PCBs from 5 to 49 ppm and regulated by the State EPA.

PCB-contaminated equipment. Equipment that contains a concentration of PCBs from 50 to 499 ppm and regulated by the USEPA.

Peak Season Peak Hour Traffic. The number of vehicles that pass a given point on a highway facility during the highest traffic hour of an average day during the peak tourist season.

Perched Water. Groundwater separated from an underlying main body of groundwater by an unsaturated zone.

Permeability. The capacity of a porous rock or sediment to transmit a fluid.

Pesticides. Any substance, organic or inorganic, used to destroy or inhibit the action of plant or animal pests; the term thus includes insecticides, herbicides, fungicides, rodenticides, miticides, fumigants, and repellants. All pesticides are toxic to humans to a greater or lesser degree. Pesticides vary in biodegradability.

Physiographic Province. A region in which all parts are similar in geologic structure and climate.

Pleistocene. An earlier epoch of the Quaternary period during the "ice age" beginning approximately 3 million years ago and ending 10,000 years ago. Also refers to the rocks and sediments deposited during that time.

Plume. An elongated mass of contaminated fluid moving with the flow of the fluid.

Polychlorinated Biphenyls (PCBs). Any of a family of industrial compounds produced by chlorination of biphenyl. These compounds are noted chiefly as an environmental pollutant that accumulates in organisms and concentrates in the food chain with resultant pathogenic and tetratogenic effects. They also decompose very slowly.

Potable Water. Suitable for drinking.

Precision Approach Radar (PAR). Radar equipment in some ATC facilities to detect and display azimuth, elevation, and range of aircraft on the final approach course to a runway. The equipment is used to conduct a PAR wherein the controller issues guidance instructions to the pilot based on the aircraft's position in relation to final approach course (azimuth), the glide path (elevation), and the distance (range) from the touchdown point on the runway as displayed on the radar scope.

Precision Approach Procedure/Precision Approach. A standard instrument approach procedure in which an electronic glideslope/glidepath is provided (ILS and PAR).

Prehistoric. The period of time before the written record.

Prevention of Significant Deterioration (PSD). In the 1977 Amendments to the Clean Air Act, Congress mandated that areas with air cleaner than required by national ambient air quality standards must be protected from significant deterioration. The Clean Air Act's PSD program consists of two elements: requirements for best available control technology on major new or modified sources, and compliance with an air quality increment system.

Prevention of Significant Deterioration Area. A requirement of the Clean Air Act (160 et seq.) that limits the increases in ambient air pollutant concentrations in clean air areas to certain increments even though ambient air quality standards are met.

Primary Roads. A consolidated system of connected main roads important to regional, statewide, and interstate travel; they consist of rural arterial routes and their extensions into and through urban areas of 5,000 or more population.

Prime Farmland. Environmentally significant agricultural lands protected from irreversible conversion to other uses.

Projectile point. A relatively thin, symmetrical tool form, usually bifacially flaked, having one end pointed and the other modified or shaped for hafting; regularities in morphological design, or style, can be recognized; comparisons in morphological design, or important tool for chronological analysis.

Radar Approach Control (RAPCON). A terminal ATC facility that uses radar and nonradar capabilities to provide approach control services to aircraft arriving, departing, or transiting airspace controlled by the facility. Provides radar ATC services to aircraft operating in the vicinity of one or more civil and/or military airports in a terminal area. The facility may provide services of a GCA; i.e., ASR and PAR approaches.

Radar Vectoring. Provision of navigational guidance to aircraft in the form of specific headings based on the use of radar.

Ramp. A short segment of roadway serving as a connection between two traffic facilities; usually services flow in one direction only.

Railroad Spur. A railroad tack that is not intended for through traffic. A spur is generally used to carry rail shipment, from the mainline track to businesses located off the mainline.

Recent. The time period from approximately 10,000 years ago to the present and the rocks and sediments deposited during that time.

Regional Roads. Major roadways that are capable of carrying traffic between areas in the region.

Restricted Area. Designated airspace in which aircraft activity, while not prohibited, is subject to certain restrictions.

Roadway Capacity. The maximum rate of flow at which vehicles can be reasonably expected to traverse a point or uniform segment of a lane or roadway during a specified time period under prevailing roadway, traffic, and control conditions.

Sediment. Material deposited by wind or water.

Single-Family Housing. A conventionally-built house consisting of a single dwelling unit occupied by one household.

Site Development Plan. A plan proposing development within a defined area of a local governmental jurisdiction, normally consistent with the Comprehensive Plan. Site plans are required prior to rezoning and development in areas that have not been zoned for particular land uses.

Site. The location of a significant event, a prehistoric or historic occupation or activity, or a building or structure, whether standing, ruined, or vanished, where the location itself possesses historic, cultural, or archaeological value regardless of the value of any existing structure.

Soil Series. A group of soils having similar parent materials, genetic horizons, and arrangement in the soil profile.

Solvent. A substance that dissolves or can dissolve another substance.

Sound. The auditory sensation evoked by the compression and rarefaction of the air or other transmitting medium.

State Historic Preservation Officer. The official within each state, authorized by the State at the request of the Secretary of the Interior, to act as liaison for purposes of implementing the National Historic Preservation Act.

Storage Coefficient. The volume of water an aquifer releases per unit surface and of the aquifer per unit change in head.

Sulfur Dioxide (SO_2). A toxic gas that is produced when fossil fuels, such as coal and oil, are burned. SO_2 is the main pollutant involved in the formation of acid rain. SO_2 also can irritate the upper respiratory tract and cause lung damage. During 1980, some 27 million tons of sulfur dioxide were emitted in the U.S., according the Office of Technology Assessment. The major source of SO_2 in the U.S. is coal-burning electric utilities.

TACAN/Tactical Air Navigation (TACAN). An ultra-high frequency electronic air navigation aid that provides suitably equipped aircraft a continuous indication of bearing and distance to the station.

Terminal Area. A general term used to describe airspace in which an approach control service or airport traffic control service is provided.

Terminal Control Area (TCA). Controlled airspace extending upward from the surface or higher to specified altitudes, within which all aircraft are subject to operating rules and pilot and equipment requirements specified in FAR Part 91.

Therm. A unit of measure of natural gas.

Threatened Species. Plant and wildlife species likely to become endangered in the foreseeable future.

Total Suspended Particulates (TSP). The particulate matter in the ambient air. The previous national ambient air quality standard for particulates was based on TSP levels; it was replaced in 1987 by an ambient standard based on PM_{10} levels.

Tower/Airport Traffic Control Tower. A terminal facility that use air/ground radio communications, visual signaling, and other devices to provide ATC services to aircraft operating in the vicinity of an airport or on the movement area. Authorizes aircraft to takeoff or land at the airport controlled by the tower or to transit the airport traffic area regardless of flight plan or weather conditions (IFR or VFR).

Traffic Assignment. The allocation of traffic flows among routes available between any two places.

Total Traffic. All of the traffic that is projected to use a specific roadway. This includes background (nondevelopment related) traffic as well as traffic generated by the development being analyzed.

Traffic Pattern. The path that a motorist chooses in travelling between two places.

Transmissivity. The rate at which water is transmitted through a unit width of an aquifer under a unit hydraulic gradient.

Trip Generation. A determination of the quantity of trip ends associated with a parcel of land.

Trip Distribution. A determination of the interchange of trips among zones in the region.

Unconfined Aquifer. An aquifer where the water table is exposed to the atmosphere.

Unified Soil Loss Equation. An empirical equation that was developed to predict average annual soil loss by erosion.

Vehicle Trip End. A one-direction vehicle movement with either the origin and/or the destination or both inside the study site.

VFR Military Training Routes (VR). Routes used by DOD units for the purpose of conducting low-altitude navigation and tactical training under VFR rules below 10,000 feet MSL at airspeeds in excess of 250 knots indicated airspeed.

Visual Flight Rules (VFR). Rules that govern the procedures for conducting flight under visual conditions. In addition, the term is used by pilots and controllers to indicate type of flight plan.

Volume. The number of vehicles passing a point on a lane, roadway, or other trafficway during some time interval.

VOR/Very High Frequency Omnidirectional Range Station (VOR). A ground-based electronic navigation aid transmitting very high frequency navigation signals, 360 degrees in azimuth, oriented from magnetic north. Used as the basis for navigation in the national airspace system.

Warning Area. Airspace that may contain hazards to nonparticipating aircraft in international airspace.

Water Table. The surface between the unsaturated zone and the zone of saturation. A surface on which the fluid pressure in the pores of a porous medium is exactly atmospheric.

Wetlands. Areas that are inundated or saturated with surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil. This classification includes swamps, marshes, bogs, and similar areas.

Zoning. The partitioning of a local governmental jurisdiction into districts for the purpose of regulating land uses, building height, required yard setbacks, off-street parking, and other spatial aspects of development. Zoning districts are delineated on an Official Zoning Map that is a part of the zoning ordinance, along with text specifying development requirements.

APPENDIX A

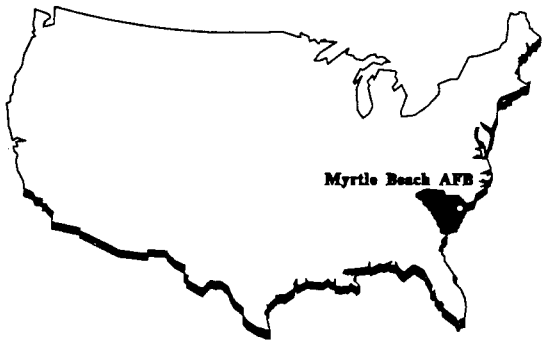
ACRONYMS AND ABBREVIATIONS

$\mu g/m^3$	Micrograms per cubic meter
AADT	Average annual daily traffic
AAQS	Ambient air quality standard
ACC	Air Combat Command
ACM	Asbestos-containing material
AFB	Air Force Base
AFR	Air Force Regulation
AGL	Above ground level
AHERA	Asbestos Hazard Emergency Response Act
AICUZ	Air Installation Compatible Use Zone
ALP	Airport layout plan
APE	Area of potential effect
APU	Auxiliary power unit
APZ	Accident potential zone
AQCR	Air quality control region
ARTCC	Air route traffic control center
ASNA Act	Airport Safety and Noise Abatement Act
ASR	Airport surveillance radar
ASV	Annual service volume
ATA	Airport traffic area
ATC	Air traffic control
BACT	Best Available Control Technology
CAA	Clean Air Act
CAA	Civil Aeronautics Administration
CAP	Corrective action plan
CAS	Carolina Archaeological Services
CCC	Civilian Conservation Corps
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CO	Carbon monoxide
COE	U.S. Army Corps of Engineers
CRPTA	Coastal Rapid Public Transit Authority
CUD	Compatible use district
CZ	Clear zone
dB	Decibel
dBA	A-weighted sound level
DBCRA	Defense Base Closure and Realignment Act
DEIS	Draft environmental impact statement
DERP	Defense Environmental Restoration Program
DP	Disposal pit (IRP site code)
DME	Distance measurement equipment
DNL	Day-night average sound level
DOD	Department of Defense
DOT	Department of Transportation
DRMO	Defense Reutilization and Marketing Office
ECAMP	Environmental Compliance Assessment and Management Program
EDMS	Emissions and Dispersion Modeling System

EIAP	Environmental Impact Analysis Process
EIS	Environmental impact statement
EPNdB	Effective perceived noise level
EOD	Explosive ordnance disposal
F	Fahrenheit
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
FEIS	Final Environmental Impact Statement
FHWA	Federal Highway Administration
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FL	Flight level
FLA	Flightline area
FOLTA	Forward Operating Location Training Area
FPMR	Federal Property Management Regulations
FS	Feasibility study
FT	Fire training area (IRP site code)
FTA	Fire training area
FY	Fiscal year
GCA	Ground controlled approach
g/m^3	Grams per cubic meter
GSA	General Services Administration
GSATS	Grand Strand Area Transportation Study
GSWSA	Grand Strand Water and Sewer Authority
HCDA	Horry County Department of Airports
HCM	Highway capacity manual
HUD	U.S. Department of Housing and Urban Development
I	Interstate
ICAO	International Civil Aviation Organization
IFR	Instrument flight rules
ILS	Instrument landing system
INM	Integrated Noise Model
IRP	Installation Restoration Program
JUA	Joint use agreement
kVA	Kilovolt-ampere
LAER	Lowest Achievable Emission Rate
L_{eq}	Energy-equivalent sound level
LF	Landfill
LOA	Letter of agreement
L_{max}	Maximum instantaneous sound level
LOS	Level of service
LTMRI	Long-term monitoring remedial investigation
LTO	Landing/takeoff cycles
MCL	maximum containment level
mg/L	Milligrams per liter
MGals	Million gallons
MGD	Million gallons per day
MMBTU	Million BTU/hr
MODFLOW	USGS groundwater flow model
MW	Megawatts
MWH	Megawatt hours
MOA	Military operations area
MSL	Mean sea level
NAAQS	National Ambient Air Quality Standards

NAC	Noise abatement criteria
NAS	National Airspace System
NCDC	National Climatic Data Center
NCP	National Contingency Plan
NDB	Nondirectional beacon
NEPA	National Environmental Policy Act
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NHPA	National Historic Preservation Act
nm	Nautical mile
NOI	Notice of intent
NO_2	Nitrogen dioxide
NOISEMAP	Computer model for airport noise estimation
NO_x	Nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRHP	National Register of Historic Places
NSPS	New source performance standards
NSR	New source review
NWI	National Wetland Inventory
NZ	Noise zone
O_3	Ozone
OL	Air Force Base Disposal Agency operating location
OSHA	Occupational Safety and Health Administration
OT	Other, ordnance, burn area, building (IRP site code)
O/W	Oil/water (separator)
PA	Preliminary assessment
PAR	Precision approach radar
Pb	Lead
PCB	Polychlorinated biphenyl
pCi/L	Picocuries per liter
PL	Public Law
PM-10	Particulate matter with an aerodynamic diameter less than or equal to 10 micrometers
POL	Petroleum, oil, and lubricants
ppm	Parts per million
PSD	Prevention of significant deterioration
psi	Pounds per square inch
RA	Remedial action
RAM	Resource assessment matrix
RAMP	Radon Assessment and Mitigation Program
RAPCON	Radar approach control facility
RCRA	Resource Conservation and Recovery Act
RD	Remedial design
R&D	Research and development
RFA	RCRA facility assessment
RFI	RCRA facility investigation
RI	Remedial investigation
ROD	Record of decision
ROG	Reactive organic gas
ROI	Region of influence
ROG	Reactive Organic Compounds
RPZ	Runway protection zone
RW	Radioactive waste site (IRP site code)

SC	South Carolina State Road
SARA	Superfund Amendments and Reauthorization Act
SCDHEC	South Carolina Department of Health and Environmental Control
SCHWMR	South Carolina Hazardous Waste Management Regulations
SCS	Soil Conservation Service
SD	Surface runoff, wash rack, ditch, oil/water separator (IRP site code)
SEL	Sound exposure level
SF	Square feet
SFO	Simulated flame out
SHPO	State Historic Preservation Officer
SI	Site inspection
SIAS	Socioeconomic Impact Analysis Statement
SID	Standard instrument departure
SIP	State Implementation Plan
SO_2	Sulfur dioxide
SO_x	Sulfur oxides
SS	Spills, storage area (IRP site code)
STARs	Standard terminal arrival routes
SWMU	Solid waste management unit
TAC	Tactical Air Command
TACAN	Tactical air navigation
TCE	Trichloroethylene
TPH	Total petroleum hydrocarbons
TRACON	Terminal radar approach control
TSCA	Toxic Substances Control Act
TSD	Treatment, storage, or disposal facility
TSP	Total suspended particulates
USC	United States Code
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
UST	Underground storage tank
VFR	Visual flight rules
VOA	Volatile organic aromatic compound
VOC	Volatile organic compound
VOR	Very high frequency omnidirectional range
VOR/DME	Very high frequency omnidirectional range/distance measuring equipment
vpd	Vehicles per day
vph	Vehicles per hour
VR	VFR military training route
WP	Weathering pit
WP	Waste pit, sump, lagoon, waste treatment, evaporation pit (IRP site code)



APPENDIX B

APPENDIX B

NOTICE OF INTENT

The following notice of intent was circulated and published by the Air Force in the October 9, 1991 Federal Register in order to provide public notice of the Air Force's intent to prepare an environmental impact statement for the partial disposal and reuse of Myrtle Beach Air Force Base. This Notice of Intent has been retyped for clarity and legibility.

Please Note: The point of contact for information on the disposal and reuse EISs has been changed. The new point of contact is:

Lt. Colonel Gary Baumgartel
AFCEE/ESE
8106 Chennault Road
Brooks AFB, Texas 78235-5318

NOTICE OF INTENT
TO PREPARE AN ENVIRONMENTAL IMPACT STATEMENT
FOR DISPOSAL AND REUSE OF THIRTEEN AIR FORCE BASES

The United States Air Force will prepare thirteen environmental impact statements (EISs) to assess the potential environmental impacts of disposal and reuse of the following Air Force bases recently directed to be closed under the provisions of the Defense Base Closure and Realignment Act of 1990 (Public Law 101-510, Title XXIX):

Closing Base

Bergstrom AFB, Austin, Texas

Carswell AFB, Fort Worth, Texas

Castle AFB, Merced, California

Eaker AFB, Blytheville, Arkansas

England AFB, Alexandria, Louisiana

Grissom AFB, Peru, Indiana

Loring AFB, Limestone, Maine

Lowry AFB, Denver, Colorado

Myrtle Beach AFB, Myrtle Beach, South Carolina

Richards Gebaur ARS, Kansas City, Missouri

Rickenbacker AGB, Columbus, Ohio

Williams AFB, Chandler, Arizona

Wurtsmith AFB, Oscoda, Michigan

The EIS will address the disposal of the property to public or private entities and the potential impacts of reuse alternatives. All available property will be disposed of in accordance with provisions of Public Law 101-510 and applicable federal property disposal regulations.

The Air Force plans to conduct a scoping and screening meeting within the local area for each base during October and November 1991. Notice of the time and place of each meeting will be made available to public officials and local news media outlets once it has been finalized. The purpose of the meeting is to determine the environmental issues and concerns to be analyzed for the base disposal and reuse in that area, to solicit comments on the proposed action and to solicit proposed disposal and reuse alternatives that should be addressed in the EIS for that base. In soliciting disposal and reuse inputs, the Air Force intends to consider all reasonable alternatives offered by any federal, state, or local government agency and any federally-sponsored or private entity or individual with an interest in acquiring available property at one of the listed closing bases. The

resulting environmental impacts will be considered in making disposal decisions to be documented in the Air Force's final disposal plan for each base.

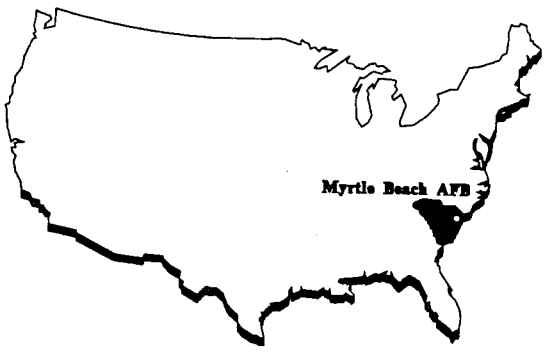
To ensure the Air Force will have sufficient time to consider public inputs on issues to be included in the EISs, and disposal alternatives to be included in the final disposal plans, comments and reuse proposals should be forwarded to the address listed below by December 1, 1991. However, the Air Force will accept comments at the address below at any time during the environmental impact analysis process.

For further information concerning the study of these base disposal and reuse EIS activities, contact:

Lt. Colonel Tom Bartol
AFCEE/ESE
Norton AFB, California 92409-6448

Note: Comment date was extended from December 1, 1991 to January 2, 1992 after processing and publication of this Notice of Intent.

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APPENDIX C

APPENDIX C

DRAFT ENVIRONMENTAL IMPACT STATEMENT MAILING LIST

This list of recipients includes interested federal, state, and local agencies and individuals who have expressed an interest in receiving the document. This list also includes the governor of South Carolina, as well as United States senators and representatives and state legislators.

ELECTED OFFICIALS

Federal Officials

U.S. Senate

The Honorable Ernest Hollings
The Honorable Strom Thurmond

U.S. House of Representatives

The Honorable Robin Tallon

State of South Carolina Officials

Governor

The Honorable Carroll Campbell, Jr.

The Honorable Nick Theodore
Lieutenant Governor of South Carolina

State Legislature

The Honorable Liston Barfield
The Honorable Ken Corbett
The Honorable Dick Elliott
The Honorable Frank Gilbert
The Honorable Douglas L. Hinds
The Honorable Tom Keegan
The Honorable Jeffery M. Long

Local Officials

The Honorable Jack Bland
Mayor, Town of Pawleys Island

The Honorable Bob Grissom
Mayor of Myrtle Beach

The Honorable Dick Johnson
Mayor of Surfside Beach

The Honorable Ike Long
Mayor of Conway

The Honorable Otto Marsh
Mayor of Briarcliff Acres

The Honorable Joe Montgomery
Mayor of Atlantic Beach

The Honorable Phil Tilghman
Mayor of North Myrtle Beach

Honorable Ulysses Dewitt
Horry County Council

Mr. Laurie McLeod
Chairman, Horry County Council

Pat DiGiovanni
Town Administrator, Surfside Beach

Mr. Tom Leath
City Manager of Myrtle Beach

Mr. M.L. Love, Jr.
Horry County Administrator

Mr. William Moss
City Manager of North Myrtle Beach

Mr. John Dawsey
Superintendent, Horry County Schools

Mr. Carl Ellington, Jr.
Horry County Airport Director

Ms. Billie Richardson
Horry County Clerk of Court

GOVERNMENT AGENCIES

Federal Agencies

Advisory Council on Historic Preservation

Bureau of Prisons

Centers for Disease Control

Center for Environmental Health & Injury Control
Special Programs Group (F29)

Council of Economic Advisors

Department of Agriculture
U.S. Forest Service
Environmental Coordination Office

Department of Commerce
Economic Development Administration
Economic Adjustment Division

Department of Commerce
Office of Intergovernmental Affairs

Department of Education
Intergovernmental & Interagency Affairs

Department of Energy
Division of Intergovernmental Affairs (CP-23)

Department of Health & Human Services
Office of Human Development Services

Department of Housing & Urban Development
Community Management Division (CPD)

Department of Interior
Office of Environmental Affairs

Department of Labor
Intergovernmental Affairs

Department of Transportation
Administrative Services & Property Management
Office of the Secretary of Transportation

Department of Veterans Affairs

Environmental Protection Agency
Office of Federal Activities

Farmers Home Administration
Program Operations

Federal Aviation Administration
Office of Environment and Energy
Mr. Lee Kyker

General Services Administration
Office of Real Estate Policy & Sales (FPRS)

Small Business Administration
Office of Procurement
Policy & Liaison

Department of Defense

Office of Economic Adjustment
The Pentagon

Regional Offices of Federal Agencies

General Services Administration
Public Buildings and Real Property
Atlanta Regional Office

U.S. Army Corps of Engineers
Charleston District

U.S. Department of Commerce
Economic Development Administration
Atlanta Regional Office

U.S. Department of the Interior
Atlanta Regional Office of Environmental Affairs

U.S. Environmental Protection Agency
Region IV
Federal Facilities Coordinator

U.S. Department of Labor
Office of Secretary's Representative
Atlanta Regional Office

State of South Carolina Agencies

Agriculture Department
Leslie Tindal, Commissioner

Archives and History Department
Mr. George Vogt, Director

Economic Advisory Board
Ms. Barbara Feinn, Director

Farmers Home Administration
Mr. Nicholas Anagnost, State Environmental Coordinator

Forestry Commission
Mr. Robert Gould, State Forester

Office of the Governor
Grant Services
Ms. Kathy Reis

Health and Environmental Control Department
Mr. Michael Jarrett, Commissioner

Highways and Public Transportation Department
Mr. Robert McLellan, Executive Director

Land Resources Conservation Commission
Mr. John Panio, Executive Director

Parks, Recreation and Tourism Department
Mr. Fred Brinkman, Executive Director

Real Estate Commission
Mr. Henry Jolly, Commissioner

Research and Statistical Services Division
Mr. Bobby Bowers, Director

South Carolina Advisory Commission on Intergovernmental Affairs
Mr. Dan Makey, Director

South Carolina Base Development Commission
Ms. Haidee Clark, Deputy Director

South Carolina Budget and Control Board
Mr. J. Samuel Griswold, Deputy Executive Director

South Carolina Coastal Council
H. Stephen Snyder

State Archaeologist Office
Mr. Bruce Rippeteau, Director and State Archaeologist

State Development Board
Mr. Wayne Sterling, Director

Water Resources Commission
Alfred Vang, Executive Director

Wildlife and Marine Resources Department
Dr. James Timmerman, Jr., Executive Director

Local Government Agencies

Horry County Development Commission
Mr. Jack Hutchison, Commissioner

Georgetown County Development Commission
Mr. Jack Kendree, Executive Director

Highway Commission
Loris Eargle

Myrtle Beach Recreation Department
Mr. Donnis Kinder

Briarcliff Acres Town Council

City of Myrtle Beach Housing Authority

Grand Strand Water & Sewer Authority

Horry County Airport Commission

Horry County Council

Myrtle Beach City Council

North Myrtle Beach City Council

Pawleys Island Town Council

Surfside Beach Town Council

Georgetown County Chamber of Commerce
Mr. Bill Oberst

Myrtle Beach AFB Redevelopment Task Force
Mr. Cliff Rudd, Planning Coordinator

Myrtle Beach Chamber of Commerce
Mr. Asby Ward, President
Mr. Doug Bell, Ms. Anne Fisher, Mr. Tom Russo

Conway Area Chamber of Commerce
Ms. Debbie Clemmons Brooks, Executive Vice President

Horry County Development Board
Dr. Kent Sharples, Chairman
Mr. Jim Creel

Myrtle Beach Area Chamber of Commerce
Ms. Ann DeBock

OTHERS

Other Organizations/Individuals

Local libraries

Advocates for the Public Interest

Labate Anderson
Mr. Jeff Ramon

AP ADV. Comm
Mr. E.A. "Gene" Dorman, Chairman
Mr. Bob Bellamy
Mr. J.R. Clark

Coastal Carolina College
Ms. Mary Eaddy

Conservation Foundation

Conway Hospital
Mr. James Zoller

Colonel Coup DeVille (Ret.)

EDAW & Associates
Mr. Richard Dorrier

The Earth Technology Corporation
Ms. Sandy Cuttino

Environmental Action Foundation
Director

Environmental Defense Fund
Executive Director

Environmental Policy Center

FKW, Inc.
Carol Hooper

Friends of the Earth

Grand Strand General Hospital
Sydney Smith-Rikard
Mr. John Harms

National Audubon Society
Mr. Larry Thompson, Director

National Wildlife Federation
Region 3
Mr. John Lentz, Director

Natural Resources Defense Council

Nature Conservancy

NUS Corp.
Mr. Steve Giannino
Mr. Hart Rist

Santee-Cooper
Ms. Jill Robbins
Mr. Curtis Williamson

Sierra Club

South Carolina Hall of Fame
Mr. Robert Hirsch

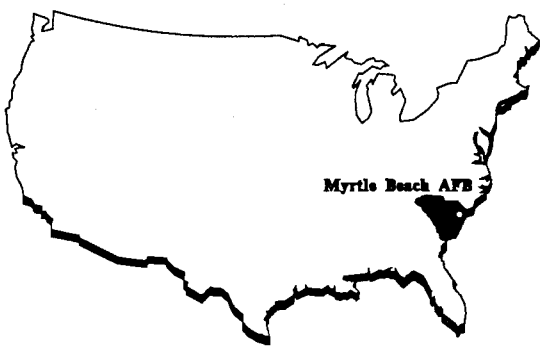
Sun News
Mr. Mike Pate, Publisher

Tetra Tech, Inc.
Dr. Raj Mathur

Timberland Properties
Mr. Robert Blackburn

USC-COC
Mr. Ron Eaglin, Chancellor

The Wilderness Society



APPENDIX D

APPENDIX D

MYRTLE BEACH AFB INSTALLATION RESTORATION PROGRAM BIBLIOGRAPHY

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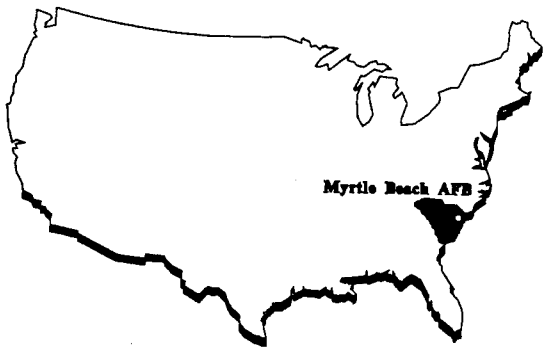
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Law Environmental, Inc., Government Services Division, 1989. Corrective Action Plan (CAP) for BX Service Station, Myrtle Beach Air Force Base, Myrtle Beach, South Carolina, Kennesaw, Georgia, December.

Law Environmental, Inc., Government Services Division, 1991. Final Quality Control Summary Report for Groundwater Sampling BX Service Station, Myrtle Beach, South Carolina, Kennesaw, Georgia, August.

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APPENDIX E

APPENDIX E

METHODS OF ANALYSIS

1.0 INTRODUCTION

The purpose of this Environmental Impact Statement (EIS) is to evaluate the probable environmental impacts of disposal of Myrtle Beach AFB. Since disposal necessarily involves the potential for reuse, the EIS evaluates the effects of reusing the base after it is no longer under the management of the Air Force.

Future reuse of the site is uncertain in its scope, activities, and timing. This EIS addresses these uncertainties by evaluating alternative reuse scenarios. These scenarios are intended to encompass the full range of reuses, and their associated environmental impacts that are reasonably foreseeable due to disposal of the base.

The scenarios are defined on the basis of (1) proposals put forth by affected local communities and interested individuals, (2) general land use planning considerations, and (3) Air Force-developed alternatives to provide a broad range of reuse options for impact analysis. The overall objective in defining the scenarios addressed in this EIS is to span the anticipated range of reuse activities that are reasonably likely to occur.

Reuse scenarios considered in this EIS must be sufficiently detailed to permit environmental analysis. Initial concepts and reuse plans are taken as starting points for scenarios to be analyzed. Available information on any reuse alternative is then supplemented with economic, demographic, transportation, and other planning data to provide a reuse scenario sufficiently detailed for environmental analysis.

These planning data were derived from the various analysis methods for each factor of the affected environment under each reuse scenario. In those instances where the methodology was straightforward or could be succinctly presented, a description of it appears in the main body of the EIS. Methodologies that were more detailed or that require lengthy discussion are presented in this and other appendices; additional information for the methodology for transportation is presented as appendix F, for surface water as appendix I, for air quality as appendix J, and for noise as appendix K.

2.0 LOCAL COMMUNITY

2.1 COMMUNITY SETTING

The section on community setting was developed to provide the context within which other biophysical impacts could be assessed. Community setting impacts were based on projected direct and secondary employment and resulting population changes related to reuse of Myrtle Beach AFB. These projections were used to quantify and evaluate changes in demand on

community services, demand on transportation systems, air quality, and noise. A complete assessment of socioeconomic effects was conducted through a separate *Socioeconomic Impact Analysis Study* (SIAS) *for the Disposal and Reuse of Myrtle Beach AFB*, which is the source for the baseline and projected statistics used in this EIS.

The SIAS used information from sources including the U.S. Bureau of Economic Analysis, U.S. Bureau of Labor Statistics, U.S. Bureau of the Census, U.S. Council of Economic Advisors, the South Carolina Data Center, the South Carolina Employment Security Commission, Myrtle Beach AFB Economic Resource Impact Statements, Horry and Georgetown Counties, and the cities of Myrtle Beach, North Myrtle Beach, and Conway. The analysis used the Regional Interindustry Multiplier System (RIMS II) model to generate demographic and economic projections associated with the Proposed Action and alternatives.

2.2 LAND USE AND AESTHETICS

Potential land use impacts were projected based on compatibility of land uses associated with the Proposed Action and alternatives with adjacent land uses and zoning; consistency with general plans and other land use plans, regulations, regional plans and policies; and effects of aircraft noise and safety restrictions on land uses.

The region of influence (ROI) for land use and aesthetics was defined as all lands bounded by the Intracoastal Waterway and SC 707 on the north (including developed portions of U.S. 501 north of the waterway), U.S. 501 on the east, the Atlantic Ocean on the south, and SC 544 to the west. Noise-related land use impacts were determined by the extent of noise contours created by reuse alternatives.

Scenario development assumes an ultimate or full buildout plan for reuse of the base, as well as considerations of interim development over a 5-, 10-, and 20-year schedule. The base acreage is allocated under each plan to uses identified as the long-term use of each parcel on the site. Potential reuses considered in the preparation of alternatives included airport expansion, aviation support facilities, industrial developments, commercial (office and retail) centers, a destination resort, air museum, educational campus, recreation facilities, medical use, housing, a correctional facility, and public and semi-public uses.

These alternate buildout scenarios are based on the reasonable possibility, rather than probability, that they may occur. Inclusion of a land use, or an entire scenario, is not based on any judgement that such a land use is feasible or represents a market-determined use of the land. Rather, if there is a reasonable possibility that a particular reuse may occur, as evidenced by proposals for that reuse or known cases where such land uses have occurred elsewhere, that reuse would be included in one or more scenarios.

Given specific land uses for an alternative, the types of facilities to be renovated or constructed are then determined. Floor area ratios for each facility are developed using typical land use standards and/or community development ratios. Support facilities, such as road improvements, also are identified.

The results of these efforts are 1) five reuse plans, one for each scenario to be analyzed, identifying the use of each on-site parcel, and 2) a list of facilities to be constructed or renovated, with an indication of the magnitude (such as square footage of floor area) of each land use.

Maps and windshield surveys were used to characterize on- and off-base land uses. Applicable policies, regulations, and land use restrictions were identified from the land use plans and ordinances of municipalities in the ROI. The Proposed Action and alternatives were compared to existing land use and zoning to identify areas of conflict, as well as to local planning goals and objectives as set forth in community general plans.

Alternatives incorporating airfield uses were examined for consistency with Federal Aviation Administration (FAA) regulations and recommended land uses in the vicinity of airfields. Impacts of airfield-generated noise were assessed by comparing the extent of noise-affected areas and receptors under different reuse alternatives against preclosure and closure baseline conditions.

For the aesthetics analysis, the affected environment was described based upon the visual sensitivity of areas within and visible from the base. These areas were categorized as high, medium, and low sensitivity. The Proposed Action and alternatives were then evaluated to identify land uses to be developed, visual modifications that would occur, and new areas of visual sensitivity and to determine whether modification of unique or otherwise irreplaceable visual resources would occur and detract from the visual qualities or setting. Consistency with the applicable plans that protect visual resources also was examined.

2.3 TRANSPORTATION

Potential impacts to transportation due to the Proposed Action and alternative reuse plans for Myrtle Beach AFB focus on key roads, local airport use, and passenger rail service in the area, including those segments of the transportation networks in the region that serve as direct or mandatory indirect linkages to the base, and those that are commonly used by Myrtle Beach AFB personnel. The need for improvements to on-base roads, off-base access, and regional arterials was considered. The analysis was derived using information from state and local government agencies, including the South Carolina Department of Highways and Public Transportation, the Waccamaw Regional Planning Council, the Horry County Planning Department, the Coastal Rapid Public Transit Authority, the Myrtle Beach Planning Department, and the Horry County Department of Airports. Other data sources used for the roadway analysis include the Institute of Transportation Engineers, the Transportation Research Board, and the Florida Department of Transportation.

The ROI for the transportation analysis varies with the mode of transportation. The ROI for highways and transit consists of the eastern portion of Horry County and the northeastern portion of Georgetown County. The ROI for air transportation includes the Myrtle Beach Jetport and the general aviation airports in Horry County. The ROI for railroads consists of the segments owned by Horry County and includes the abandoned spur to the base. The ROI for seaports includes the fuel delivery dock on the Intracoastal Waterway and the Ports of Georgetown and Charleston. Within this geographic area, the

analysis examines the existing major road, air, and rail transportation networks, including those segments of the transportation networks in the region that serve as direct or mandatory indirect linkages to the base, and those that are commonly used by Myrtle Beach AFB personnel.

2.3.1 ROADWAYS AND TRANSIT

The number of vehicles expected as a result of specific land uses on the site is estimated for each projection year on the basis of direct on-site jobs and other attributes of on-site land uses (such as the number of hotel rooms, projected airport boardings, and other factors). Construction-related trips also were included. The Institute of Transportation Engineers "Trip Generation," Fifth Edition manual is the principal source for relationships between trip making and these various attributes. Other sources were used for land uses that were not included in the "Trip Generation" Manual. Appendix F includes the methodology for estimating trips from those land uses.

Vehicle trips generated by each alternative are then assigned to the road network using logical patterns for expected destinations and sources of trips for each projection year. Traffic that is not associated with the development, or background traffic, is estimated on each roadway link for each projection year by the following procedure. Existing traffic volumes are factored by the change in population and tourism in the area affecting that link. In other words, if population and tourism are expected to increase 25 percent in an area between the base closure and 2013, then traffic volumes would increase by a similar amount.

The road network is modified to allow for capacity improvements that may be constructed during the analysis period. Certain roadway improvements, such as the Carolina Bays Parkway, are new roadways and will relieve traffic on other roads, such as U.S. 17 Bypass. Estimates of this relief, or traffic diversion, are made.

Traffic volumes on a particular roadway may be reported in several different units of measure. The daily number of vehicular movements in both directions on a particular segment of that roadway averaged over a calendar year is the average annual daily traffic (AADT). The number of vehicle movements on a road segment during the busiest hour of the average day is the average peak hour. These traffic volume figures are useful in determining the use of various roads and in assessing the potential for congestion and other problems.

The relationship of average peak hour to AADT in the Myrtle Beach urban area is approximately 7.9 percent. The peak period in the Myrtle Beach area generally occurs between 5:00 and 6:00 P.M. This relationship was calculated by analyzing hourly volumes from the only permanent count station in Horry County, located on U.S. 501.

Due to the heavy influx of tourists during the summer months in Myrtle Beach and the resulting increase in traffic on the major roadways, both daily traffic and peak hour traffic will be measured as peak season average daily traffic and peak season peak hour traffic. Using the permanent count station information, the ratio of average peak season traffic to AADT is approximately 1.2.

Baseline and forecast conditions are presented on a peak season peak hour basis.

Traffic flow conditions generally are reported in terms of level of service (LOS) rating factors that represent the general freedom (or restriction) of movement on roadways. The LOS for a particular segment of roadway depends on the physical characteristics of the roadway, the traffic volumes, and the vehicular mix of traffic. See Appendix F (Transportation) for a detailed explanation of LOS and the service volumes for each LOS category.

Traffic flow conditions are most congested during morning and evening peak hours as commuters go back and forth to work. The city of Myrtle Beach, Horry County, and the South Carolina Department of Highways and Transportation have not developed standards for LOS at this time. The Grand Strand Area Transportation Study (GSATS) Policy Committee anticipates setting standards in the future. It is common for urban areas to set LOS standards of D for roadways that exhibit congested conditions for certain times of the year. LOS D will be used as a standard in this traffic analysis.

Future year background traffic was estimated by factoring existing traffic volumes by growth in tourism and population for the region. This "first cut" background traffic was reduced by 50 percent of the traffic generated by the Myrtle Beach AFB "normal" land reuses, those that are assumed to be part of the "normal" growth of the area. This reduction reduced the possibility of double counting total traffic growth in the area by subtracting part of the growth that would normally take place even without the reuse of Myrtle Beach AFB. All of the reuse-generated traffic was then added to the background traffic to derive total traffic.

The transportation system of the Myrtle Beach area was examined to determine potential impacts to LOS on the roadway system resulting from future baseline conditions (caretaker status of Myrtle Beach AFB) and effects of future alternative land uses for the base. Changes in traffic volumes were projected for road segments in the ROI. LOS ratings were based upon service volume standards from the Florida Department of Transportation. The use of these standards was approved by local and state authorities.

Improvements necessary to maintain LOS D conditions during the peak hour were determined by adding capacity to the impacted road segment until LOS D or higher was achieved. Transit was not input as a commuter mode in the analysis, but is used for potential mitigation of the impacts in place of road improvements.

2.3.2 AIRSPACE

Airspace use in the vicinity of an airport is driven by such factors as runway alignment, surrounding obstacles and terrain, air traffic control, navigational aid capabilities, proximity of other airports/ airspace uses in the area, and noise considerations. These same factors normally apply regardless of whether the airport is used for military or civil aircraft operations. For this reason, a preclosure reference was used in characterizing these factors related to airspace use at Myrtle Beach AFB.

Historic data on military aircraft operations used to characterize airspace use at and around Myrtle Beach AFB were obtained from the base airspace and air traffic control managers. The director of the Horry County Department of Airports provided information on civil airport use. Aviation forecasts were derived from the reuse plans commissioned by the Myrtle Beach AFB Redevelopment Task Force.

The ROI for the airspace analysis is an area extending from the surface up to 10,000 feet mean sea level (MSL) and covering the area within a 20-nautical mile (nm) radius of the base plus the airspace outside this radius, but within the airspace controlled by the Myrtle Beach AFB Radar Approach Control (RAPCON). This airspace is within the control jurisdiction of the Myrtle Beach AFB RAPCON at the base. Effects on airspace controlled by Jacksonville Air Route Traffic Control Center (ARTCC), including airspace above 10,000 feet MSL, were addressed in a general sense. The baseline also addressed the Gamecock Military Operations Area (MOA) special use airspace because of its close proximity to Myrtle Beach AFB and the fact that the military will continue to use this airspace after base closure.

The types and levels of aircraft operations projected for the alternatives were evaluated and compared to the way airspace was configured and used under the preclosure reference. The capacity of the airport to accommodate the projected aircraft fleet and operations was assessed by calculating the airport service volume, using the criteria in the Advisory Circular 150/5060-5. Potential effects on airspace use were assessed, based on the extent to which projected operations could (1) accommodate required modifications to the airspace structure or air traffic control systems and/or other facilities; (2) restrict, limit, or otherwise delay other air traffic in the region; or (3) encroach on other airspace areas and uses. It was recognized throughout the analysis process that a more in-depth study would be conducted by the FAA, once a reuse plan is selected, to identify any impacts of the reuse activities and what actions would be required to support the projected aircraft operations. Therefore, this analysis was used only to consider the level of operations that could likely be accommodated under the existing airspace structure and to identify potential impacts if operational capacities were exceeded.

2.3.3 AIR TRANSPORTATION

Data addressing private, passenger, and cargo air service in Horry County were collected from the Horry County Department of Airports. This information included historic, current, and projected data.

The effect of base closure and reuse was determined by analyzing the projected operations for each of the reuse alternatives, and calculating the anticipated boardings for each alternative.

2.3.4 RAILROADS

Information regarding existing rail service was obtained from Horry County, the owner of the Waccamaw Coastline Railroad. Passenger travel was outside the region in the baseline year.

As rail service in the baseline year was not provided to Myrtle Beach, the base closure was assumed to have no effect on the existing freight rail service. In the future year scenarios, rail service was assumed to be restored to Myrtle Beach. Certain of the land use alternatives have the potential for rail service extension to the base.

2.3.5 SEAPORT

Information regarding seaport activities was collected from the Port of Georgetown and Myrtle Beach AFB. No future year alternatives were assumed to use port facilities.

2.4 UTILITIES

Utility usage was determined based on land uses and projected area population increases. The utility systems addressed in this analysis include the facilities and infrastructure used for potable water (pumping, treatment, storage, and distribution), wastewater (collection and treatment), solid waste (collection and disposal), and energy generation and distribution (electricity and natural gas). Historic consumption data, service curtailment data, peak demand characteristics, storage and distribution capacities, and related information for base utilities (including projections of future utility demand for each utility provider's particular service area) were extracted from various engineering reports. Information was also obtained from public and private utility purveyors and related county and city agencies.

The ROI for this analysis comprised the service areas of the local purveyors of potable water, wastewater treatment, solid waste, and energy that serve Myrtle Beach AFB and the surrounding area. It was assumed that these local purveyors would provide services within the area of the existing base after disposal/reuse.

Potential impacts were evaluated based on long-term projections of demand and population obtained from the various utility purveyors within the region (through 2013) for each of their respective service areas. In each case, purveyors provided the most recent comprehensive projections that were either made prior to the base closure announcement or that did not take into account a change in demand from the base. These projections were then adjusted to reflect the decrease in demand associated with closure of Myrtle Beach AFB and its subsequent operation under caretaker status. These adjusted forecasts were then considered the future baseline for comparison with potential reuse alternatives.

The potential effects of reuse alternatives were evaluated by estimating and comparing the additional direct and indirect demand associated with each alternative to the existing and projected operating capabilities of each utility

system. Estimates of direct utility demands on site were used to identify the effects of the reuse activities on site-related utility systems. All changes to the utility purveyors' long-term forecasts were based on estimated project-related population changes in the region and the future rates of per capita demand explicitly indicated by each purveyor's projections or derived from those projections. It was assumed that the regional per-capita demand rates were representative of the reuse activities, based on assumed similarities between proposed land uses and existing or projected uses in the region. Projections in the utilities analysis include direct demand associated with activities planned on base property, as well as resulting changes in domestic demand associated with population changes in the region.

3.0 HAZARDOUS MATERIALS AND HAZARDOUS WASTE MANAGEMENT

Two categories of hazardous materials and hazardous waste management issues were addressed for this analysis: (1) impacts of hazardous materials used and hazardous wastes generated by each reuse proposal and (2) residual impacts associated with past Air Force practices including delays due to Installation Restoration Program (IRP) site remediation. IRP sites were identified as part of the affected environment (Chapter 3), while remediation impacts associated with these sites were addressed as environmental consequences (Chapter 4). Impacts of wastes generated by each reuse proposal were also addressed in Chapter 4. Primary sources of data were existing published reports such as IRP documents, management plans for various toxic or hazardous substances (e.g., spill response, hazardous waste, asbestos), the Myrtle Beach closure EIS prepared in 1990, and survey results (e.g., radon). Pertinent federal, state, and local regulations and standards were reviewed for applicability to the Proposed Action and alternatives. Hazardous materials and waste management plans and inventories were obtained from Myrtle Beach AFB. Interviews with personnel associated with these on-base agencies provided the information necessary to fill any data gaps. State and local agencies also were contacted regarding regulations that would apply to both current and postclosure activities for Myrtle Beach AFB.

The ROI includes the current base property and all geographical areas that are exposed to the possibility of an on-base release of a hazardous material or hazardous waste. The ROI for IRP sites is generally within the base boundary. Exceptions will include areas where contaminated groundwater plumes may have migrated off base.

Preclosure conditions as defined for this study include current hazardous materials/waste management practices and inventories pertaining to the following areas: hazardous materials, hazardous waste, IRP sites, above ground and underground storage tanks, asbestos, pesticides, polychlorinated biphenyls (PCBs), radon, medical/biohazardous waste, and photochemical waste. The impact analysis considered (1) the amount and type of hazardous materials/waste currently associated with specific facilities and/or areas proposed under each reuse alternative (i.e., buildings containing asbestos that would likely be demolished, asbestos in buildings that must be managed; (2) the regulatory requirements or restrictions associated with property transfer and reuse; (3) delays to development due to IRP remediation activities; and (4) remediation schedules of specific hazardous materials/waste (i.e., PCBs, medical/biohazardous waste) currently used by the Air Force.

4.0 NATURAL ENVIRONMENT

4.1 SOILS AND GEOLOGY

Evaluation of soils impacts addressed erosion potential, construction-related dust generation, and other soils problems (low soil strength, expansive soils, etc.), and potential for unique soil types. Information was obtained from several federal, state, and local agencies. Assessment of potential impacts to geology from the reuse alternatives included evaluation of resource potential (especially aggregates), geologic hazards (particularly potential for seismicity, and sinkhole formation), and flooding potential.

The soils analysis was based on a review of Soil Conservation Service (SCS) documents for soil properties. The soils in the ROI were then evaluated for erosion potential, permeability, evidence of hardpans, expansive soil characteristics, etc., as these relate to construction problems and erosion potential during construction. Mitigations were evaluated based on county ordinances and SCS recommendations. Common engineering practices were reviewed to determine poor soil characteristics and recommended mitigation measures.

The Universal Soil Loss Equation was calculated to estimate the amount of soil loss during construction with and without mitigation measures.

The Universal Soil Loss Equation is an empirical equation that was developed to predict average annual soil loss by erosion (USEPA, 1985). The equation, which was obtained by statistical analyses of erosion field research data, is:

$$X = 1.29\ E\ (K)\ (1s)\ C\ (P)$$

Where

X = soil loss
E = rainfall/runoff erosivity index
K = soil erodibility
1s = topographic factor
C = cover/management factor
P = supporting practice factor

This equation is provided in the 1985 USEPA document Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Groundwater - Part 1.

Soil parameters specific to the soils at Myrtle Beach AFB were used in the equation. These parameters were obtained from the SCS soil survey for Horry County. The annual soil loss was calculated for two scenarios: with proper cover and management, and without proper cover protection. The results of the equation indicated that proper mitigation measures would reduce the amount of soil loss during construction activities.

The ROI for the soils and geologic analyses included Myrtle Beach AFB.

The geologic analysis was based on a review of existing literature for characteristics of subsurface geological units, geologic hazards, and whether reuse would impact the availability of known mineral resources.

4.2 WATER RESOURCES

Analysis of impacts of the reuse alternatives on water resources considered groundwater quality and quantity, surface water quality (effects from erosion or sedimentation and contamination), surface water drainage diversion, and non-point source surface runoff to the Intracoastal Waterway and Atlantic Ocean. Impacts to water quality resources resulting from IRP activities were addressed under Hazardous Materials and Waste Management. Information was obtained from several federal, state, and local agencies. The ROI for water resources included the groundwater basin underlying the base, the surface drainage directly affected by runoff from the base, and the 100-year floodplain in the vicinity of the base.

Existing surface water conditions were evaluated for flood potential, non-point source discharge or transportation of contaminants, surface water quality, and use of surface water as a potable water source for each reuse alternative. Groundwater resources were evaluated as they pertained to adequate water supplies for each of the reuse alternatives. Groundwater quality and the potential as a potable water source for each reuse alternative was documented. The existing storm water drainage system was evaluated based on available literature, and the impacts to this system from each of the reuse alternatives were determined.

Projected drawdown values in the groundwater basin underlying the base for each reuse alternative were estimated by using groundwater flow modeling. The model code used for predicting the various drawdown scenarios was the U.S. Geological Survey's Modular Three-Dimensional Finite-Difference Groundwater Flow Model (MODFLOW) (McDonald and Harbaugh, 1988).

The model simulates flow in three directions. The modular structure consists of a main program and a series of highly independent subroutines called "modules." These modules are grouped into "packages" that each deal with a specific feature of the hydrologic system which is to be simulated. Groundwater flow within the aquifers is simulated using a block-centered finite-difference approach. Layers can be simulated as confined, unconfined, or a combination of confined and unconfined. Flow from external stresses, such as flow to wells, areal recharge, evapotranspiration, etc., can also be simulated. The finite-difference equations utilized in the model can be solved by either the Strongly Implicit Procedure (SIP) or Slice-Successive Overrelaxation (SSOR). The program is written in FORTRAN and was compiled for use on an IBM-compatible personal computer.

The model area was divided into cells on a grid consisting of 40 rows and 40 columns, each cell consisting of a length and width of 2,000 feet. The rows of the model run parallel to the Myrtle Beach coastline and extend into the Atlantic Ocean approximately six miles. The size of the modeled area is approximately 230 square miles.

The model was divided into three layers, each representing separate aquifer systems. Layer one represented the surficial aquifer, layer two represented the Peedee aquifer, and layer three represented the Black Creek aquifer. The lateral boundaries of the model were assumed to be constant-head, which indicates that groundwater can flow either into or out of the lateral boundaries without a change in head. Layer one was also assumed to represent constant head conditions, simulating recharge into the model from rainfall.

Aquifer characteristics were based upon existing information. The following aquifer parameters were used during the simulations:

Surficial aquifer	
thickness:	60 feet
hydraulic conductivity:	14 ft/day
Peedee aquifer	
thickness:	200 feet
transmissivity:	320 ft^2/day
leakance coefficient:	2.5 E-7 per day
Black Creek aquifer	
thickness:	750 feet
transmissivity:	1,200 ft^2/day
leakance coefficient:	2.0 E-7 per day

The projected nonpotable (irrigation) demands for each reuse alternative were simulated using an estimated number of wells. Major withdrawals, i.e., theme park attractions and golf courses, were assumed to occur within the Black Creek aquifer, while smaller withdrawals, i.e., landscape irrigation, were assumed to occur within the Peedee aquifer.

Storm water runoff discharges were estimated based on the runoff/rainfall ratio corresponding to each land use category. That ratio was calculated by first adding the expected runoff volumes from all storms during the period of historical record by application of the SCS method described in Appendix I. Curve numbers were estimated based on existing, or projected, land uses. The total calculated runoff volume during the period of record was then divided by the total rainfall during that same period to obtain the land use category's runoff/rainfall ratio.

Water quality discharges were estimated by calculating total annual pollutant loads by land use category. Conventional and non-conventional pollutants of concern were identified from literature review. Furthermore, the literature review provided typical runoff pollutant concentrations by land uses. Total expected annual pollutant loads were then determined by the product of the expected runoff times the corresponding pollutant concentrations.

4.3 AIR QUALITY

The air quality resource is defined as the condition of the atmosphere, expressed in terms of the concentrations of pollutants occurring in an area as the result of emissions from natural and/or man-made sources. Reuse

alternatives have the potential to affect air quality depending on net changes in the release of both gaseous and particulate matter emissions. The significance of related pollutant environmental impacts from these emission changes were determined by comparing the resulting atmospheric concentrations to state and federal ambient air quality standards. This analysis drew from climatological data, air quality monitoring data, baseline county and air quality control region emission inventory information, projected land use information, and projected aircraft and mobile source (transportation) activity. Principal sources for these data were the U.S. Environmental Protection Agency (USEPA), Region IV; the South Carolina Department of Health and Environmental Control (SCDHEC), Bureau of Air Quality Control; Horry County Department of Airports; and the Myrtle Beach AFB environmental coordinator, base civil engineer, and bioenvironmental engineer.

The ROI was determined by emissions from sources associated with construction and operation of the reuse alternatives. For inert pollutant emissions (all pollutants other than ozone and its precursors), the measurable ROI is limited to a few miles downwind from the source (i.e., the immediate area of Myrtle Beach AFB). The ROI for ozone impacts from project emissions included much of the Georgetown Intrastate Air Quality Control Region (AQCR).

Emissions (emission inventories) predicted to result from the reuse alternatives were compared to existing county and AQCR baseline emissions to determine the potential for adverse air quality impacts. Impacts were also assessed by modeling, where appropriate, and compared to air quality standards and attainment levels for complying with these standards.

The Emissions and Dispersion Modeling System (EDMS) was used to quantify emissions from aircraft and mobile source activities associated with the Proposed Action and alternatives. EDMS is a combined emissions/dispersion model for assessing air pollution and air quality impacts at airports and military airbases. The model was a joint development by the FAA and the Air Force. It produces an emissions inventory of all airport sources (mobile and point sources) and calculates the ambient concentrations of the pollutants produced by these sources at specified receptors.

The model has a built-in data base containing emissions factors for point sources such as fuel storage tanks and power plants as well as emissions factors for mobile sources such as aircraft and automobiles. An aircraft emission factor data base is supplied as part of the model; however, this data base was expanded and updated to accommodate the inclusion of additional commercial, cargo, and general aviation aircraft. Specifically the database was modified to add/update the following aircraft: 727-200, 737-200, 737-300 (737-400 modeled as 737-300), F-100, and 757-200. A set of average emission factors was calculated from three turboprop aircraft (SAAB 340, Metro 2, and DHC-6) to add a generic turboprop aircraft to the database. The generic aircraft is used to model all turboprop aircraft operations since the data base supplied with the model did not contain turboprop aircraft currently being used or predicted for use in the out years at the jetport. A Learjet 35 was used as a generic aircraft to model the general aviation jet since the engines on this aircraft are used on similar aircraft in this category.

The current EDMS model also uses USEPA's Mobile4.1 emission factor model to calculate emission rates for the 1990, 1995, 2000 and 2010 highway motor vehicle fleet mixes. Mobile4.1 is a computer program that estimates hydrocarbons, carbon monoxide, and oxides of nitrogen emission factors for gasoline-fueled and diesel highway motor vehicles. Mobile4.1 emission estimates depend on various conditions such as ambient temperature, speed, and mileage accrual rates. These factors are part of the input requirements for EDMS.

EDMS incorporates an emissions model to calculate an emission inventory for each pollutant source and a dispersion model to calculate ambient pollutant concentrations produced by these sources at selected receptors. The emissions model receives emissions information entered through the internal data base and converts this information into emission rates from which the emissions inventory is prepared. The dispersion portion of EDMS then adds meteorological inputs to the emissions information and produces a report of predicted pollutant concentrations at specified receptors. The dispersion model can operate in either of two modes, screening or refined. In the screening mode, a selected set of meteorological conditions is manually entered into the model to evaluate impacts due to specific weather conditions. In the refined mode, a meteorological data file must be entered into EDMS. These meteorological data sets are AIRWAY SURFACE OBSERVATION files distributed by the National Climatic Data Center and can be obtained for each weather station in the U.S.

Peak hour scenarios for emissions from both aircraft at the jetport and vehicle traffic in the area encompassed by the reuse alternatives were used for the emissions inventory and dispersion portions of EDMS. The dispersion model was run in the screening mode using a worst case meteorological input to predict 1-hour ambient concentrations at selected receptors. The meteorological conditions used combined a 1.0 meter per second windspeed, a D stability class (worst case expected to occur during the hours of the day when the jetport is active), and average peak season temperature of 79°F with wind directions both parallel and perpendicular to the runways and major roadways. USEPA conversion factors were used to convert the predicted 1-hour impacts to conservative screening-level estimates of longer averaging periods. The actual pollutant concentrations would be less than the values arrived at by using the USEPA conversion factors.

Input data to the model include source and receptor coordinates (runways, aircraft queues, roads), aircraft and vehicle peak hour activity, percent vehicle cold starts, vehicle speed, hourly changes in source activity, etc. Source data were entered for each aircraft, roadway, and parking lot. With respect to source activity, hourly, weekly, and monthly source activity must be taken into account to determine emissions at any particular time. All sources are related to a set of duty or temporal factors that can range from 1 (100 percent activity) to 0 (0 percent activity). To account for this activity, factors within this range are entered into month, day, and hour temporal files in the model. By multiplying these nested values, activity for any hour of the year can be determined. Temporal factors for commercial aviation activity were calculated using current schedules of airlines serving the jetport. Factors for general aviation were calculated using 1991 data from Grand Strand Airport. Temporal factors for cargo aircraft were assumed to equal the factors calculated for

commercial aircraft activity, except for the monthly activity, which was calculated from 1991 jetport data. Predicted aircraft activity due to aircraft maintenance was assumed to be constant over each month and week of the year and from 6:00 A.M. to 6:00 P.M. each day. Temporal factors for vehicular activity were calculated from 1991 traffic counts for U.S. 501. All calculated temporal factors are assumed to apply to all years analyzed in the EIS.

EDMS was run for the Proposed Action and each alternative for each of the four years studied in the EIS (1993, 1998, 2003, and 2013) - a total of 20 runs. For each year of analysis, the aircraft fleet mix and/or activity varied; however, this was addressed in developing the input files for EDMS.

When large aircraft are on the ground with their engines shut down, they need a source of power and conditioned air to maintain the aircraft systems. If a ground-based system is not available, an auxiliary power unit (APU), which is part of the aircraft, is operated. These units are essentially small jet engines that generate electricity and compressed air. They burn jet fuel and generate pollutant emissions like the larger jet engines. It was assumed for modeling purposes that all large commercial jets used APUs at the gate for 20 minutes while loading and unloading passengers.

VOC emissions from rental agency vehicle refueling operations were calculated from emission factors found in the USEPA document entitled "Compilation of Air Pollution Emission Factors," AP-42. Emissions were calculated for the following classes of evaporative losses: tank filling, tank breathing, and vehicle refueling to include spillage loss. Emission factors based on total gasoline throughput were used in the calculations. It was assumed that submerged filling was used to load gasoline into the tanks and no controls were in place during vehicle fueling. Two of the agencies were able to supply yearly fuel usage records and this value was doubled to account for total gasoline throughput for all four agencies serving the jetport (192,000 gallons). Increase in throughput for the out years of the project were increased based on projected increase in passenger travel. Total emissions for years 1993, 1998, 2203, and 2013 were 0.006 tons/day, 0.008 tons per day, 0.008 tons per day and 0.010 tons per day, respectively.

Appendix J contains the projected emissions inventory information and methods. Background concentrations were added to the project impacts for comparison with the standards and attainment levels. Impacts were considered significant if project emissions would (1) increase an off-site ambient pollutant concentration from below to above a federal, state, or local standard; (2) contribute a measurable amount to an existing or projected air quality standard exceedance; (3) be inconsistent with measures contained in the air quality attainment plans of the SCDHEC; or (4) expose sensitive receptors (such as schools or hospitals) to substantial pollutant concentrations. All other air quality impacts were considered insignificant.

4.4 NOISE

The noise analysis addressed potential noise impacts from reuse-generated aircraft operations, surface traffic, and other identified noise sources on communities surrounding Myrtle Beach AFB. Most of the data were obtained from the aircraft operations and traffic data prepared for the reuse alternatives.

Day-night levels (DNL) were used to determine noise impacts. A single-event noise analysis using sound exposure levels (SEL) was also performed. Scientific literature on noise effects was also referenced.

The ROI for noise was defined as the area within the DNL of 65 A-weighted decibels (dBA) contours based on land use compatibility guidelines developed from FAA regulations (Federal Aviation Administration, 1989). The ROI for surface traffic noise impacts incorporated key road segments identified in the transportation analysis.

Noise levels from aircraft operations for the reuse alternatives were estimated using the FAA's Integrated Noise Model (INM) version 3.9. Noise contours for DNL of 65 dBA and above were depicted. Noise levels due to surface traffic were estimated using the Federal Highway Administration's Highway Traffic Noise Prediction Noise Model FHWA-RD-77-108. Potential noise impacts were identified by overlaying the noise contours with land use and population information to determine the number of residents who would be exposed to DNL above 65 dBA.

SELs related to reuse alternatives were provided for representative noise-sensitive receptors exposed to aircraft noise from the jetport. The SELs presented were outdoor levels and took into account the location of the receptors relative to the various flight tracks and aircraft profiles used. Noise reduction effects for common construction were included in the sleep interference analysis; however, evaluation of sensitive receptors relative to noise reduction levels of specific structures was not performed.

Methods used to analyze noise impacts under each reuse scenario are presented in detail in Appendix K of this EIS.

4.5 BIOLOGICAL RESOURCES

Biological resources addressed in relation to disposal and reuse of Myrtle Beach AFB included vegetation, wildlife, threatened and endangered species, and sensitive habitats (e.g., wetlands). Primary data sources for the analysis included published literature and reports, the South Carolina Wildlife and Marine Resources Department Diversity Database, field reconnaissance of the base, and contacts with agencies such as the U.S. Fish and Wildlife Service, National Marine Fisheries Service, and the South Carolina Wildlife and Freshwater Fisheries Division. The ROI for the biological resources assessment comprised Myrtle Beach AFB itself.

Vegetation and sensitive biological resources (e.g., wetlands) on the base were mapped using aerial photography, National Wetland Inventory (NWI) Maps, USGS Quadrangle Maps, observations made during a reconnaissance survey of the base on February 3, 1992 to ground truth the photos and preliminary maps, and a wetland delineation conducted July 20 to July 31, 1992. Wetlands on the base were drawn on the natural resources map from data collected during the wetland delineation. The delineation was performed following methods described in the *Corps of Engineers Wetland Delineation Manual* (1987).

The impact analysis was performed by comparing land use maps for each reuse alternative to the biological resource map. The proportion of disturbance

associated with each land use category was determined based on accepted land use planning concepts. The degree of disturbance of each habitat was qualitatively assessed and responses of plants and animals to project-related actions were evaluated based on literature data and scientific expertise.

4.6 CULTURAL RESOURCES

Cultural resources generally include three main categories: prehistoric resources, historic structures and resources, and traditional resources. For the purposes of this EIS, cultural resources were defined to also include paleontological resources: the fossil evidence of past plant and animal life. Prehistoric resources are places where human activity has measurably altered the earth or left deposits of physical remains. Historic structures and resources include standing structures and other physical remains of historic significance. Traditional resources are topographical areas, features, habitats, plants, animals, minerals, or archaeological sites that contemporary Native Americans or other groups value presently, or did so in the past, and consider essential for the persistence of their traditional culture. Cultural resources of particular concern include properties listed on the National Register of Historic Places (NRHP), properties potentially eligible for the NRHP, and sacred Native American sites and areas.

Data used to compile information on these resources were obtained from existing environmental documents; material on file at Myrtle Beach AFB; recent cultural resource reports pertaining to the base; interviews with individuals familiar with the history, archaeology, or paleontology of the Myrtle Beach area; and records of the University of South Carolina, the South Carolina Historic Preservation Office (SHPO); the South Carolina Institute of Archaeology and Anthropology, and Horry County records. The ROI for cultural resources includes all areas within the boundaries of Myrtle Beach AFB.

The EIS contains the most up-to-date information on the importance of cultural resources on Myrtle Beach AFB, based on recent and ongoing evaluation of eligibility for the NRHP.

According to NRHP criteria (36 CFR 60.4), the quality of significance is present in districts, sites, buildings, structures, and objects that:

a) Are associated with events that have made a significant contribution to the broad patterns of history

b) Are associated with the lives of persons significant in the past

c) Embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; possess high artistic value; or represent a significant and distinguishable entity whose components may lack individual distinction

d) Have yielded, or may be likely to yield, information important in prehistory or history.

To be listed in or considered eligible for listing in the NRHP, a cultural resource must meet at least one of the above criteria and must also possess integrity of location, design, setting, materials, workmanship, feeling, and association. Integrity is defined as the authenticity of a property's historic identity, as evidenced by the survival of physical characteristics that existed during the property's historic or prehistoric occupation or use. If a resource retains the physical characteristics it possessed in the past, it has the capacity to convey information about a culture or people, historical patterns, or architectural or engineering design and technology.

Compliance with requirements of cultural resource laws and regulations ideally involves four basic steps: (1) identification of significant cultural resources that could be affected by the Proposed Action or alternatives, (2) assessment of the impacts or effects of these actions, (3) determination of significance of potential historic properties within the ROI, and (4) development and implementation of measures to eliminate or reduce adverse impacts. The primary law governing cultural resources in terms of their treatment in an environmental analysis is the National Historic Preservation Act (NHPA), which addresses the protection of historic and cultural properties. In compliance with the NHPA, the Air Force is in the process of consultation with the SHPO, as required under Section 106 of the NHPA.

There are no legally established criteria for assessing the importance of a Native American resource. These criteria are established through consultation with Native Americans according to the requirements of the American Indian Religious Freedom Act.

Adverse effects that may occur as a result of base reuse are those that have a negative impact on characteristics that make a resource eligible for listing on the NRHP. Actions that can diminish the integrity, research potential, or other important characteristics of a historic property include the following (36 CFR 800.9):

- Physical destruction, damage, or alteration of all or part of the property
- Isolating the property from its setting or altering the character of the property's setting when that character contributes to the property's qualification for the NRHP
- Introduction of visual or auditory elements that are out of character with the property or that alter its setting
- Transfer or sale of a federally owned property without adequate conditions or restrictions regarding its preservation, maintenance, or use
- Neglect of a property, resulting in its deterioration or destruction.

Regulations for implementing Section 106 of the NHPA indicate that the transfer, conveyance, lease, or sale of a historic property are procedurally considered to be adverse effects, thereby ensuring full regulatory consideration

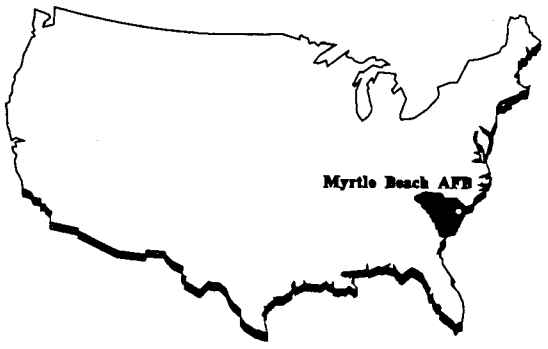
in federal project planning and execution. However, effects of a project that would otherwise be found to be adverse may not be considered adverse if one of the following conditions exists:

- When the historic property is of value only for its potential contribution to archaeological, historical, or architectural research, and when such value can be substantially preserved through the conduct of appropriate research, and such research is conducted in accordance with applicable professional standards and guidelines

- When the undertaking is limited to the rehabilitation of buildings and structures and is conducted in a manner that preserves the historical and architectural value of the affected historic property through conformance with the Secretary's Standards for Rehabilitation and Guidelines for Rehabilitation of Historic Buildings

- When the undertaking is limited to the transfer, conveyance, lease, or sale of a historic property, and adequate restrictions or conditions are included to ensure preservation of the property's significant historic features.

The treatment of paleontological resources is governed by Public Law 74-292 (the National Natural Landmarks Program, implemented by 36 CFR 62). Only paleontological remains determined to be significant are subject to consideration and protection by a federal agency. Among the criteria used for National Natural Landmark designation are illustrative character, present condition, diversity, rarity, and value for science and education.



APPENDIX F

APPENDIX F

TRANSPORTATION

Capacity and Level of Service. The capacity of a roadway varies with its physical characteristics. In the region of influence (ROI) for Myrtle Beach AFB, the roadway network is made up of several types of facilities. U.S. 17 Bypass is a rural arterial with partial access control. U.S. 17 Business is basically an urban arterial, although the signalized intersections are widely spaced, particularly in the area around the base and to the south. The capacity of this type of roadway is dictated by the number of lanes in each direction, spacing between traffic signals, green time of the traffic signal allocated to the road being analyzed, coordination between downstream signals, and a number of other variables.

Table F-1 displays the level of service (LOS) table used in the Myrtle Beach urban area for this analysis. This table has been approved by the South Carolina Department of Highways and Transportation for use as a standard in this study. The LOS scale ranges from A to E, with low volume, high speed, free flowing conditions classified as LOS A. LOS E is representative of conditions that allow the highest traffic flow, although the relatively congested conditions are not comfortable for the driver. A minor interruption will degrade the LOS to F, which is not described on the table. LOS F represents bumper-to-bumper, stop-and go-conditions. As traffic volumes increase or the traffic handling capacity of a particular roadway segment decreases, free flow conditions become restricted and LOS deteriorates.

TABLE F-1
GENERALIZED PEAK HOUR LEVEL OF SERVICE MAXIMUM VOLUMES FOR FLORIDA'S URBAN/URBANIZED (5,000+) AREAS
(Source, Florida Department of Transportation, 1988)

TWO-WAY ARTERIALS - CLASS I

Group A (0.0 to 0.75 signalized intersections per mile)

Lanes/ Divided	Level of Service				
	A	B	C	D	E
2 Undivided	1,310	1,440	1,490	1,580	1,670
4 Divided	2,860	3,070	3,170	3,350	3,530
6 Divided	4,350	4,620	4,770	5,030	5,300

Group B (0.76 to 1.5 signalized intersections per mile)

Lanes/ Divided	Level of Service				
	A	B	C	D	E
2 Undivided	870	1,310	1,390	1,470	1,540
4 Divided	1,920	2,850	2,970	3,120	3,270
6 Divided	2,930	4,330	4,480	4,700	4,910

Group C (1.6 to 2.5 signalized intersections per mile)

Lanes/ Divided	Level of Service A**	B	C	D	E
2 Undivided	---	960	1,290	1,420	1,510
4 Divided	---	2,190	2,830	3,040	3,210
6 Divided	---	3,370	4,320	4,600	4,830

Group D (2.6 to 3.5 signalized intersections per mile)

Lanes/ Divided	Level of Service A**	B**	C	D	E
2 Undivided	---	---	880	1,310	1,470
4 Divided	---	---	1,930	2,900	3,180
6 Divided	---	---	2,940	4,440	4,820

Group E (3.6 to 4.5 signalized intersections per mile)

Lanes/ Divided	Level of Service A	B	C	D	E
2 Undivided	---	---	---	1,180	1,410
4 Divided	---	---	---	2,530	3,080
6 Divided	---	---	---	3,790	4,690

TWO-WAY ARTERIALS - CLASS II

Group F (more than 4.5 signalized intersections per mile and not within primary city central business district of urbanized area over 500,000)

Lanes/ Divided	Level of Service A**	B**	C**	D	E
2 Undivided	---	---	---	990	1,400
4 Divided	---	---	---	2,180	3,080
6 Divided	---	---	---	3,350	4,710

TWO-WAY ARTERIALS - CLASS III

Group G (more than 4.5 signalized intersections per mile and within primary city central business district of urbanized are over 500,000)

Lanes/ Divided	Level of Service				
	A**	B**	C**	D	E
2 Undivided	---	---	---	1,260	1,480
4 Divided	---	---	---	2,810	3,230
6 Divided	---	---	---	4,340	4,920

DIVIDED/UNDIVIDED ADJUSTMENTS

(alter corresponding two-way arterial volume indicated percent)

Lanes	Median	Left Turn Bays	Adjustment Factor
2	Divided	Yes	+5%
2	Undivided	No	-15%
Multi	Undivided	Yes	-5%
Multi	Undivided	No	-20%

FREEWAYS

Group 1 (within urbanized area over 500,000 and leading to or within 5 miles of primary city central business district)

Lanes	Level of Service				
	A	B	C	D	E
4	2,470	3,810	5,440	6,570	7,060
6	3,710	5,720	8,160	9,850	10,590
8	4,940	7,630	10,880	13,140	14,120
10	6,180	9,530	13,590	16,420	17,650

Group 2 (within urbanized area over 500,000 and not in Group 1)

Lanes	Level of Service				
	A	B	C	D	E
4	2,350	3,630	5,180	6,250	6,730
6	3,530	5,450	7,770	9,380	10,090
8	4,710	7,260	10,360	12,510	13,450
10	5,880	9,080	12,950	15,640	16,810

Group 3 (within non-urbanized area)

Lanes

	Level of Service				
	A	B	C	D	E
4	2,240	3,450	4,920	5,940	6,390
6	3,350	5,180	7,380	8,910	9,580
8	4,470	6,900	9,840	11,880	12,780

ONE-WAY ARTERIALS - CLASS I

Group D (less than 3.6 signalized intersections per mile)

Lanes

	Level of Service				
	A**	B	C	D	E
2	---	1,080	1,600	1,830	1,950
3	---	1,610	2,450	2,770	2,940
4	---	2,150	3,320	3,710	3,930

Group E (3.6 to 4.5 signalized intersections per mile)

Lanes

	Level of Service				
	A**	B**	C	D	E
2	---	---	1,440	1,750	1,900
3	---	---	2,190	2,670	2,870
4	---	---	2,920	3,600	3,850

ONE-WAY ARTERIALS - CLASS II

Group F (more than 4.5 signalized intersections per mile and not within primary city central business district of urbanized area over 500,000)

Lanes

	Level of Service				
	A**	B**	C	D	E
2	---	---	1,180	1,680	1,910
3	---	---	1,790	2,590	2,890
4	---	---	2,410	3,500	3,870

ONE-WAY ARTERIALS - CLASS III

Group G (more than 4.5 signalized intersections per mile and within primary city central business district of urbanized area over 500,000)

Lanes

	Level of Service				
	A**	B**	C	D	E
2	---	---	1,440	1,860	1,980
3	---	---	2,210	2,830	2,990
4	---	---	2,980	3,800	4,000

TWO-WAY COLLECTORS AND LOCAL STREETS

(Signalized intersection analysis)

Lanes

	Level of Service				
	A**	B**	C	D	E
2	---	---	730	1,110	1,240
3	---	---	1,560	2,330	2,540
4	---	---	2,390	3,570	3,850

*The table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Values shown are average daily traffic maximum volumes (based on peak hour volumes) for levels of service and are based on the 1965 Highway Capacity Manual and Florida traffic data. Roadways with more than the number of lanes shown should be treated on a case by case basis. The table's input value assumptions and level of service criteria appear on the back.

**Cannot be achieved.

Trip Generation. The number of trips generated by the Proposed Action and each of the land use alternatives was determined by various sources. For most of the individual land uses, the Institute of Transportation Engineer's (ITE), Trip Generation Manual, 5th Edition, was used as the resource. The ITE manual was used for the golf course, the recreation areas, retail, office, industrial, hotels, restaurants, cemetery, research and development, education facility, and correctional institute.

The trips generated by the remaining land uses were estimated based on available information. For certain land uses that have definite proposals, such as the destination resort, the air museum, and the industrial expansion, the developer was contacted for information. Other land uses such as the jetport expansion used a combination of ITE trip generation rates and the best available information to develop reasonable trip rates for the use. Tables F-2 through F-14 show the trip generation for each land use alternative for each analysis year.

TABLE F-2
TRIP GENERATION ANALYSIS
PROPOSED ACTION
1998

LAND USE	ACRES	UNITS		TOTAL TRIPS/DAY	TOTAL TRIPS/PK HR	EXTERNAL TRIPS/PK HR
GOLF COURSE	235	18	HOLES	645	60	50
AIR MUSEUM	82			3,835	306	272
LT INDUSTRY	100	1,000	ADD. EMPLOYEE	2,982	344	310
JETPORT EXPAN (GA)				919	160	138
JETPORT				5,301	292	248
RESEARCH & DEVELOP		70,000	SQUARE FEET	759	100	91
EDUCATION	234	820	STUDENTS	1,963	288	239
RESIDENT-HOMELESS	117	389	DU'S	519	26	23
RECREATION - A	70			209	21	14
RECREATION - B	111	125	SITES	722	72	53
COMMERCIAL - RETAIL	159	180,000	SQUARE FEET	10,205	954	744
COMMERCIAL - OFFICE	55	78,000	SQUARE FEET	1,163	155	133
AVIAT INDUST - A		327,181	SQUARE FEET	2,341	305	272
AVIAT INDUST - B		172,819	SQUARE FEET	1,189	84	77
DESTINATION RESORT						0
THEME PARK	80			6,074	850	689
FAMILY RESORT	10	500	ROOMS	4,572	208	81
LUXURY RESORT	15	600	ROOMS	5,486	243	92
GOLF VILLAS		0	ROOMS	0	0	0
GOLF COURSE	235	18	HOLES	645	60	38
CONVENTION CENTER	30	90,000	SQUARE FEET	1,109	133	93
AMPHITHEATER	10	15,000	SEATS	5,000	150	111
RESTAURANTS		140,000	SQUARE FEET	9,160	1,072	633
SPORTS AREA	45			135	13	10
CONSTRUCTION ACTIVITY		813	EMPLOYEES	2,549	480	417
TOTAL TRIPS				67,482	6,376	4,828

TRIP GENERATION ANALYSIS
PROPOSED ACTION
2003

LAND USE	ACRES	UNITS		TOTAL TRIPS/DAY	TOTAL TRIPS/PK HR	EXTERNAL TRIPS/PK HR
GOLF COURSE	235	18	HOLES	645	60	47
AIR MUSEUM	82			3,835	306	269
LT INDUSTRY	100	1,000	ADD. EMPLOYEE	2,982	344	310
JETPORT EXPAN (GA)				1,069	186	158
JETPORT				7,974	439	369
RESEARCH & DEVELOP		170,000	SQUARE FEET	1,543	207	189
EDUCATION	234	1,440	STUDENTS	3,423	404	335
RESIDENT-HOMELESS	117	389	DU'S	519	26	23
RECREATION - A	70			209	21	14
RECREATION - B	111	125	SITES	722	72	52
COMMERCIAL - RETAIL	159	490,000	SQUARE FEET	19,082	1,806	1,391
COMMERCIAL - OFFICE	55	155,000	SQUARE FEET	1,954	257	221
AVIAT INDUST - A		719,798	SQUARE FEET	5,274	868	773
AVIAT INDUST - B		380,201	SQUARE FEET	2,737	381	347
DESTINATION RESORT						
THEME PARK	80			8,820	1,234	975
FAMILY RESORT	10	500	ROOMS	4,572	208	79
LUXURY RESORT	15	600	ROOMS	5,486	243	90
GOLF VILLAS		1,100	ROOMS	10,058	415	137
GOLF COURSE	235	18	HOLES	645	60	32
CONVENTION CENTER	30	90,000	SQUARE FEET	1,109	133	92
AMPHITHEATER	10	15,000	SEATS	5,000	150	108
RESTAURANTS		140,000	SQUARE FEET	9,160	1,072	601
SPORTS AREA	45			135	13	10
CONSTRUCTION ACTIVITY		773	EMPLOYEES	2,423	456	397
TOTAL TRIPS				99,376	9,361	7,019

TABLE F-4
TRIP GENERATION ANALYSIS
PROPOSED ACTION
2013

LAND USE	ACRES	UNITS		TOTAL TRIPS/DAY	TOTAL TRIPS/PK HR	EXTERNAL TRIPS/PK HR
GOLF COURSE	235	18	HOLES	645	60	48
AIR MUSEUM	82			3,835	306	269
LT INDUSTRY	100	1,000	ADD. EMPLOYEE	2,982	344	313
JETPORT EXPAN (GA)				1,377	239	206
JETPORT				9,623	529	450
RESEARCH & DEVELOP		270,000	SQUARE FEET	2,233	303	279
EDUCATION	185	1,980	STUDENTS	4,695	506	435
RESIDENT-HOMELESS	0	0	DU'S	0	0	0
RECREATION - A	70			209	21	20
RECREATION - B	111	125	SITES	722	72	54
COMMERCIAL - RETAIL	67	825,000	SQUARE FEET	26,426	2,517	2,013
COMMERCIAL - OFFICE	24	310,000	SQUARE FEET	3,301	428	372
AVIAT INDUST - A		1,243,288	SQUARE FEET	9,183	1,618	1,456
AVIAT INDUST - B		656,712	SQUARE FEET	4,802	778	715
DESTINATION RESORT						
THEME PARK	80	700	EMPLOYEES	10,285	1,440	1,152
FAMILY RESORT	10	500	ROOMS	4,572	208	85
LUXURY RESORT	15	600	ROOMS	5,486	243	95
GOLF VILLAS		1,100	ROOMS	10,058	415	141
GOLF COURSE	235	18	HOLES	645	60	33
CONVENTION CENTER	30	90,000	SQUARE FEET	1,109	133	92
AMPHITHEATER	10	15,000	SEATS	5,000	150	111
RESTAURANTS		140,000	SQUARE FEET	9,160	1,072	654
CONSTRUCTION ACTIVITY				0	0	0
TOTAL TRIPS				116,349	11,442	8,993

TABLE F-5
TRIP GENERATION ANALYSIS
EXPANDED AIRPORT / RESORT-RECREATION
ALTERNATIVE
1998

LAND USE	ACRES	UNITS	TOTAL TRIPS/DAY	TOTAL TRIPS/PK HR	EXTERNAL TRIPS/PK HR
GOLF COURSE	201	18 HOLES	645	60	50
AIR MUSEUM	190		3,835	306	272
LT INDUSTRY	85	1,000 ADD. EMPLOYEE	2,982	344	310
JETPORT EXPAN (GA)			918	159	138
JETPORT			5,301	292	251
RESIDENT-HOMELESS	33	130 DU'S	173	9	8
RECREATION - A	131		392	39	29
RECREATION - B	111		722	72	57
COMMERCIAL - RETAIL	193	163,800 SQUARE FEET	9,621	899	737
COMMERCIAL - OFFICE	67	82,500 SQUARE FEET	1,213	161	140
AVIAT INDUST	220	500,000 SQUARE FEET	3,632	553	509
DESTINATION RESORT					
THEME PARK	80				
FAMILY RESORT	10	500 ROOMS	6,074	850	697
LUXURY RESORT	15	600 ROOMS	4,572	208	87
GOLF VILLAS		0 ROOMS	5,486	243	97
GOLF COURSE		18 HOLES	0	0	0
CONVENTION CENTER	30	90,000 SQUARE FEET	645	60	37
AMPHITHEATER	10	15,000 SEATS	1,109	133	90
RESTAURANTS		140,000 SQUARE FEET	5,000	150	114
MEDICAL	41	88,180 SQUARE FEET	9,160	1,072	676
CONSTRUCTION ACTIVITY		675 EMPLOYEES	3,145	347	302
			2,116	398	346
TOTAL TRIPS			66,741	6,355	4,949

TABLE F-6
TRIP GENERATION ANALYSIS
EXPANDED AIRPORT / RESORT-RECREATION
ALTERNATIVE
2003

LAND USE	ACRES	UNITS		TOTAL TRIPS/DAY	TOTAL TRIPS/PK HR	EXTERNAL TRIPS/PK HR
GOLF COURSE	201	18	HOLES	645	60	47
AIR MUSEUM	190			3,835	306	269
LT INDUSTRY	85	1,000	ADD. EMPLOYEE	2,982	344	310
JETPORT EXPAN (GA)				1,068	186	160
JETPORT				8,013	441	375
RESIDENT-HOMELESS	33	130	DU'S	173	9	8
RECREATION - A	131			392	39	28
RECREATION - B	111			722	72	55
COMMERCIAL - RETAIL	193	288,600	SQUARE FEET	13,707	1,289	1,044
COMMERCIAL - OFFICE	67	82,500	SQUARE FEET	1,213	161	140
AVIAT INDUST	220	1,100,000	SQUARE FEET	8,113	1,413	1,300
DESTINATION RESORT						
THEME PARK	80			8,820	1,234	987
FAMILY RESORT	10	500	ROOMS	4,572	208	85
LUXURY RESORT	15	600	ROOMS	5,486	243	95
GOLF VILLAS		1,100	ROOMS	10,058	415	141
GOLF COURSE		18	HOLES	645	60	31
CONVENTION CENTER	30	90,000	SQUARE FEET	1,109	133	89
AMPHITHEATER	10	15,000	SEATS	5,000	150	111
RESTAURANTS		140,000	SQUARE FEET	9,160	1,072	643
MEDICAL	41	88,180	SQUARE FEET	3,145	347	302
CONSTRUCTION ACTIVITY		896	EMPLOYEES	2,809	529	460
TOTAL TRIPS				91,667	8,711	6,680

TABLE F-7
TRIP GENERATION ANALYSIS
EXPANDED AIRPORT / RESORT-RECREATION
ALTERNATIVE
2013

LAND USE	ACRES	UNITS		TOTAL TRIPS/DAY	TOTAL TRIPS/PK HR	EXTERNAL TRIPS/PK HR
GOLF COURSE	201	18	HOLES	645	60	49
AIR MUSEUM	190			3,835	306	269
LT INDUSTRY	85	1,000	ADD. EMPLOYEE	2,982	344	313
JETPORT EXPAN (GA)				1,376	239	210
JETPORT				9,671	532	463
RESIDENT-HOMELESS	0	0	DU'S	0	0	0
RECREATION - A	131			392	39	30
RECREATION - B	111			722	72	57
COMMERCIAL - RETAIL	193	390,000	SQUARE FEET	16,545	1,562	1,343
COMMERCIAL - OFFICE	67	346,000	SQUARE FEET	3,586	464	413
AVIAT INDUST	220	1,900,000	SQUARE FEET	14,087	2,559	2,355
DESTINATION RESORT						0
THEME PARK	80			10,285	1,440	1,166
FAMILY RESORT	10	500	ROOMS	4,572	208	85
LUXURY RESORT	15	600	ROOMS	5,486	243	95
GOLF VILLAS		1,100	ROOMS	10,058	415	141
GOLF COURSE		18	HOLES	645	60	33
CONVENTION CENTER	30	90,000	SQUARE FEET	1,109	133	90
AMPHITHEATER	10	15,000	SEATS	5,000	150	113
RESTAURANTS		140,000	SQUARE FEET	9,160	1,072	708
TOTAL TRIPS				100,156	9,898	7,933

TABLE F-8
TRIP GENERATION ANALYSIS
EXPANDED AIRPORT / COMMERCIAL-INDUSTRIAL
ALTERNATIVE
1998

LAND USE	ACRES	UNITS		TOTAL TRIPS/DAY	TOTAL TRIPS/PK HR	EXTERNAL TRIPS/PK HR
GOLF COURSE	201	18	HOLES	645	60	50
AIR MUSEUM	190			3,835	306	272
LT INDUSTRY	85	1,000	ADD. EMPLOYEES	2,982	344	317
JETPORT EXPAN (GA)				892	155	136
JETPORT				5,301	292	254
RESEARCH & DEVELOP	149	65,000	SQUARE FEET	716	94	88
RESIDENT-HOMELESS	45	188	DU'S	251	13	12
RECREATION - B	111	125	SITES	722	72	55
COMMERCIAL - RETAIL	215	540,000	SQUARE FEET	20,277	1,921	1,575
COMMERCIAL - OFFICE	29	80,000	SQUARE FEET	1,185	158	140
AVIAT INDUST	182	305,000	SQUARE FEET	2,176	274	254
DESTINATION RESORT						0
THEME PARK	80			6,074	850	697
FAMILY RESORT	10	500	ROOMS	4,572	208	94
LUXURY RESORT	15	600	ROOMS	5,486	243	102
GOLF VILLAS		0	ROOMS	0	0	0
GOLF COURSE		18	HOLES	645	60	39
CONVENTION CENTER	30	90,000	SQUARE FEET	1,109	133	92
AMPHITHEATER	10	15,000	SEATS	5,000	150	114
RESTAURANTS		140,000	SQUARE FEET	9,160	1,072	676
MEDICAL	50	88,180	SQUARE FEET	3,145	347	302
CONSTRUCTION ACTIVITY		957	EMPLOYEES	3,000	565	508
TOTAL TRIPS				77,173	7,317	5,777

TABLE F-9
TRIP GENERATION ANALYSIS
EXPANDED AIRPORT / COMMERCIAL-INDUSTRIAL
ALTERNATIVE
2003

LAND USE	ACRES	UNITS		TOTAL TRIPS/DAY	TOTAL TRIPS/PK HR	EXTERNAL TRIPS/PK HR
GOLF COURSE	201	18	HOLES	645	60	47
AIR MUSEUM	190			3,835	306	269
LT INDUSTRY	85	1,000	ADD. EMPLOYEES	2,982	344	317
JETPORT EXPAN (GA)				1,039	180	157
JETPORT				8,013	441	379
RESEARCH & DEVELOP	149	160,000	SQUARE FEET	1,470	197	183
RESIDENT-HOMELESS	45	188	DU'S	251	13	12
RECREATION - B	111	125	SITES	722	72	54
COMMERCIAL - RETAIL	215	940,000	SQUARE FEET	28,672	2,735	2,215
COMMERCIAL - OFFICE	29	185,000	SQUARE FEET	2,234	292	260
AVIAT INDUST	182	675,000	SQUARE FEET	4,939	804	748
DESTINATION RESORT						0
THEME PARK	80			8,820	1,234	987
FAMILY RESORT	10	500	ROOMS	4,572	208	92
LUXURY RESORT	15	600	ROOMS	5,486	243	99
GOLF VILLAS		1,100	ROOMS	10,058	415	145
GOLF COURSE		18	HOLES	645	60	33
CONVENTION CENTER	30	90,000	SQUARE FEET	1,109	133	90
AMPHITHEATER	10	15,000	SEATS	5,000	150	111
RESTAURANTS		140,000	SQUARE FEET	9,160	1,072	643
MEDICAL	50	88,180	SQUARE FEET	3,145	347	302
CONSTRUCTION ACTIVITY		900	EMPLOYEES	2,822	531	478
TOTAL TRIPS				105,619	9,837	7,621

TABLE F-10
TRIP GENERATION ANALYSIS
EXPANDED AIRPORT / COMMERCIAL-INDUSTRIAL
ALTERNATIVE
2013

LAND USE	ACRES	UNITS		TOTAL TRIPS/DAY	TOTAL TRIPS/PK HR	EXTERNAL TRIPS/PK HR
GOLF COURSE	201	18	HOLES	645	60	49
AIR MUSEUM	190			3,835	306	269
LT INDUSTRY	85	1,000	ADD. EMPLOYEE	2,982	344	317
JETPORT EXPAN (GA)				1,339	233	205
JETPORT				9,671	532	463
RESEARCH & DEVELOP	149	250,000	SQUARE FEET	2,100	285	265
RESIDENT-HOMELESS	0	0	DU'S	0	0	0
RECREATION - B	111	125	SITES	722	72	55
COMMERCIAL - RETAIL	215	1,280,000	SQUARE FEET	34,774	3,329	2,763
COMMERCIAL - OFFICE	29	330,000	SQUARE FEET	3,460	448	399
AVIAT INDUST	182	1,160,000	SQUARE FEET	8,561	1,499	1,394
DESTINATION RESORT						0
THEME PARK	80			10,285	1,440	1,152
FAMILY RESORT	10	500	ROOMS	4,572	208	92
LUXURY RESORT	15	600	ROOMS	5,486	243	99
GOLF VILLAS		1,100	ROOMS	10,058	415	145
GOLF COURSE		18	HOLES	645	60	34
CONVENTION CENTER	30	90,000	SQUARE FEET	1,109	133	90
AMPHITHEATER	10	15,000	SEATS	5,000	150	113
RESTAURANTS		140,000	SQUARE FEET	9,160	1,072	708
TOTAL TRIPS				114,404	10,829	8,612

TABLE F-11
TRIP GENERATION ANALYSIS
EXISTING AIRPORT / MIXED USE ALTERNATIVE
1998

LAND USE	ACRES	UNITS		TOTAL TRIPS/DAY	TOTAL TRIPS/PK HR	EXTERNAL TRIPS/PK HR
GOLF COURSE	201	18	HOLES	645	60	56
AIR MUSEUM	190			3,835	306	288
FIRE DEPT	17	4	EMPLOYEES	12	1	1
CEMETERY	45			187	15	15
JETPORT EXPAN (GA)				898	156	144
JETPORT				5,301	292	266
RESEARCH & DEVELOP	124	55,000	SQUARE FEET	626	82	78
EDUCATION	360	820	STUDENTS	1,963	288	265
RESIDENT-HOMELESS	230	775	DU'S	1,033	52	49
RECREATION - B	111	125	SITES	722	72	65
COMMERCIAL - RETAIL	70	320,000	SQUARE FEET	14,621	1,377	1,170
COMMERCIAL - OFFICE	16	40,000	SQUARE FEET	702	95	86
AVIAT INDUST	420	705,000	SQUARE FEET	5,163	847	805
CORRECTIONAL	538	441	EMPLOYEES	507	101	99
PGA GOLF	485	27	HOLES	1,065	92	80
CONSTRUCTION ACTIVITY		223	EMPLOYEES	699	132	122
TOTAL TRIPS				37,979	3,968	3,589

TABLE F-12
TRIP GENERATION ANALYSIS
EXISTING AIRPORT / MIXED USE ALTERNATIVE
2003

LAND USE	ACRES	UNITS		TOTAL TRIPS/DAY	TOTAL TRIPS/PK HR	EXTERNAL TRIPS/PK HR
GOLF COURSE	201	18	HOLES	645	60	56
AIR MUSEUM	190			3,835	306	288
FIRE DEPT	17	6	EMPLOYEES	18	2	2
CEMETERY	45			187	15	15
JETPORT EXPAN (GA)				1,045	182	167
JETPORT				7,935	436	397
RESEARCH & DEVELOP	124	135,000	SQUARE FEET	1,283	172	163
EDUCATION	360	1,440	STUDENTS	3,423	404	372
RESIDENT-HOMELESS	230	775	DU'S	1,033	52	49
RECREATION - B	111	125	SITES	722	72	65
COMMERCIAL - RETAIL	70	785,000	SQUARE FEET	25,618	2,438	2,073
COMMERCIAL - OFFICE	16	70,000	SQUARE FEET	1,072	143	130
AVIAT INDUST	420	1,560,000	SQUARE FEET	11,548	2,072	1,968
CORRECTIONAL	538	441	EMPLOYEES	507	101	99
PGA GOLF	485	27	HOLES	1,065	92	80
CONSTRUCTION ACTIVITY		207	EMPLOYEES	649	122	114
TOTAL TRIPS				60,586	6,669	6,036

TABLE F-13
TRIP GENERATION ANALYSIS
EXISTING AIRPORT / MIXED USE ALTERNATIVE
2013

LAND USE	ACRES	UNITS		TOTAL TRIPS/DAY	TOTAL TRIPS/PK HR	EXTERNAL TRIPS/PK HR
GOLF COURSE	201	18	HOLES	645	60	56
AIR MUSEUM	190			3,835	306	288
FIRE DEPT	17	6	EMPLOYEES	18	2	2
CEMETERY	45	NA		187	15	15
JETPORT EXPAN (GA)				1,147	199	185
JETPORT				9,016	496	456
RESEARCH & DEVELOP	124	210,000	SQUARE FEET	1,827	247	234
EDUCATION	360	1,980	STUDENTS	4,695	506	470
RESIDENT-HOMELESS	230	775	DU'S	1,033	52	49
RECREATION - B	111	125	SITES	722	72	65
COMMERCIAL - RETAIL	70	1,400,000	SQUARE FEET	36,778	3,525	3,067
COMMERCIAL - OFFICE	16	95,000	SQUARE FEET	1,350	179	163
AVIAT INDUST	420	2,680,000	SQUARE FEET	19,912	3,677	3,493
CORRECTIONAL	538	441	EMPLOYEES	507	101	99
PGA GOLF	485	27	HOLES	1,065	92	81
TOTAL TRIPS				82,737	9,529	8,723

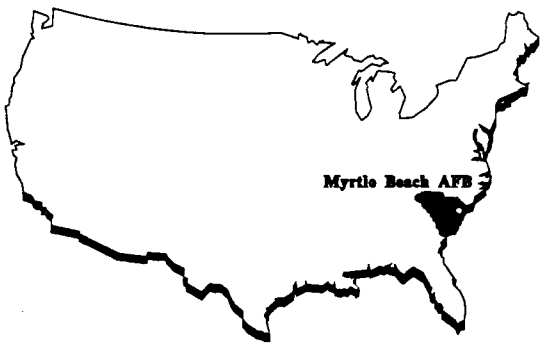
TABLE F-14
TRIP GENERATION ANALYSIS
EXISTING AIRFIELD / MIXED USE ALTERNATIVE
RESTRIICTED SECOND RUNWAY OPTION
2013

LAND USE	ACRES	UNITS	TOTAL TRIPS/DAY	TOTAL TRIPS/PK HR	EXTERNAL TRIPS/PK HR
GOLF COURSE	201	18 HOLES	645	60	56
AIR MUSEUM	190		3,835	306	288
FIRE DEPT	17	6 EMPLOYEES	18	2	2
CEMETERY	45	NA	187	15	15
JETPORT EXPAN (GA)			1,347	234	218
JETPORT			9,576	527	485
RESEARCH & DEVELOP	124	210,000 SQUARE FEET	1,827	247	234
EDUCATION	360	1,980 STUDENTS	4,695	506	470
RESIDENT-HOMELESS	230	775 DU'S	1,033	52	49
RECREATION - B	111	125 SITES	722	72	65
COMMERCIAL - RETAIL	70	1,400,000 SQUARE FEET	36,778	3,525	3,067
COMMERCIAL - OFFICE	16	95,000 SQUARE FEET	1,350	179	163
AVIAT INDUST	420	2,680,000 SQUARE FEET	19,912	3,677	3,493
CORRECTIONAL	538	441 EMPLOYEES	507	101	99
PGA GOLF	485	27 HOLES	1,065	92	81
TOTAL TRIPS			83,497	9,595	8,785

TABLE F-15
TRIP GENERATION ANALYSIS
NO ACTION
1998-2013

	LAND USE	UNITS	TOTAL TRIPS/DAY	TOTAL TRIPS/PK HR	EXTERNAL TRIPS/PK HR
	JETPORT EXPAN (GA)		0	0	0
1998	JETPORT		5301	292	292
	MAINTENANCE	60 EMPLOYEES	300	75	75
	TOTAL TRIPS		5601	367	367
	JETPORT EXPAN (GA)		0	0	0
2003	JETPORT		7935	436	436
	MAINTENANCE	60 EMPLOYEES	300	75	75
	TOTAL TRIPS		8235	511	511
	JETPORT EXPAN (GA)		0	0	0
2013	JETPORT		9615	529	529
	MAINTENANCE	60 EMPLOYEES	300	75	75
	TOTAL TRIPS		9915	604	604

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APPENDIX G

APPENDIX G

AIR FORCE POLICY

Management of Asbestos at Closing Bases

INTRODUCTION

Asbestos in building facilities is managed because of potential adverse human health effects. Asbestos must be removed or controlled if it is in a location and condition that constitutes a health hazard or a potential health hazard, or it is otherwise required by law (e.g., schools). The hazard determination must be made by a health professional (in the case of the Air Force, a Bioenvironmental Engineer) trained to make such determinations. While removal is a remedy, in many cases management alternatives (such as encapsulation within the building) are acceptable and cost-effective methods of dealing with asbestos. The keys to dealing with asbestos are knowing its location and condition and having a management plan to prevent asbestos containing materials that continue to serve their intended purpose from becoming a health hazard. There is no alternative to such management, because society does not have the resources to remove and dispose of all asbestos in all buildings in the United States. Most asbestos is not now nor will it become a health hazard if it is properly managed.

There are no laws applicable to closure bases that specifically mandate the removal or management of asbestos in buildings other than the law addressing asbestos in schools (P.L. 99-519). Statutory or regulatory requirements that result in removal or management of asbestos are based on human exposure or the potential for human exposure (i.e., National Emission Standards for Hazardous Air Pollutants (NESHAPS) = no visible emissions, OSHA = number of airborne fibers per cc). There are no statutory or other mandatory standards, criteria, or procedures for deciding what to do with asbestos. Thus, health professional judgement based on exposure levels or potential exposure levels must be the primary determinant of what should be done with asbestos. Apart from this professional and scientific approach, closing bases presents the additional problem of obtaining an economic return to the Government for its property. Asbestos in closing base properties must also be analyzed to determine the most prudent course in terms of removal or remediation cost and the price that can be obtained as a result.

The following specific policies will apply to bases closed or realigned (so that there are excess facilities to be sold) under the base closure laws, P.L. 100-526 and P.L. 101-510.

1. Asbestos will be removed if:

   (a) The protection of human health as determined by the Bioenvironmental Engineer requires removal (e.g., exposed friable asbestos within a building) in accordance with applicable health laws, regulations, and standards.

   (b) A building is unsalable without removal, or removal prior to sale is cost-effective; that is, the removal cost is low enough compared to value that would be received for a "clean" building that removal is a good investment for the Government. Prior to the decision to remove asbestos solely for economic reasons, an economic analysis will be conducted to determine if demolition, removal of some types of asbestos but not others, or asbestos removal and sale would be in the best interests of the Government.

(c) A building is, or is intended to be, used as a school or child care facility.

2. When asbestos is present but none of the above applies, the asbestos will be managed using commonly accepted standards, criteria, and procedures to assure sufficient protection of human health and the environment, in accordance with applicable and developing health standards.

3. A thorough survey for asbestos (including review of facility records, visual inspection, and where appropriate as determined by the Bioenvironmental Engineer and the Base Civil Engineer, intrusive inspection) will be conducted by the Air Force prior to sale.

4. Appraisal instructions, advertisements for sale, and deeds will contain accurate descriptions of the types, quantities, locations, and condition of asbestos in any real property to be sold or otherwise transferred outside the Federal Government. Appraisals will indicate what discount the market would apply if the building were to be sold with the asbestos in place.

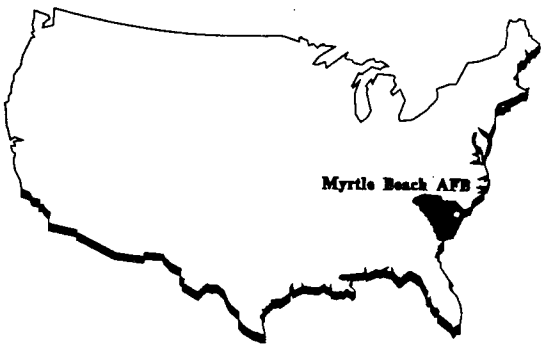
5. Encapsulated asbestos in a building structure, friable or not, is not regarded as hazardous waste by the Air Force, nor does encapsulation within the structure of the building constitute "storing" or "disposing of" hazardous waste. Asbestos incorporated into a building as part of the structure has not been "stored" or "disposed of."

6. Friable asbestos, or asbestos that will probably become friable, that has been stored or disposed of underground or elsewhere on the property to be sold will be properly disposed of, unless the location is a landfill or other disposal facility properly permitted for friable asbestos disposal.

7. The final Air Force determination regarding the disposition of asbestos will be dependent on the plan for disposal and any reuse of the building. Decisions will take into account the proposed community reuse plan and the economic analysis of alternatives (see para. 4). The course of action to be followed with respect to asbestos at each closing installation will be analyzed in the Disposal and Reuse Environmental Impact Statement, and will be included in the record of decision (ROD). Any buildings or facilities where the proposed asbestos plan is controversial will be addressed in the ROD, whether individually or as a class of closely related facilities.

8. Since other considerations must be taken into account at bases that are continuing to operate, this policy does not apply to them, nor is it necessarily a precedent for asbestos removal policy on them.

This Air Force Policy on the Management of Asbestos at Closing Bases, dated November 6, 1990 and updated May 1, 1992, has been retyped for the purposes of clarity and legibility.



APPENDIX H

APPENDIX H
FORM AD-1006, FARMLAND CONVERSION IMPACT RATING

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DEPARTMENT OF THE AIR FORCE
AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE (AFCEE)
BROOKS AIR FORCE BASE, TEXAS 78235-5000

RECEIVED
MAR 0 6 1992
ES TAMPA

26 FEB 1992

U.S. Soil Conservation Service
1202 First Avenue
Conway, South Carolina 29526
Attn: Mr Alex Johnson
District Conservationist

RE: Prime and Unique Farmland Designation - Myrtle Beach Air Force Base

Dear Mr Johnson

The U.S. Air Force Center for Environmental Excellence (AFCEE) is currently conducting a disposal assessment for Myrtle Beach Air Force Base, located in Myrtle Beach, South Carolina. As a part of the investigation, areas of potential prime and unique farmland need to be assessed. Consequently, a copy of Form AD-1006 (Atch 1) as well as a site map (Atch 2) showing the existing soil types based upon current Soil Conservation Service mapping is provided to begin the consultation process.

Our initial investigation has not revealed any part of the base that may meet the requirements or classification of prime and unique farmland. Additionally, none of the installation currently is being farmed. We ask that you review the materials provided for accuracy and completeness and indicate the results of your assessment to us by letter to the address below. In order that your results receive their fullest consideration within the time frame available for the preparation of the draft EIS, we ask that you submit your comments within 30 days after receipt of this letter.

Your assistance in this matter would be greatly appreciated. If you have questions, please contact Capt Briesmaster at (512) 536-3804 or write to AFCEE/ESEM Brooks AFB, TX 78235.

Sincerely

GARY P. BAUMGARTEL, Lt Col, USAF
Chief, Environmenatl Planning Division

2 Atch
1. AD Form 1006
2. Myrtle Beach Map

cc: HQ TAC/DEV w/o atch
354 CSG/CCX/DEV w/o atch
Engineering-Science w/o atch

★ U.S. GOVERNMENT PRINTING OFFICE: 1984-451-159/1324

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request: 5 February 1992
Name Of Project: Myrtle Beach AFB Closure/Reuse Assessment	Federal Agency Involved: U.S. Air Force Center for Environmen
Proposed Land Use: Complete Closure of the Base Facilities	County And State: Horry County, S.C. Excellence

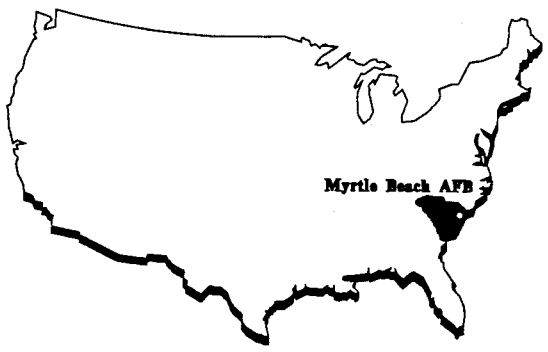
PART II *(To be completed by SCS)*	Date Request Received By SCS: 3/5/92	
Does the site contain prime, unique, statewide or local important farmland? *(If no, the FPPA does not apply — do not complete additional parts of this form).*	Yes ☐ No ☑	Acres Irrigated: — Average Farm Size: —
Major Crop(s):	Farmable Land In Govt. Jurisdiction: Acres: %	Amount Of Farmland As Defined in FPPA: Acres: %
Name Of Land Evaluation System Used	Name Of Local Site Assessment System	Date Land Evaluation Returned By SCS: 3/6/92

PART III *(To be completed by Federal Agency)*	Alternative Site Rating: Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly	3,793			
B. Total Acres To Be Converted Indirectly	--			
C. Total Acres In Site	3,793			
PART IV *(To be completed by SCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland				
B. Total Acres Statewide And Local Important Farmland				
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted				
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value				
PART V *(To be completed by SCS)* Land Evaluation Criterion Relative Value Of Farmland To Be Converted *(Scale of 0 to 100 Points)*				

PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(These criteria are explained in 7 CFR 658.5(b)*	Maximum Points	Site A	Site B	Site C	Site D
1. Area In Nonurban Use					
2. Perimeter In Nonurban Use					
3. Percent Of Site Being Farmed					
4. Protection Provided By State And Local Government					
5. Distance From Urban Builtup Area					
6. Distance To Urban Support Services					
7. Size Of Present Farm Unit Compared To Average					
8. Creation Of Nonfarmable Farmland					
9. Availability Of Farm Support Services					
10. On-Farm Investments					
11. Effects Of Conversion On Farm Support Services					
12. Compatibility With Existing Agricultural Use					
TOTAL SITE ASSESSMENT POINTS	160				
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland *(From Part V)*	100				
Total Site Assessment *(From Part VI above or a local site assessment)*	160				
TOTAL POINTS *(Total of above 2 lines)*	260				

Site Selected:	Date Of Selection	Was A Local Site Assessment Used? Yes ☐ No ☐

Reason For Selection:



APPENDIX I

APPENDIX I

THE SOIL CONSERVATION SERVICE (SCS) RAINFALL-RUNOFF RELATION

The volume of runoff (Q) depends on the volume of precipitation (P) and the volume of storage that is available for retention. The actual retention (F) is the difference between the volumes of precipitation and runoff. Furthermore, a certain volume of the precipitation at the beginning of the storm, which is called the initial abstraction (I_a), will not appear as runoff. The SCS assumed the following rainfall-runoff relation, which is shown schematically in Figure I-1.

$$\frac{F}{S} = \frac{Q}{P-I_a} \qquad (1)$$

in which S = the potential maximum retention. The actual retention, when the initial abstraction is considered, is:

$$F = (P-I_a) - Q \qquad (2)$$

Substituting Eq. 2 into Eq. 1 yields the following:

$$\frac{(P-I_a) - Q}{S} = \frac{Q}{P-I_a} \qquad (3)$$

Rearranging Eq. 3 to solve for Q yields:

$$Q = \frac{(P-I_a)^2}{(P-I_a) + S} \qquad (4)$$

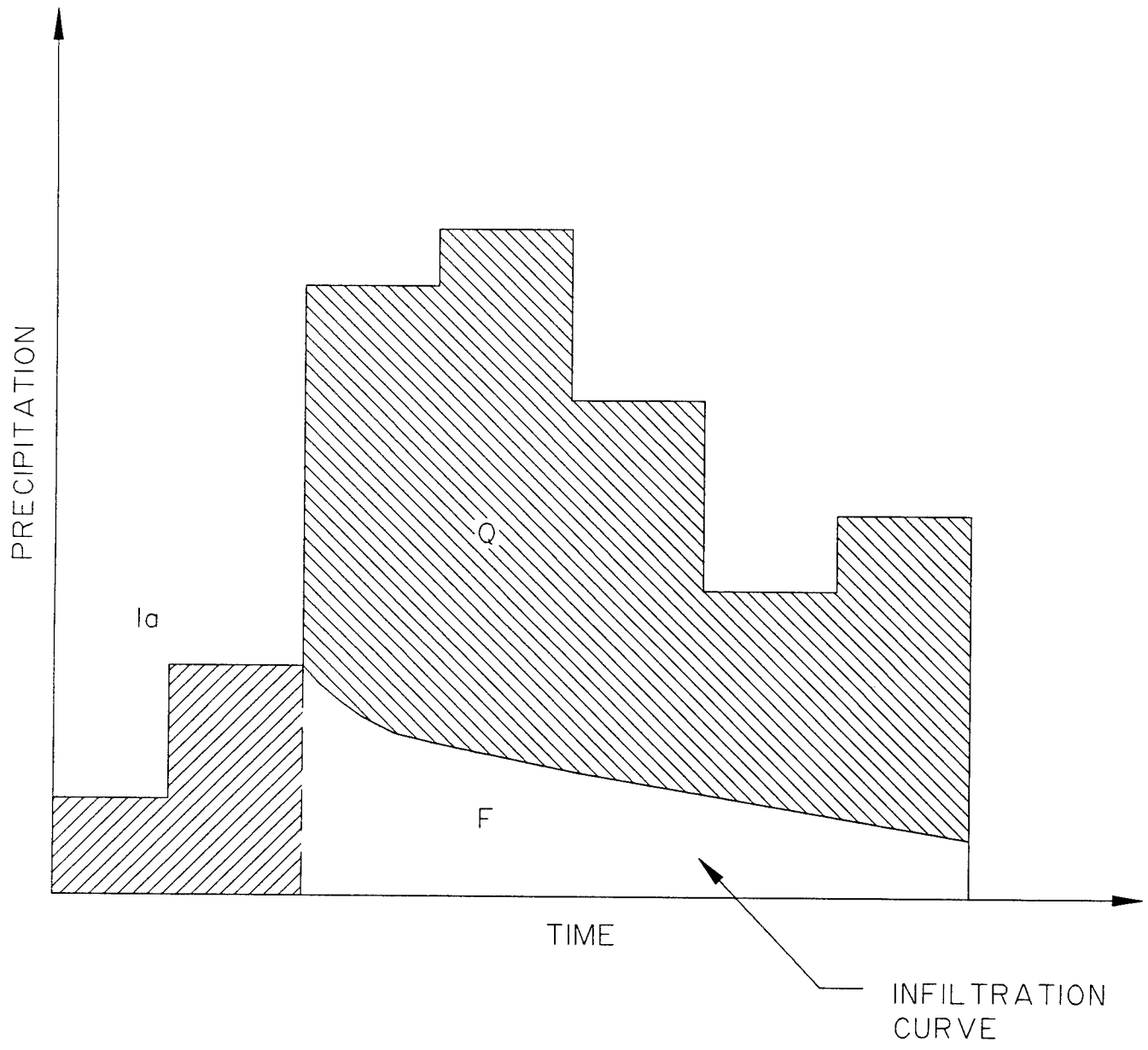
The factors in Eq. 4 are best understood when placed in the form of a mass curve. Figure I-2 shows a schematic of the mass curve of Q versus P. The volume of precipitation is separated into the initial abstraction, the retention, and the runoff.

The initial abstraction is a function of land use, treatment, and condition; interception; infiltration; depression storage; and antecedent soil moisture. An empirical analysis was performed for the development of the SCS rainfall-runoff relation, and the following formula was found to be best for estimating I_a:

$$I_a = 0.2\ S \qquad (5)$$

Research performed since the development of Eq. 5 has suggested that Eq. 5 may not be correct under all circumstances; however, it remains in use until a more comprehensive study is accepted. It is important to note the Eq. 5 implies that the factors affecting I_a would also affect S. Substituting Eq. 5 into Eq. 4 yields:

$$Q = \frac{(P-0.2\ S)^2}{P+0.8\ S} \qquad (6)$$



EXPLANATION

Q = VOLUME OF RUNOFF
P = VOLUME OF PRECIPITATION
F = ACTUAL RETENTION
Ia = INITIAL ABSTRACTION

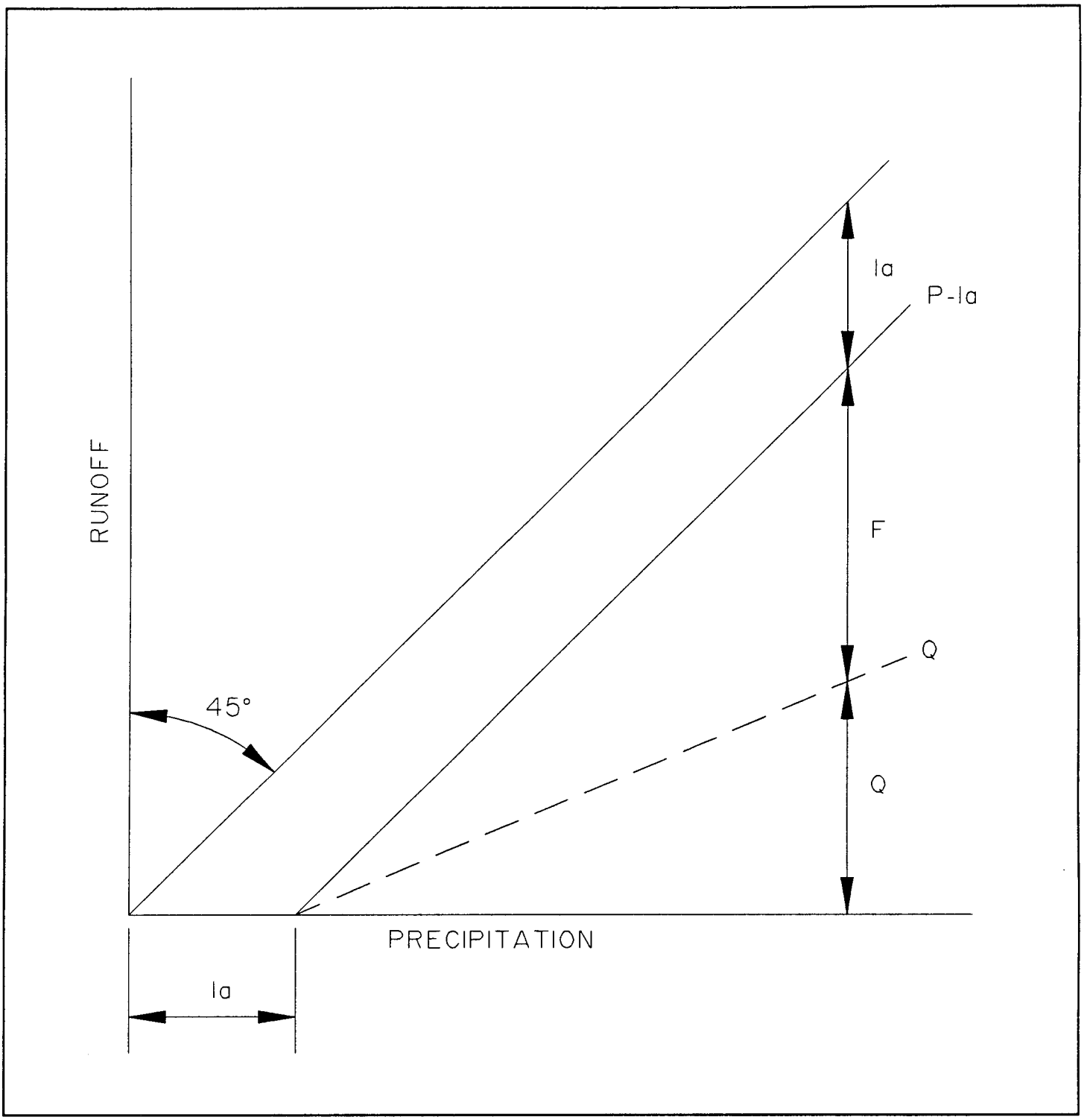
Source: McCuen, 1983

Not to Scale

RELATIONSHIP BETWEEN PRECIPITATION, RUNOFF AND RETENTION

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE I-1



EXPLANATION

Q = VOLUME OF RUNOFF
P = VOLUME OF PRECIPITATION
F = ACTUAL RETENTION
Ia = INITIAL ABSTRACTION

Source: McCuen, 1983

Not to Scale

SCS RAINFALL - RUNOFF RELATIONSHIP

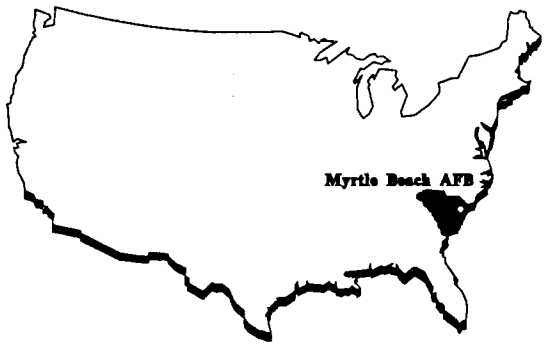
MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE I-2

While Eq. 4 has two unknowns, I_a and S, Eq. 6 has been reduced to an equation with one unknown, S. Empirical studies indicate that S can be estimated by:

$$S = \frac{1000}{CN} - 10 \qquad (7)$$

in which CN = runoff curve number. Thus, the rainfall relationship of Eq. 6, which has one unknown, has been replaced with another relationship with one unknown, CN. Since S is a function of the factors that affect I_a, one should expect that the CN would also be a function of land use, antecedent soil moisture, and other factors that affect runoff and retention.

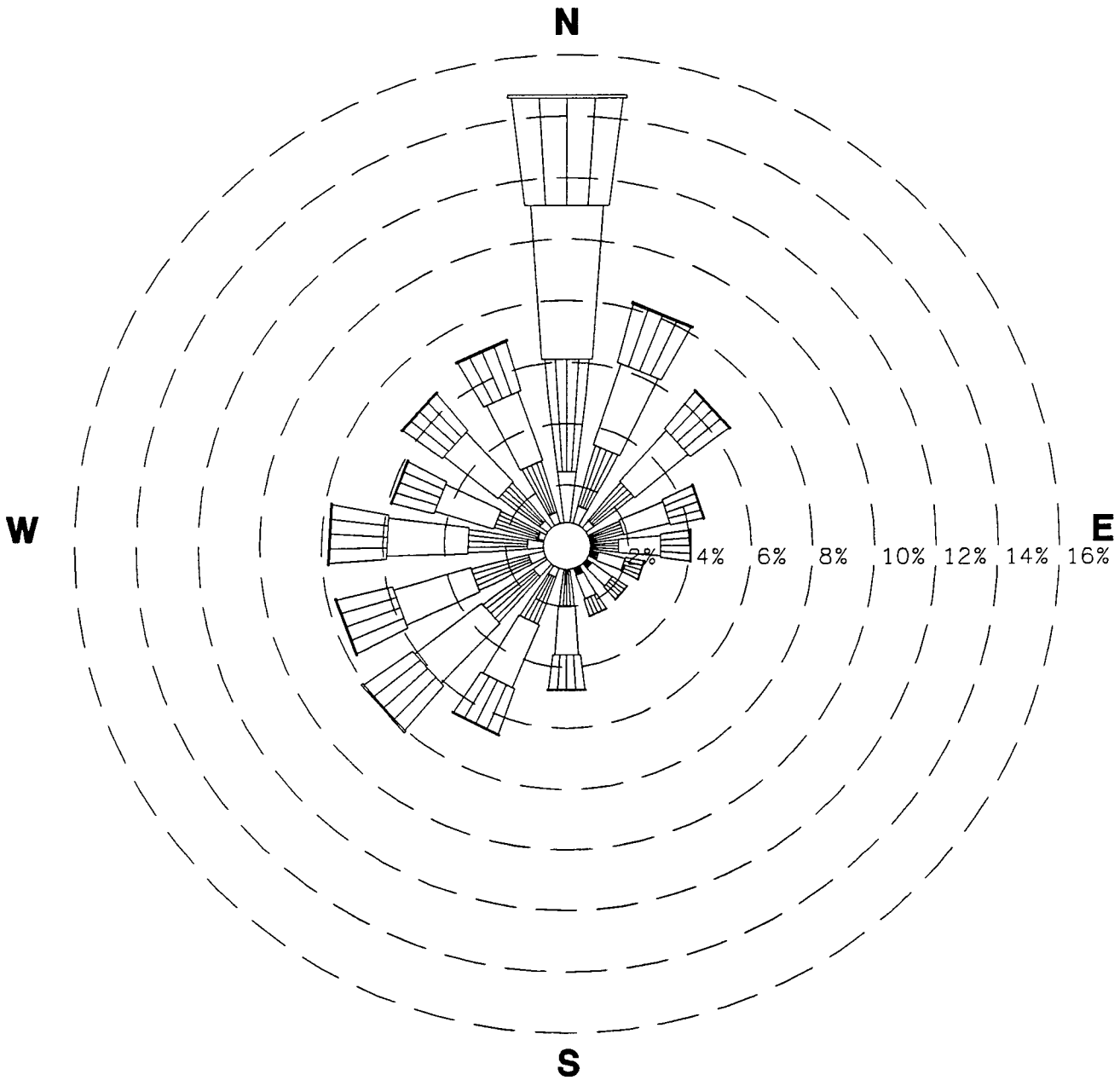


APPENDIX J

APPENDIX J
WIND ROSE AND AIR EMISSIONS INVENTORY

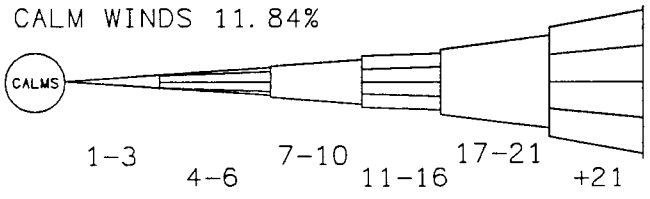
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FREQUENCY OF WIND SPEED AND DIRECTION



EXPLANATION

CALM WINDS 11.84%



WIND SPEED CLASS (KNOTS)

WIND ROSE MYRTLE BEACH AREA 1982-1986

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE J-1

Table J–1. Emissions Inventory for Oxides of Nitrogen (tons/day)

Source	Proposed Action				Expanded Airfield/ Resort–Recreation Alternative				Expanded Airfield/Resort/ Commercial–Industrial Alternative				Existing Airfield/ Mixed Use Alternative				Existing Airfield/Mixed Use Alternative – Restricted Second Runway Option 1	No–Action Alternative			
	1993	1998	2003	2013	1993	1998	2003	2013	1993	1998	2003	2013	1993	1998	2003	2013	2013	1993	1998	2003	2013
Aircraft Flying Operations	0.1040	0.1935	0.3252	0.3894	0.1040	0.1935	0.3267	0.3924	0.1035	0.1931	0.3285	0.3918	0.1035	0.1931	0.3237	0.3974	0.4120	0.1035	0.1777	0.3054	0.3747
On–road Vehicles	0.0022	0.6780	0.8628	0.9891	0.0022	0.5328	0.6102	0.6714	0.0022	0.6795	0.7566	0.8007	0.0022	0.3090	0.4401	0.6180	0.6200	0.0022	0.0019	0.0019	0.0022
Rental Car Gasoline Storage and Refueling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Construction Activity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
TOTAL	0.1062	0.8715	1.1880	1.3785	0.1062	0.7263	0.9369	1.0638	0.1057	0.8726	1.0851	1.1925	0.1057	0.5021	0.7638	1.0154	1.0320	0.1057	0.1796	0.3073	0.3769

1 Emissions for 1993, 1998, and 2003 would be the same as the Existing Airfield/Mixed Use Alternative with a single runway.

Table J–2. Emissions Inventory for Hydrocarbons (Volatile Organic Compounds) (tons/day)

Source	Proposed Action				Expanded Airfield/ Resort–Recreation Alternative				Expanded Airfield/Resort/ Commercial–Industrial Alternative				Existing Airfield/ Mixed Use Alternative				Existing Airfield/Mixed Use Alternative – Restricted Second Runway Option 1	No–Action Alternative			
	1993	1998	2003	2013	1993	1998	2003	2013	1993	1998	2003	2013	1993	1998	2003	2013	2013	1993	1998	2003	2013
Aircraft Flying Operatio	0.0544	0.0997	0.0959	0.1167	0.0544	0.0996	0.0959	0.1168	0.0533	0.0986	0.0998	0.1155	0.0533	0.0986	0.0944	0.1430	0.1610	0.0533	0.0620	0.0494	0.0491
On–road Vehicles	0.0024	0.4701	0.5568	0.6276	0.0024	0.3696	0.3939	0.4263	0.0024	0.4710	0.4884	0.5082	0.0024	0.2146	0.2842	0.3921	0.3900	0.0024	0.0020	0.0018	0.0020
Rental C	0.0060	0.0080	0.0080	0.0100	0.0060	0.0080	0.0080	0.0100	0.0060	0.0080	0.0080	0.0100	0.0060	0.0080	0.0080	0.0100	0.0100	0.0060	0.0080	0.0080	0.0100
Gasoline Storage and Refueling																					
Construction Activity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
TOTAL	0.0628	0.5778	0.6607	0.7543	0.0628	0.4772	0.4978	0.5531	0.0617	0.5776	0.5962	0.6337	0.0617	0.3212	0.3866	0.5451	0.5600	0.0617	0.0720	0.0592	0.0611

1 Emissions for 1993, 1998, and 2003 would be the same as for the Existing Airfield/Mixed Use Alternative with a single runway.

Table J–3. Emissions Inventory for Particulates (tons/day)

Source	Proposed Action				Expanded Airfield/ Resort–Recreation Alternative				Expanded Airfield/Resort/ Commercial–Industrial Alternative				Existing Airfield/ Mixed Use Alternative				Existing Airfield/Mixed Use Alternative – Restricted Second Runway Option 1	No–Action Alternative			
	1993	1998	2003	2013	1993	1998	2003	2013	1993	1998	2003	2013	1993	1998	2003	2013	2013	1993	1998	2003	2013
Aircraft Flying Operatio	0.0021	0.0026	0.0031	0.0038	0.0021	0.0026	0.0031	0.0038	0.0020	0.0026	0.0032	0.0037	0.0020	0.0025	0.0030	0.0037	0.0040	0.0020	0.0010	0.0012	0.0011
On–road Vehicles	0.0000	0.0058	0.0090	0.0108	0.0000	0.0045	0.0063	0.0073	0.0000	0.0058	0.0079	0.0087	0.0000	0.0026	0.0046	0.0067	0.0067	0.0000	0.0000	0.0000	0.0000
Rental C Gasoline Storage and Refueling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Construction Activity	4.9500	4.9500	4.9500	4.9500	3.5200	3.5200	3.5200	3.5200	4.0700	4.0700	4.0700	4.0700	3.9600	3.9600	3.9600	3.9600	4.0150	0.0000	0.0000	0.0000	0.0000
TOTAL	4.9521	4.9584	4.9621	4.9646	3.5221	3.5271	3.5294	3.5311	4.0720	4.0784	4.0811	4.0824	3.9620	3.9651	3.9676	3.9704	4.0257	0.0020	0.0010	0.0012	0.0011

1 Emissions for 1993, 1998, and 2003 would be the same as for the Existing Airfield/Mixed Use Alternative with a single runway.

Table J–4. Emissions Inventory for Oxides of Sulfur (tons/day)

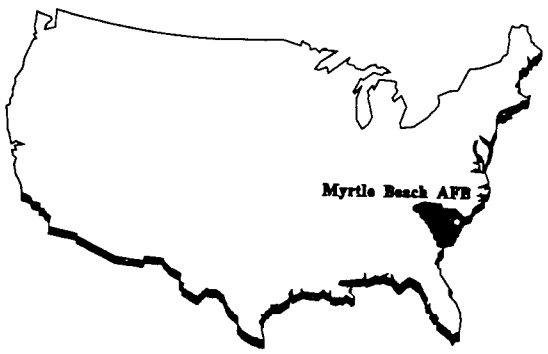
Source	Proposed Action				Expanded Airfield/ Resort–Recreation Alternative				Expanded Airfield/Resort/ Commercial–Industrial Alternative				Existing Airfield/ Mixed Use Alternative				Existing Airfield/Mixed Use Alternative – Restricted Second Runway Option 1	No–Action Alternative			
	1993	1998	2003	2013	1993	1998	2003	2013	1993	1998	2003	2013	1993	1998	2003	2013	2013	1993	1998	2003	2013
Aircraft Flying Operatio	0.0075	0.0154	0.0184	0.0221	0.0075	0.0154	0.0185	0.0222	0.0075	0.0154	0.0186	0.0222	0.0075	0.0154	0.0183	0.0229	0.0256	0.0075	0.0137	0.0167	0.0205
On–road Vehicles	0.0000	0.0009	0.0014	0.0016	0.0000	0.0007	0.0010	0.0011	0.0000	0.0008	0.0012	0.0013	0.0000	0.0004	0.0007	0.0010	0.0010	0.0000	0.0000	0.0000	0.0000
Rental C:	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Gasoline Storage and Refueling																					
Construction Activity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
TOTAL	0.0075	0.0163	0.0198	0.0237	0.0075	0.0161	0.0195	0.0233	0.0075	0.0162	0.0198	0.0235	0.0075	0.0158	0.0190	0.0239	0.0270	0.0075	0.0137	0.0167	0.0205

1 Emissions for 1993, 1998, and 2003 would be the same as for the Existing Airfield/Mixed Use Alternative with a single runway.

Table J–5. Emissions Inventory for Carbon Monoxide (tons/day)

Source	Proposed Action				Expanded Airfield/ Resort–Recreation Alternative				Expanded Airfield/Resort/ Commercial–Industrial Alternative				Existing Airfield/ Mixed Use Alternative				Existing Airfield/Mixed Use Alternative – Restricted Second Runway Option 1	No–Action Alternative			
	1993	1998	2003	2013	1993	1998	2003	2013	1993	1998	2003	2013	1993	1998	2003	2013	2013	1993	1998	2003	2013
Aircraft Flying Operations	0.2010	0.7851	0.8700	1.0905	0.2010	0.7848	0.8712	1.0917	0.1905	0.7722	0.8634	1.0737	0.1905	0.7725	0.8547	1.5800	1.2770	0.1905	0.2501	0.2446	0.2879
On–road Vehicles	0.0296	5.5770	6.5250	7.3170	0.0296	4.3830	4.6140	4.9680	0.0296	5.5890	5.7210	5.9250	0.0296	2.5446	3.3300	4.5690	4.6000	0.0296	0.0217	0.0181	0.0198
Rental Car Gasoline Storage and Refueling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Construction Activity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
TOTAL	0.2307	6.3621	7.3950	8.4075	0.2307	5.1678	5.4852	6.0597	0.2202	6.3612	6.5844	6.9987	0.2202	3.3171	4.1847	6.1490	5.8770	0.2202	0.2718	0.2627	0.3077

1 Emissions for 1993, 1998, and 2003 would be the same as for the Existing Airfield/Mixed Use Alternative with a single runway.



APPENDIX K

APPENDIX K

NOISE

1. DESCRIPTION OF PROPOSED ALTERNATIVES

1.1 PRECLOSURE

Typical noise sources on and around airfields usually include aircraft, surface traffic and other human activities.

Military aircraft operations are the primary source of noise in the vicinity of Myrtle Beach Air Force Base (AFB). The air operations and noise contours for preclosure are taken from the *Final Environmental Impact Statement, Proposed Closure of Myrtle Beach AFB* (U.S. Air Force, 1990). The contours for preclosure operations are shown in Figure 3.4-7 in the Affected Environment chapter of this EIS. In airport analyses, areas with a day-night average sound level (DNL) above 65 A-weighted decibels (dBA) are considered in land use compatibility planning and impact assessment; therefore, the distances to areas with DNLs greater than 65 dBA were of particular interest.

The baseline surface traffic noise levels in the vicinity of the base were established in terms of DNL by modeling the arterial roadways near the base using current traffic and speed characteristics. Annual average daily traffic (AADT) data developed in the *Final Environmental Impact Statement, Proposed Closure of Myrtle Beach AFB* (U.S. Air Force, 1990) were used to estimate preclosure noise levels. The traffic data used in the analysis are presented in Table K-1. The traffic mix was assumed to be the same as 1990. The noise levels generated by surface traffic were predicted using the model published by the Federal Highway Administration (FHWA, 1978). The noise levels are estimated as a function of distance from the centerline of the nearest road.

1.2 CLOSURE BASELINE

The noise levels projected for the closure baseline for surface traffic were calculated using the traffic projections at base closure. The AADTs used for the analysis are presented in Table K-1.

The closure of Myrtle Beach AFB would result in the withdrawal of all Air Force A-10 aircraft and transient military flights. The jetport would continue civil aircraft operation. The baseline noise contours (for March 1993) are developed for the jetport using the Integrated Noise Model (INM) computer model. The contours for baseline operation are shown in Figure 3.4-10 in the Affected Environment chapter of this EIS. The fleet mix, average peak month day operations, and day-night split are shown in Table K-2. Stage length of 1 was assumed for all aircraft operations. General aviation touch and go or engine runup operations were not included for the baseline analysis. Flight tracks used for this analysis are shown in Figure 3.4-9.

Table K-1. Surface Traffic Operations for Total Traffic Volumes

Road Name	AADT[1]	% Medium Truck	% Heavy Truck	Speed (mph)
Preclosure - 1989				
U.S. 17 Business	28,895	5	2	45
U.S. 17	37,837	2	3	55
SC 707	14,821	2	2	45
U.S. 501	49,369	5	2	45
SC 544	14,103	3	3	45
Jetport Road	4,590	3	1	35
Closure - 1993				
U.S. 17 Business - From MBAFB toward south - From MBAFB toward north	 40,367 34,354	 5 5	 2 2	 45 45
U.S. 17 Business - From MBAFB toward north & south	50,987	2	3	55
SC 707 - From MBAFB toward west	18,532	2	2	45
U.S. 501 - From U.S. 17 Bypass toward west - From U.S. 17 Bypass toward east	 66,405 43,164	 5 5	 2 2	 45 45
SC 544 - From U.S. 17 Bus. to U.S. 17 Bypass - From U.S. 17 Bypass to SC 707	 18,886 25,101	 3 3	 3 3	 45 55
Jetport Road - From jetport to SC 600	 5,481	 3	 1	 35

[1] AADT = Average annual daily traffic

TABLE K-2
ASSIGNMENT OF OPERATIONS FOR THE EXISTING CONDITION
MODELED YEAR: 1993

AIRCRAFT (NAME)	MARCH 1993 AVG. DAILY OPERATIONS	TAKEOFF FLIGHT TRACKS						ARRIVAL FLIGHT TRACKS			
		TRACK 35D1		TRACK 35D2		TRACK 17D1		TRACK 35A1		TRACK 17A1	
		DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT
PASSENGER AIRLINES											
727-200 (727Q9)	4.84	0.42	0.00	0.42	0.00	1.57	0.00	0.85	0.00	1.57	0.00
737-200 (737QN)	3.18	0.27	0.01	0.27	0.01	0.99	0.04	0.56	0.00	1.03	0.00
737-300 (7373B2)	0.22	0.01	0.01	0.01	0.01	0.05	0.03	0.04	0.00	0.07	0.00
737-400 (7373B2)	0.08	0.01	0.00	0.01	0.00	0.03	0.00	0.01	0.00	0.03	0.00
757 (757RR)	1.00	0.09	0.00	0.09	0.00	0.33	0.00	0.18	0.00	0.33	0.00
F100 (MD81)	1.97	0.13	0.04	0.13	0.04	0.48	0.16	0.34	0.00	0.64	0.00
SAAB 340 (SF340)	6.66	0.58	0.00	0.58	0.00	2.16	0.00	1.17	0.00	2.16	0.00
DC-9 (DC930)	7.18	0.63	0.00	0.63	0.00	2.33	0.00	1.26	0.00	2.33	0.00
EMB120 (SF340)	13.78	0.93	0.27	0.93	0.27	3.46	1.02	2.18	0.23	4.04	0.44
DH8 (DHC8)	2.58	0.23	0.00	0.23	0.00	0.84	0.00	0.45	0.00	0.84	0.00
Subtotal	41.49	3.30	0.34	3.30	0.34	12.24	1.25	7.02	0.23	13.05	0.44
CARGO											
C208 (GASEPV)	1.69	--	--	0.30	0.00	0.55	0.00	0.21	0.08	0.40	0.15
C402 (CNA441)	4.56	--	--	0.80	0.00	1.48	0.00	0.22	0.58	0.40	1.08
PA34 (BEC58P)	1.10	--	--	0.19	0.00	0.36	0.00	0.16	0.03	0.31	0.05
Subtotal	7.35	--	--	1.29	0.00	2.39	0.00	0.60	0.69	1.11	1.28
TOTAL	48.84	3.30	0.34	4.58	0.34	14.63	1.25	7.62	0.92	14.15	1.72

Notes:

- Day - 7:00 a.m. to 10:00 p.m.
- Night - 10:00 p.m. to 7:00 a.m.
- Day and night distributions are based on July 1991 distributions.
- March 1993 operations are based on March 91 data with 8.3% annual increase.

1.3 PROPOSED ACTION, EXPANDED AIRFIELD/RESORT-RECREATION ALTERNATIVE, AND EXPANDED AIRFIELD/RESORT-COMMERCIAL-INDUSTRIAL ALTERNATIVE

The Proposed Action, Expanded Airfield/Resort-Recreation Alternative, and Expanded Airfield/Resort-Commercial-Industrial Alternative for the reuse of Myrtle Beach AFB would result in a comprehensive reuse plan centered around a civil aviation facility. Primary components of the aviation action include air passenger operations, air cargo operations, general aviation operations, training, and maintenance operations. Non-aviation land uses mainly include office industrial park, commercial, residential, and recreational lands.

The fleet mix, peak month average day aircraft operations, and day-night split for all aircraft operations for various alternatives and for each of the modeled years are contained in Tables K-3a, K-3b, K3c, K-4a, K-4b, K-4c, K-5a, K-5b, and K-5c. The DNL contours for the proposed flight operations and the proposed flight tracks modeled are presented in Section 4.4.4, Noise. A stage length of 1 was used for all aircraft but the B747, which has a stage length of five.

No engine runup operations were assumed for this analysis.

General aviation operations were divided into four types:

- Single-engine (COMSEP) - A composite single-engine propeller plane was modeled
- Multi-engine - Beech Baron 58P assumed to be a typical multi-engine propeller plane
- Turboprop - Cessna Conquest II assumed to be a typical turboprop
- Jet - Lear 35 assumed to be a typical business jet.

The touch-and-go patterns and the initial departure and final approach flight tracks used in the modeling are shown in Figure 4.4-6. The departure and arrival flight tracks used for the existing runway are based on existing usage. The flight tracks are primarily toward the south, due to prevailing winds. The touch-and-go flight tracks were based on those in common use at airports of similar size. Touch-and-go operations were assumed to consist of single engine and multi-engine piston general aviation operations and were split on two tracks. Touch-and-go for 1998 and 2003 were about 25 percent of the general aviation operations. Touch-and-go for 2013 were about 11 percent of the general aviation use of the existing runway and about 24 percent of the use of the second runway. The operations were then dispersed according to the runway usage above. Daily operations assigned to each flight track and time period for the Proposed Action and other alternatives are provided in Tables K-3a, K-3b, K-3c, K-4a, K-4b, K-4c, K-5a, K-5b, and K-5c for each of the study years. Assignments were made in a similar way for all alternatives.

TABLE K-3A
ASSIGNMENT OF OPERATIONS FOR THE
PROPOSED ACTION - 1998

AIRCRAFT (NAME)	PEAK MO. AVG. DAILY OPERATIONS	TAKEOFF FLIGHT TRACKS						ARRIVAL FLIGHT TRACKS				TOUCH AND GO FLIGHT TRACKS			
		TRACK 35D1		TRACK 35D2		TRACK 17D1		TRACK 35A1		TRACK 17A1		TRACK 35D3		TRACK 17D3	
		DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT
PASSENGER AIRLINES															
727-200 (727Q9)	9.32	0.82	0.00	0.82	0.00	3.02	0.00	1.63	0.00	3.03	0.00	--	--	--	--
737-200 (737QN)	2.08	0.18	0.01	0.18	0.01	0.64	0.02	0.36	0.00	0.68	0.00	--	--	--	--
737-300 (7373B2)	14.70	0.83	0.45	0.83	0.45	3.11	1.68	2.51	0.07	4.65	0.12	--	--	--	--
737-400 (7373B2)	12.40	1.09	0.00	1.09	0.00	4.02	0.00	2.17	0.00	4.03	0.00	--	--	--	--
757 (757RR)	1.84	0.16	0.00	0.16	0.00	0.60	0.00	0.32	0.00	0.60	0.00	--	--	--	--
F100 (MD81)	4.65	0.30	0.10	0.30	0.10	1.14	0.38	0.82	0.00	1.51	0.00	--	--	--	--
SAAB 340 (SF340)	27.58	1.86	0.55	1.86	0.55	6.93	2.04	4.36	0.47	8.10	0.86	--	--	--	--
DH8 (DHC8)	3.68	0.32	0.00	0.32	0.00	1.20	0.00	0.64	0.00	1.20	0.00	--	--	--	--
Subtotal	76.25	5.56	1.11	5.56	1.11	20.66	4.12	12.81	0.54	23.8	0.98				
CARGO															
C402 (CNA441)	8.46	--	--	1.48	0.00	2.75	0.00	0.68	0.80	1.27	1.48	--	--	--	--
GA															
SINGLE-ENGINE (COMSEP)	229.02	24.06	1.24	--	--	44.68	2.31	24.06	1.24	44.68	2.31	28.97	0.58	53.81	1.08
MULTI-ENGINE PISTON (BEC58P)	14.48	1.98	0.09	--	--	3.67	0.16	1.98	0.09	3.69	0.16	0.93	0.00	1.73	0.00
MULTI-ENGINE TURBO (CNA441)	83.62	14.07	0.56	--	--	26.13	1.03	14.08	0.56	26.14	1.05	--	--	--	--
JET (LEAR35)	32.70	5.51	0.21	--	--	10.22	0.40	5.51	0.22	10.22	0.41	--	--	--	--
Subtotal	359.82	45.62	2.1			84.7	3.9	45.63	2.11	84.73	3.93	29.9	0.58	55.54	1.08
TOTAL	444.53	51.18	3.21	7.04	1.11	108.11	8.02	59.12	3.45	109.80	6.39	29.90	0.58	55.54	1.08

Notes:

- Day - 7:00 a.m. to 10:00 p.m.
- Night - 10:00 p.m. to 7:00 a.m.
- Day and night distributions are based on July 1991 distributions.
- Aircraft types based on that of September 1991, but modified to include more quiet aircraft.
- Total number of aircraft is based on LPA 1997 peak, but increased for 1998, and modified for this alternative.
- GA% is based on LPA 2012 data, but modified to match LPA T&G distributions for 1997.

TABLE K-3B
ASSIGNMENT OF OPERATIONS FOR THE
PROPOSED ACTION - 2003

AIRCRAFT (NAME)	PEAK MO. AVG. DAILY OPERATIONS	TAKEOFF FLIGHT TRACKS						ARRIVAL FLIGHT TRACKS				TOUCH & GO FLIGHT TRACKS			
		TRACK 35D1		TRACK 35D2		TRACK 17D1		TRACK 35A1		TRACK 17A1		TRACK 35D3		TRACK 17D3	
		DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT
PASSENGER AIRLINES															
757 (757RR)	21.04	1.66	0.18	1.66	0.18	6.16	0.68	2.95	0.74	5.47	1.37	--	--	--	--
737-400 (7373B2)	29.45	2.39	0.18	2.39	0.18	8.89	0.68	4.42	0.74	8.20	1.37	--	--	--	--
747-400 (74720B)	2.10	0.18	0.00	0.18	0.00	0.68	0.00	0.37	0.00	0.68	0.00	--	--	--	--
SAAB 340 (SF340)	25.26	2.03	0.18	2.03	0.18	7.53	0.68	4.05	0.37	7.53	0.68	--	--	--	--
DH8 (DHC8)	18.94	1.66	0.00	1.66	0.00	6.16	0.00	3.31	0.00	6.16	0.00	--	--	--	--
Subtotal	96.79	7.92	0.55	7.92	0.55	29.41	2.05	15.10	1.84	28.04	3.41				
CARGO															
C402 (CNA441)	8.64	--	--	1.51	0.00	2.81	0.00	1.51	0.00	2.81	0.00	--	--	--	--
GA															
SINGLE-ENGINE (COMPSEP)	266.92	26.95	1.44	--	--	50.06	2.68	26.95	1.44	50.06	2.68	35.96	0.68	66.76	1.26
MULTI-ENGINE PISTON (BEC58P)	16.88	2.30	0.11	--	--	4.28	0.19	2.30	0.11	4.28	0.19	1.10	0.00	2.02	0.00
MULTI-ENGINE TURBO (CNA441)	97.40	16.40	0.65	--	--	30.45	1.20	16.40	0.65	30.45	1.20	--	--	--	--
JET (LEAR35)	38.10	6.42	0.25	--	--	11.92	0.46	6.42	0.25	11.92	0.46	--	--	--	--
Subtotal	419.3	52.07	2.45			96.71	4.53	52.07	2.45	96.71	4.53	37.06	0.68	68.78	1.26
TOTAL	621.52	67.91	3.55	17.35	1.10	158.34	8.63	83.78	6.13	155.60	11.36	37.06	0.68	68.78	1.26

NOTES:

- Day - 7:00 a.m. to 10 p.m.
- Night - 10:00 p.m. to 7:00 a.m.
- Day and night distributions are based on 2012 data provided by LPA.
- Aircraft types are based on 2012 predictions provided by LPA.
- Total number of aircraft is based on LPA 2002 peak, but increased for 2003, and modified for this alternative.
- GA% is based on LPA 2012 data but modified to match LPA T&G distributions for 2002.

TABLE K-3C
ASSIGNMENT OF OPERATIONS FOR THE
PROPOSED ACTION - 2013
(Page 1 of 2)

AIRCRAFT (NAME)	PEAK MO. AVG. DAILY OPERATIONS	TAKEOFF FLIGHT TRACKS						ARRIVAL FLIGHT TRACKS				TOUCH & GO FLIGHT TRACKS			
		TRACK 35D1		TRACK 35D2		TRACK 17D1		TRACK 35A1		TRACK 17A1		TRACK 35D3		TRACK 17D3	
		DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT
PASSENGER AIRLINES															
757 (757RR)	25.34	1.99	0.22	1.99	0.22	7.41	0.83	3.55	0.89	6.59	1.64	--	--	--	--
737-400 (7373B2)	35.47	2.88	0.22	2.88	0.22	10.71	0.83	5.32	0.89	9.88	1.64	--	--	--	--
747-400 (74720B)	2.54	0.22	0.00	0.22	0.00	0.83	0.00	0.44	0.00	0.83	0.00	--	--	--	--
SAAB 340 (SF340)	30.42	2.44	0.22	2.44	0.22	9.06	0.83	4.88	0.44	9.06	0.83	--	--	--	--
DH8 (DHC8)	22.80	1.99	0.00	1.99	0.00	7.41	0.00	3.99	0.00	7.41	0.00	--	--	--	--
Subtotal	116.57	9.53	0.67	9.53	0.67	35.41	2.48	18.18	2.22	33.77	4.11				
CARGO															
C402 (CNA441)	8.12	--	--	1.42	0.00	2.64	0.00	1.42	0.00	2.64	0.00	--	--	--	--
GA MAIN RUNWAY															
SINGLE-ENGINE (COMSEP)	17.22	0.46	0.12	--	--	0.86	0.22	0.46	0.12	0.86	0.22	4.86	0.00	9.04	0.00
MULTI-ENGINE PISTON (BEC58P)	2.14	0.33	0.01	--	--	0.60	0.02	0.33	0.01	0.60	0.02	0.08	0.00	0.14	0.00
MULTI-ENGINE TURBO (CNA441)	62.70	10.55	0.42	--	--	19.59	0.79	10.55	0.42	19.59	0.79	--	--	--	--
JET (LEAR35)	44.24	7.36	0.38	--	--	13.68	0.70	7.36	0.38	13.68	0.70	--	--	--	--
Subtotal	126.30	18.70	0.93	0.00	0.00	34.73	1.73	18.70	0.93	34.73	1.73	4.94	0.00	9.18	0.00

Day - 7:00 a.m. to 10 p.m.
Night - 10:00 p.m. to 7:00 a.m.

TABLE K-3C
ASSIGNMENT OF OPERATIONS FOR THE
PROPOSED ACTION – 2013
(Page 2 of 2)

AIRCRAFT (NAME)	PEAK MO. AVG. DAILY OPERATIONS	TAKEOFF FLIGHT TRACKS				ARRIVAL FLIGHT TRACKS				TOUCH & GO FLIGHT TRACKS			
		TRACK 35D5		TRACK 17D4		TRACK 35A4		TRACK 17A3		TRACK 35D7		TRACK 17D6	
		DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT
GA NEW RUNWAY													
SINGLE-ENGINE (COMSEP)	326.14	37.87	2.18	70.35	4.04	37.87	2.18	70.35	4.04	34.04	0.00	63.22	0.00
MULTI-ENGINE PISTON (BEC58P)	19.64	2.49	0.14	4.61	0.25	2.49	0.14	4.61	0.25	1.64	0.00	3.02	0.00
MULTI-ENGINE TURBO (CNA441)	62.66	10.55	0.42	19.59	0.77	10.55	0.42	19.59	0.77	--	--	--	--
JET (LEAR35)	4.88	0.83	0.03	1.53	0.05	0.83	0.03	1.53	0.05	--	--	--	--
Subtotal	413.32	51.74	2.77	96.08	5.11	51.74	2.77	96.08	5.11	35.68	0.00	66.24	0.00
TOTAL	664.31												

NOTES:
- Day – 7:00 a.m. to 10 p.m.
- Night – 10:00 p.m. to 7:00 a.m.
- Day and night distributions are based on 2012 data provided by LPA.
- Aircraft types are based on 2012 predictions provided by LPA.
- Total number of aircrafts is based on LPA 2012 peak, but increased for 2013, but modified for this alternative.
- GA% is based on LPA 2012 data, but modified to match LPA T&G distributions for 2012.

TABLE K-4A
ASSIGNMENT OF OPERATIONS FOR THE
EXPANDED AIRFIELD/RESORT-RECREATION ALTERNATIVE - 1998

AIRCRAFT (NAME)	PEAK MO. AVG. DAILY OPERATIONS	TAKEOFF FLIGHT TRACKS						ARRIVAL FLIGHT TRACKS				TOUCH AND GO FLIGHT TRACKS			
		TRACK 35D1		TRACK 35D2		TRACK 17D1		TRACK 35A1		TRACK 17A1		TRACK 35D3		TRACK 17D3	
		DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT
PASSENGER AIRLINES															
727-200 (727Q9)	9.32	0.82	0.00	0.82	0.00	3.02	0.00	1.63	0.00	3.03	0.00	--	--	--	--
737-200 (737QN)	2.08	0.18	0.01	0.18	0.01	0.64	0.02	0.36	0.00	0.68	0.00	--	--	--	--
737-300 (7373B2)	14.70	0.83	0.45	0.83	0.45	3.11	1.68	2.51	0.07	4.65	0.12	--	--	--	--
737-400 (7373B2)	12.40	1.09	0.00	1.09	0.00	4.02	0.00	2.17	0.00	4.03	0.00	--	--	--	--
757 (757RR)	1.84	0.16	0.00	0.16	0.00	0.60	0.00	0.32	0.00	0.60	0.00	--	--	--	--
F100 (MD81)	4.65	0.30	0.10	0.30	0.10	1.14	0.38	0.82	0.00	1.51	0.00	--	--	--	--
SAAB 340 (SF340)	27.58	1.86	0.55	1.86	0.55	6.93	2.04	4.36	0.47	8.10	0.86	--	--	--	--
DH8 (DHC8)	3.68	0.32	0.00	0.32	0.00	1.20	0.00	0.64	0.00	1.20	0.00	--	--	--	--
Subtotal	76.25	5.56	1.11	5.56	1.11	20.66	4.12	12.81	0.54	23.8	0.98				
CARGO															
C402 (CNA441)	8.46	--	--	1.48	0.00	2.75	0.00	0.68	0.80	1.27	1.48	--	--	--	--
GA															
SINGLE-ENGINE (COMSEP)	224.64	23.60	1.22	--	--	43.83	2.26	23.60	1.22	43.83	2.26	28.42	0.57	52.78	1.05
MULTI-ENGINE PISTON (BEC58P)	14.22	1.94	0.09	--	--	3.60	0.16	1.95	0.09	3.61	0.16	0.92	0.00	1.70	0.00
MULTI-ENGINE TURBO (CNA441)	82.03	13.80	0.55	--	--	25.64	1.01	13.81	0.55	25.64	1.03	--	--	--	--
JET (LEAR35)	32.08	5.40	0.21	--	--	10.03	0.39	5.40	0.22	10.03	0.40	--	--	--	--
Subtotal	352.97	44.74	2.07	0	0	83.1	3.82	44.76	2.08	83.11	3.85	29.34	0.57	54.48	1.05
TOTAL	437.68	50.30	3.18	7.04	1.11	106.51	7.94	58.25	3.42	108.18	6.31	29.34	0.57	54.48	1.05

Notes:

- Day - 7:00 a.m. to 10:00 p.m.
- Night - 10:00 p.m. to 7:00 a.m.
- Day and night distributions are based on July 1991 distributions.
- Aircraft types based on that of September 1991, but modified to include more quiet aircraft.
- Total number of aircraft is based on LPA 1997 peak, but increased for 1998, and modified for this alternative.
- GA% is based on LPA 2012 data, but modified to match LPA T&G distributions for 1997.

AIRCRAFT (NAME)	PEAK MO. AVG. DAILY OPERATIONS	TAKEOFF FLIGHT TRACKS						ARRIVAL FLIGHT TRACKS				TOUCH & GO FLIGHT TRACKS			
		TRACK 35D1		TRACK 35D2		TRACK 17D1		TRACK 35A1		TRACK 17A1		TRACK 35D3		TRACK 17D3	
		DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT
PASSENGER AIRLINES															
757 (757RR)	21.04	1.66	0.18	1.66	0.18	6.16	0.68	2.95	0.74	5.47	1.37	--	--	--	--
737-400 (7373B2)	29.45	2.39	0.18	2.39	0.18	8.89	0.68	4.42	0.74	8.20	1.37	--	--	--	--
747-400 (74720B)	2.10	0.18	0.00	0.18	0.00	0.68	0.00	0.37	0.00	0.68	0.00	--	--	--	--
SAAB 340 (SF340)	25.26	2.03	0.18	2.03	0.18	7.53	0.68	4.05	0.37	7.53	0.68	--	--	--	--
DH8 (DHC8)	18.94	1.66	0.00	1.66	0.00	6.16	0.00	3.31	0.00	6.16	0.00	--	--	--	--
Subtotal	96.79	7.92	0.55	7.92	0.55	29.41	2.05	15.10	1.84	28.04	3.41				
CARGO															
C402 (CNA441)	8.64	--	--	1.51	0.00	2.81	0.00	1.51	0.00	2.81	0.00	--	--	--	--
GA															
SINGLE-ENGINE (COMPSEP)	261.49	26.44	1.41	--	--	49.11	2.63	26.44	1.41	49.11	2.63	35.26	0.33	65.48	1.24
MULTI-ENGINE PISTON (BEC58P)	16.56	2.26	0.10	--	--	4.20	0.19	2.26	0.10	4.20	0.19	1.08	0.00	1.98	0.00
MULTI-ENGINE TURBO (CNA441)	95.54	16.09	0.64	--	--	29.87	1.17	16.09	0.64	29.87	1.17	--	--	--	--
JET (LEAR35)	37.36	6.29	0.25	--	--	11.69	0.45	6.29	0.25	11.69	0.45	--	--	--	--
Subtotal	410.95	51.08	2.40			94.87	4.44	51.08	2.40	94.87	4.44	36.34	0.33	67.46	1.24
TOTAL	516.38	59.00	2.95	9.43	0.55	127.09	6.49	67.69	4.24	125.72	7.85	36.34	0.33	67.46	1.24

NOTES:

- Day - 7:00 a.m. to 10 p.m.
- Night - 10:00 p.m. to 7:00 a.m.
- Day and night distributions are based on 2012 data provided by LPA.
- Aircraft types are ased on 2012 predictions provided by LPA.
- Total number of aircraft is based on LPA 2002 peak, but increased for 2003, and modified for this alternative.
- GA% is based on LPA 2012 data but modified to match LPA T&G distributions for 2002.

TABLE K-4C
ASSIGNMENT OF OPERATIONS FOR THE
EXPANDED AIRFIELD/RESORT-RECREATION ALTERNATIVE - 2013
(Page 1 of 2)

AIRCRAFT (NAME)	PEAK MO. AVG. DAILY OPERATIONS	TAKEOFF FLIGHT TRACKS						ARRIVAL FLIGHT TRACKS				TOUCH & GO FLIGHT TRACKS			
		TRACK 35D1		TRACK 35D2		TRACK 17D1		TRACK 35A1		TRACK 17A1		TRACK 35D3		TRACK 17D3	
		DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT
PASSENGER AIRLINES															
757 (757RR)	25.34	1.99	0.22	1.99	0.22	7.41	0.83	3.55	0.89	6.59	1.64	--	--	--	--
737-400 (7373B2)	35.47	2.88	0.22	2.88	0.22	10.71	0.83	5.32	0.89	9.88	1.64	--	--	--	--
747-400 (74720B)	2.54	0.22	0.00	0.22	0.00	0.83	0.00	0.44	0.00	0.83	0.00	--	--	--	--
SAAB 340 (SF340)	30.42	2.44	0.22	2.44	0.22	9.06	0.83	4.88	0.44	9.06	0.83	--	--	--	--
DH8 (DHC8)	22.80	1.99	0.00	1.99	0.00	7.41	0.00	3.99	0.00	7.41	0.00	--	--	--	--
Subtotal	116.57	9.53	0.67	9.53	0.67	35.41	2.48	18.18	2.22	33.77	4.11				
CARGO															
C402 (CNA441)	8.12	--	--	1.42	0.00	2.64	0.00	1.42	0.00	2.64	0.00	--	--	--	--
GA MAIN RUNWAY															
SINGLE-ENGINE (COMSEP)	16.86	0.45	0.11	--	--	0.84	0.22	0.45	0.11	0.84	0.22	4.76	0.00	8.86	0.00
MULTI-ENGINE PISTON (BEC58P)	2.10	0.32	0.01	--	--	0.59	0.02	0.32	0.01	0.59	0.02	0.08	0.00	0.14	0.00
MULTI-ENGINE TURBO															
(CNA441)	61.50	10.35	0.41	--	--	19.22	0.77	10.35	0.41	19.22	0.77	--	--	--	--
JET (LEAR35)	43.40	7.22	0.37	--	--	13.42	0.69	7.22	0.37	13.42	0.69	--	--	--	--
Subtotal	123.86	18.34	0.90	0.00	0.00	34.07	1.70	18.34	0.90	34.07	1.70	4.84	0.00	9.00	0.00

Day - 7:00 a.m. to 10 p.m.
Night - 10:00 p.m. to 7:00 a.m.

TABLE K-4C
ASSIGNMENT OF OPERATIONS FOR THE
EXPANDED AIRFIELD/RESORT-RECREATION ALTERNATIVE - 2013
(Page 2 of 2)

AIRCRAFT (NAME)	PEAK MO. AVG. DAILY OPERATION	TAKEOFF FLIGHT TRACKS				ARRIVAL FLIGHT TRACKS				TOUCH & GO FLIGHT TRACKS			
		TRACK 35D5		TRACK 17D4		TRACK 35A4		TRACK 17A3		TRACK 35D7		TRACK 17D6	
		DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT
GA NEW RUNWAY													
SINGLE-ENGINE (COMSEP)	319.94	37.15	2.14	69.01	3.97	37.15	2.14	69.01	3.97	33.40	0.00	62.00	0.00
MULTI-ENGINE PISTON (BEC58P)	19.24	2.44	0.13	4.52	0.25	2.44	0.13	4.52	0.25	1.60	0.00	2.96	0.00
MULTI-ENGINE TURBO (CNA441)	61.46	10.35	0.41	19.22	0.75	10.35	0.41	19.22	0.75	--	--	--	--
JET (LEAR35)	4.78	0.81	0.03	1.50	0.05	0.81	0.03	1.50	0.05	--	--	--	--
Subtotal	400.64	49.94	2.68	92.75	4.97	49.94	2.68	92.75	4.97	35.00	0.00	64.96	0.00
TOTAL	649.19												

NOTES:
- Day - 7:00 a.m. to 10 p.m.
- Night - 10:00 p.m. to 7:00 a.m.
- Day and night distributions are based on 2012 data provided by LPA.
- Aircraft types are based on 2012 predictions provided by LPA.
- Total number of aircraft is based on LPA 2012 peak, but increased for 2013, and modified for this alternative.
- GA% is based on LPA 2012 data, but modified to match LPA T&G distributions for 2012.

TABLE K-5A
ASSIGNMENT OF OPERATIONS FOR THE
EXPANDED AIRFIELD/RESORT-COMMERCIAL-INDUSTRIAL ALTERNATIVE - 1998

AIRCRAFT (NAME)	PEAK MO. AVG. DAILY OPERATIONS	TAKEOFF FLIGHT TRACKS						ARRIVAL FLIGHT TRACKS				TOUCH AND GO FLIGHT TRACKS			
		TRACK 35D1		TRACK 35D2		TRACK 17D1		TRACK 35A1		TRACK 17A1		TRACK 35D3		TRACK 17D3	
		DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT
PASSENGER AIRLINES															
727-200 (727Q9)	9.32	0.82	0.00	0.82	0.00	3.02	0.00	1.63	0.00	3.03	0.00	--	--	--	--
737-200 (737QN)	2.08	0.18	0.01	0.18	0.01	0.64	0.02	0.36	0.00	0.68	0.00	--	--	--	--
737-300 (7373B2)	14.70	0.83	0.45	0.83	0.45	3.11	1.68	2.51	0.07	4.65	0.12	--	--	--	--
737-400 (7373B2)	12.40	1.09	0.00	1.09	0.00	4.02	0.00	2.17	0.00	4.03	0.00	--	--	--	--
757 (757RR)	1.84	0.16	0.00	0.16	0.00	0.60	0.00	0.32	0.00	0.60	0.00	--	--	--	--
F100 (MD81)	4.65	0.30	0.10	0.30	0.10	1.14	0.38	0.82	0.00	1.51	0.00	--	--	--	--
SAAB 340 (SF340)	27.58	1.86	0.55	1.86	0.55	6.93	2.04	4.36	0.47	8.10	0.86	--	--	--	--
DH8 (DHC8)	3.68	0.32	0.00	0.32	0.00	1.20	0.00	0.64	0.00	1.20	0.00	--	--	--	--
Subtotal	76.25	5.56	1.11	5.56	1.11	20.66	4.12	12.81	0.54	23.8	0.98				
CARGO															
C402 (CNA441)	8.46	--	--	1.48	0.00	2.75	0.00	0.68	0.80	1.27	1.48	--	--	--	--
GA															
SINGLE-ENGINE (COMSEP)	207.22	21.77	1.12	--	--	40.43	2.09	21.77	1.12	40.43	2.09	26.22	0.53	48.68	0.97
MULTI-ENGINE PISTON (BEC58P)	13.12	1.79	0.08	--	--	3.32	0.15	1.80	0.08	3.33	0.15	0.85	0.00	1.57	0.00
MULTI-ENGINE TURBO (CNA441)	75.64	12.73	0.50	--	--	23.65	0.93	12.73	0.51	23.65	0.94	--	--	--	--
JET (LEAR35)	29.58	4.98	0.19	--	--	9.25	0.36	4.98	0.20	9.25	0.37	--	--	--	--
Subtotal	325.56	41.27	1.89			76.65	3.53	41.28	1.91	76.66	3.55	27.07	0.53	50.25	0.97
TOTAL	410.27	46.83	3.00	7.04	1.11	100.06	7.65	54.77	3.25	101.73	6.01	27.07	0.53	50.25	0.97

Notes:

- Day - 7:00 a.m. to 10:00 p.m.
- Night - 10:00 p.m. to 7:00 a.m.
- Day and night distributions are based on July 1991 distributions.
- Aircraft types based on that of September 1991, but modified to include more quiet aircraft.
- Total number of aircraft is based on LPA 1997 peak, but increased for 1998, and modified for this alternative.
- GA% is based on LPA 2012 data, but modified to match LPA T&G distributions for 1997.

TABLE K-5B
ASSIGNMENT OF OPERATIONS FOR THE
EXPANDED AIRFIELD/RESORT-COMMERCIAL-INDUSTRIAL ALTERNATIVE - 2003

AIRCRAFT (NAME)	PEAK MO. AVG. DAILY OPERATIONS	TAKEOFF FLIGHT TRACKS						ARRIVAL FLIGHT TRACKS				TOUCH & GO FLIGHT TRACKS			
		TRACK 35D1		TRACK 35D2		TRACK 17D1		TRACK 35A1		TRACK 17A1		TRACK 35D3		TRACK 17D3	
		DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT
PASSENGER AIRLINES															
757 (757RR)	21.04	1.66	0.18	1.66	0.18	6.16	0.68	2.95	0.74	5.47	1.37	--	--	--	--
737-400 (7373B2)	29.45	2.39	0.18	2.39	0.18	8.89	0.68	4.42	0.74	8.20	1.37	--	--	--	--
747-400 (74720B)	2.10	0.18	0.00	0.18	0.00	0.68	0.00	0.37	0.00	0.68	0.00	--	--	--	--
SAAB 340 (SF340)	25.26	2.03	0.18	2.03	0.18	7.53	0.68	4.05	0.37	7.53	0.68	--	--	--	--
DH8 (DHC8)	18.94	1.66	0.00	1.66	0.00	6.16	0.00	3.31	0.00	6.16	0.00	--	--	--	--
Subtotal	96.79	7.92	0.55	7.92	0.55	29.41	2.05	15.10	1.84	28.04	3.41				
CARGO															
C402 (CNA441)	8.64	--	--	1.51	0.00	2.81	0.00	1.51	0.00	2.81	0.00	--	--	--	--
GA															
SINGLE-ENGINE (COMPSEP)	241.48	24.39	1.30	--	--	45.30	2.42	24.39	1.30	45.30	2.42	32.52	0.60	60.40	1.14
MULTI-ENGINE PISTON (BEC58P)	15.26	2.08	0.10	--	--	3.88	0.17	2.08	0.10	3.88	0.17	0.98	0.00	1.82	0.00
MULTI-ENGINE TURBO (CNA441)	88.12	14.84	0.59	--	--	27.55	1.08	14.84	0.59	27.55	1.08	--	--	--	--
JET (LEAR35)	34.46	5.80	0.23	--	--	10.78	0.42	5.80	0.23	10.78	0.42	--	--	--	--
Subtotal	379.32	47.11	2.22	0	0	87.51	4.09	47.11	2.22	87.51	4.09	33.5	0.6	62.22	1.14
TOTAL	484.75	55.03	2.77	9.43	0.55	119.73	6.14	63.72	4.06	118.36	7.50	33.50	0.60	62.22	1.14

NOTES:

- Day - 7:00 a.m. to 10 p.m.
- Night - 10:00 p.m. to 7:00 a.m.
- Day and night distributions are based on 2012 data provided by LPA.
- Aircraft types are ased on 2012 predictions provided by LPA.
- Total number of aircraft is based on LPA 2002 peak, but increased for 2003, and modified for this alternative.
- GA% is based on LPA 2012 data but modified to match LPA T&G distributions for 2002.

TABLE K-5C

ASSIGNMENT OF OPERATIONS FOR THE

EXPANDED AIRFIELD/RESORT-COMMERCIAL-INDUSTRIAL ALTERNATIVE - 2013

AIRCRAFT (NAME)	PEAK MO. AVG. DAILY OPERATIONS	TAKEOFF FLIGHT TRACKS						ARRIVAL FLIGHT TRACKS				TOUCH & GO FLIGHT TRACKS			
		TRACK 35D1		TRACK 35D2		TRACK 17D1		TRACK 35A1		TRACK 17A1		TRACK 35D3		TRACK 17D3	
		DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT
PASSENGER AIRLINES															
757 (757RR)	25.34	1.99	0.22	1.99	0.22	7.41	0.83	3.55	0.89	6.59	1.64	--	--	--	--
737-400 (7373B2)	35.47	2.88	0.22	2.88	0.22	10.71	0.83	5.32	0.89	9.88	1.64	--	--	--	--
747-400 (74720B)	2.54	0.22	0.00	0.22	0.00	0.83	0.00	0.44	0.00	0.83	0.00	--	--	--	--
SAAB 340 (SF340)	30.42	2.44	0.22	2.44	0.22	9.06	0.83	4.88	0.44	9.06	0.83	--	--	--	--
DH8 (DHC8)	22.80	1.99	0.00	1.99	0.00	7.41	0.00	3.99	0.00	7.41	0.00	--	--	--	--
Subtotal	116.57	9.53	0.67	9.53	0.67	35.41	2.48	18.18	2.22	33.77	4.11				
CARGO															
C402 (CNA441)	8.12	--	--	1.42	0.00	2.64	0.00	1.42	0.00	2.64	0.00	--	--	--	--
GA MAIN RUNWAY															
SINGLE-ENGINE (COMSEP)	15.56	0.42	0.10	--	--	0.78	0.20	0.42	0.10	0.78	0.20	4.38	0.00	8.18	0.00
MULTI-ENGINE PISTON (BEC58P)	1.94	0.29	0.01	--	--	0.54	0.02	0.29	0.01	0.54	0.02	0.08	0.00	0.14	0.00
MULTI-ENGINE TURBO															
(CNA441)	56.74	9.55	0.38	--	--	17.73	0.71	9.55	0.38	17.73	0.71	--	--	--	--
JET (LEAR35)	40.04	6.66	0.34	--	--	12.38	0.64	6.66	0.34	12.38	0.64	--	--	--	--
Subtotal	114.28	16.92	0.83			31.43	1.57	16.92	0.83	31.43	1.57	4.46	0	8.32	0

Day - 7:00 a.m. to 10 p.m.

Night - 10:00 p.m. to 7:00 a.m.

TABLE K-5C
ASSIGNMENT OF OPERATIONS FOR THE
EXPANDED AIRFIELD/RESORT-COMMERCIAL-INDUSTRIAL ALTERNATIVE - 2013
(Page 2 of 2)

AIRCRAFT (NAME)	MARCH 2013 AVG. DAILY OPERATIONS	TAKEOFF FLIGHT TRACKS				ARRIVAL FLIGHT TRACKS				TOUCH & GO FLIGHT TRACKS			
		TRACK 35D5		TRACK 17D4		TRACK 35A4		TRACK 17A3		TRACK 35D7		TRACK 17D6	
		DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT
GA NEW RUNWAY													
SINGLE-ENGINE (COMSEP)	295.12	34.27	1.98	63.65	3.66	34.27	1.98	63.65	3.66	30.80	0.00	57.20	0.00
MULTI-ENGINE PISTON (BEC58P)	17.76	2.25	0.12	4.17	0.23	2.25	0.12	4.17	0.23	1.48	0.00	2.74	0.00
MULTI-ENGINE TURBO (CNA441)	56.70	9.55	0.38	17.73	0.69	9.55	0.38	17.73	0.69	--	--	--	--
JET (LEAR35)	4.44	0.75	0.03	1.39	0.05	0.75	0.03	1.39	0.05	--	--	--	--
Subtotal	374.02	46.82	2.51	86.94	4.63	46.82	2.51	86.94	4.63	32.28	0	59.94	0
TOTAL	612.99												

NOTES:
- Day - 7:00 a.m. to 10 p.m.
- Night - 10:00 p.m. to 7:00 a.m.
- Day and night distributions are based on 2012 data provided by LPA.
- Aircraft types are based on 2012 predictions provided by LPA.
- Total number of aircrafts is based on LPA 2012 peak, but increased for 2013, but modified for this alternative.
- GA% is based on LPA 2012 data, but modified to match LPA T&G distributions for 2012.

The computer model considers a landing and a take-off for touch-and-go operation as one input; therefore, the numbers shown in the tables are twice the numbers input into the computer model.

A standard 3 degree glide slope and the takeoff profiles provided by the Federal Aviation Administration's (FAA) INM Database 3.9 were assumed for all aircraft.

Surface traffic data used in the modeling were developed from the project traffic study presented in Section, 4.2.3, Transportation, and are shown in Tables K-6, K-7, and K-8. The AADT values were calculated from the peak hour traffic volumes in the transportation section. The background portion of the peak hour traffic is 7.90 percent of the AADT. For the Proposed Action, the development portion of the peak hour traffic is 7.15, 7.06, and 7.73 percent of the AADT for the years 1998, 2003, and 2013, respectively. For the Expanded Airfield/Resort/Recreation Alternative, the development portion of the peak hour traffic is 7.41, 6.96, and 7.92 percent of the AADT for the years 1998, 2003, and 2013, respectively. For the Expanded Airfield/Resort-Commercial-Industrial Alternative, the development portion of the peak hour traffic is 7.49, 7.22, and 7.52 percent of the AADT for the years 1998, 2003, and 2013, respectively.

1.4 EXISTING AIRFIELD/MIXED USE ALTERNATIVE

Under the Existing Airfield/Mixed Use Alternative, as in the Proposed Action, the base airfield would be converted to civilian use. Primary components of the aviation action include air passenger, general aviation operations, and maintenance operations. For this alternative there would be no new runway; however, the Restricted Second Runway Option includes a second runway for the year 2013 analysis.

The fleet mix, peak month average day operations, and day-night split for all aircraft operations for each of the modeled years are contained in Tables K-9a through K-9d. The DNL contours for the proposed flight operations are presented in Section 4.4.4, Noise. The proposed flight tracks modeled for the alternative with a single runway are the same as for the existing runway of the Proposed Action. Flight tracks for the second runway are used only for the option. A stage length of 1 was used for all aircraft but the B747, which has a stage length of 5.

No engine runup operations were assumed for this analysis. General aviation operations would be divided into the same four types as in the Proposed Action. It was assumed that about 25 percent of the single-engine and multi-engine piston general aviation operations would be touch-and-go (or closed loop) activities.

A standard 3 degree glide slope and the takeoff profiles provided by the FAA's INM Database 3.9 were assumed for all aircraft.

Table K-6. Surface Traffic Operations for Total Traffic Volumes: Proposed Action

Road Name	AADT	% Medium Truck	% Heavy Truck	Speed (mph)
1998				
U.S. 17 Business				
- From MBAFB toward south	68,975	5	2	45
- From MBAFB toward north	58,244	5	2	45
U.S. 17				
- From MBAFB toward north & south	79,187	2	3	55
SC 707				
- From MBAFB toward west	28,803	2	2	45
U.S. 501				
- From U.S. 17 Bypass toward west	63,925	5	2	45
- From U.S. 17 Bypass toward east	55,208	5	2	45
SC 544				
- From U.S. 17 Bus. to U.S. 17 Bypass	24,482	3	3	45
- From U.S. 17 Bypass to SC 707	31,727	3	3	55
Jetport Road				
- From jetport to SC 600	13,328	3	1	35
2003				
U.S. 17 Business				
- From MBAFB toward south	91,734	5	2	45
- From MBAFB toward north	74,438	5	2	45
U.S. 17 Business				
- From MBAFB toward north & south	99,460	2	3	55
SC 707				
- From MBAFB toward west	37,342	2	2	45
U.S. 501				
- From U.S. 17 Bypass toward west	76,490	5	2	45
- From U.S. 17 Bypass toward east	66,676	5	2	45
SC 544				
- From U.S. 17 Bus. to U.S. 17 Bypass	30,086	3	3	45
- From U.S. 17 Bypass to SC 707	38,258	3	3	55
Jetport Road				
- From jetport to SC 600	15,670	3	1	35
2013				
U.S. 17 Business				
- From MBAFB toward south	114,064	5	2	45
- From MBAFB toward north	93,338	5	2	45
U.S. 17				
- From MBAFB toward north and south	105,771	2	3	55
SC 707				
- From MBAFB toward west	36,651	2	2	45
U.S. 501				
- From U.S. 17 Bypass toward west	109,831	5	2	45
- From U.S. 17 Bypass toward east	88,420	5	2	45
SC 544				
- From U.S. 17 Bus. to U.S. 17 Bypass	39,554	3	3	45
- From U.S. 17 Bypass to SC 707	50,743	3	3	55
Jetport Road				
- From jetport to SC 600	19,111	3	1	35

Table K-7. Surface Traffic Operations for Total Traffic Volumes: Expanded Airfield/Resort-Recreation Alternative

Road Name	AADT	% Medium Truck	% Heavy Truck	Speed (mph)
1998				
U.S. 17 Business - From MBAFB toward south - From MBAFB toward north	 46,466 57,671	 5 5	 2 2	 45 45
U.S. 17 - From MBAFB toward north & south	 76,792	 2	 3	 55
SC 707 - From MBAFB toward west	 28,368	 2	 2	 45
U.S. 501 - From U.S. 17 Bypass toward west - From U.S. 17 Bypass toward east	 63,739 54,542	 5 5	 2 2	 45 45
SC 544 - From U.S. 17 Bus. to U.S. 17 Bypass - From U.S. 17 Bypass to SC 707	 24,695 31,706	 3 3	 3 3	 45 55
Jetport Road - From jetport to SC 600	 12,872	 3	 1	 35
2003				
U.S. 17 Business - From MBAFB toward south - From MBAFB toward north	 81,033 73,763	 5 5	 2 2	 45 45
U.S. 17 Business - From MBAFB toward north & south	 97,251	 2	 3	 55
SC 707 - From MBAFB toward west	 36,541	 2	 2	 45
U.S. 501 - From U.S. 17 Bypass toward west - From U.S. 17 Bypass toward east	 76,539 65,576	 5 5	 2 2	 45 45
SC 544 - From U.S. 17 Bus. to U.S. 17 Bypass - From U.S. 17 Bypass to SC 707	 29,647 38,110	 3 3	 3 3	 45 55
Jetport Road - From jetport to SC 600	 15,510	 3	 1	 35
2013				
U.S. 17 Business - From MBAFB toward south - From MBAFB toward north	 100,410 88,820	 5 5	 2 2	 45 45
U.S. 17 - From MBAFB toward north and south	 100,021	 2	 3	 55
SC 707 - From MBAFB toward west	 34,057	 2	 2	 45
U.S. 501 - From U.S. 17 Bypass toward west - From U.S. 17 Bypass toward east	 109,606 86,753	 5 5	 2 2	 45 45
SC 544 - From U.S. 17 Bus. to U.S. 17 Bypass - From U.S. 17 Bypass to SC 707	 38,650 50,249	 3 3	 3 3	 45 55
Jetport Road - From jetport to SC 600	 17,129	 3	 1	 35

Table K-8. Surface Traffic Operations for Total Traffic Volumes: Expanded Airfield/Resort-Commercial-Industrial Alternative

Road Name	AADT	% Medium Truck	% Heavy Tfuck	Speed mph)
1998				
U.S. 17 Business - From MBAFB toward south - From MBAFB toward north	 76,120 62,234	 5 5	 2 2	 45 45
U.S. 17 - From MBAFB toward north & south	77,388	2	3	55
SC 707 - From MBAFB toward west	29,411	2	2	45
U.S. 501 - From U.S. 17 Bypass toward west - From U.S. 17 Bypass toward east	63,723 54,914	5 5	2 2	45 45
SC 544 - From U.S. 17 Bus. to U.S. 17 Bypass - From U.S. 17 Bypass to SC 707	26,033 32,029	3 3	3 3	45 55
Jetport Road - From jetport to SC 600	13,174	3	1	35
2003				
U.S. 17 Business - From MBAFB toward south - From MBAFB toward north	95,608 77,351	5 5	2 2	45 45
U.S. 17 Business - From MBAFB toward north & south	96,299	2	3	55
SC 707 - From MBAFB toward west	36,932	2	2	45
U.S. 501 - From U.S. 17 Bypass toward west - From U.S. 17 Bypass toward east	76,272 66,061	5 5	2 2	45 45
SC 544 - From U.S. 17 Bus. to U.S. 17 Bypass - From U.S. 17 Bypass to SC 707	31,838 38,442	3 3	3 3	45 55
Jetport Road - From jetport to SC 600	15,728	3	1	35
2013				
U.S. 17 Business - From MBAFB toward south - From MBAFB toward north	112,938 91,981	5 5	2 2	45 45
U.S. 17 - From MBAFB toward north and south	100,623	2	3	55
SC 707 - From MBAFB toward west	34,636	2	2	45
U.S. 501 - From U.S. 17 Bypass toward west - From U.S. 17 Bypass toward east	109,684 87,502	5 5	2 2	45 45
SC 544 - From U.S. 17 Bus. to U.S. 17 Bypass - From U.S. 17 Bypass to SC 707	41,395 50,631	3 3	3 3	45 55
Jetport Road - From jetport to SC 600	18,275	3	1	35

TABLE K-9A
ASSIGNMENT OF OPERATIONS FOR THE PROPOSED
EXISTING AIRFIELD/MIXED USE ALTERNATIVE - 1998

AIRCRAFT (NAME)	PEAK MO. AVG. DAILY OPERATIONS	TAKEOFF FLIGHT TRACKS						ARRIVAL FLIGHT TRACKS				TOUCH AND GO FLIGHT TRACKS			
		TRACK 35D1		TRACK 35D2		TRACK 17D1		TRACK 35A1		TRACK 17A1		TRACK 35D3		TRACK 17D3	
		DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT
PASSENGER AIRLINES															
727-200 (727Q9)	9.32	0.82	0.00	0.82	0.00	3.02	0.00	1.63	0.00	3.03	0.00	--	--	--	--
737-200 (737QN)	2.08	0.18	0.01	0.18	0.01	0.64	0.02	0.36	0.00	0.68	0.00	--	--	--	--
737-300 (7373B2)	14.70	0.83	0.45	0.83	0.45	3.11	1.68	2.51	0.07	4.65	0.12	--	--	--	--
737-400 (7373B2)	12.40	1.09	0.00	1.09	0.00	4.02	0.00	2.17	0.00	4.03	0.00	--	--	--	--
757 (757RR)	1.84	0.16	0.00	0.16	0.00	0.60	0.00	0.32	0.00	0.60	0.00	--	--	--	--
F100 (MD81)	4.65	0.30	0.10	0.30	0.10	1.14	0.38	0.82	0.00	1.51	0.00	--	--	--	--
SAAB 340 (SF340)	27.58	1.86	0.55	1.86	0.55	6.93	2.04	4.36	0.47	8.10	0.86	--	--	--	--
DH8 (DHC8)	3.68	0.32	0.00	0.32	0.00	1.20	0.00	0.64	0.00	1.20	0.00	--	--	--	--
Subtotal	76.25	5.56	1.11	5.56	1.11	20.66	4.12	12.81	0.54	23.8	0.98				
CARGO															
C402 (CNA441)	8.46	--	--	1.48	0.00	2.75	0.00	0.68	0.80	1.27	1.48	--	--	--	--
GA															
SINGLE-ENGINE (COMSEP)	233.40	24.52	1.27	--	--	45.53	2.35	24.52	1.27	45.53	2.35	29.53	0.60	54.83	1.10
MULTI-ENGINE PISTON (BEC58P)	14.78	2.02	0.09	--	--	3.74	0.17	2.02	0.09	3.76	0.17	0.95	0.00	1.77	0.00
MULTI-ENGINE TURBO (CNA441)	85.21	14.34	0.57	--	--	26.63	1.05	14.34	0.57	26.64	1.07	--	--	--	--
JET (LEAR35)	33.32	5.61	0.22	--	--	10.42	0.40	5.61	0.22	10.42	0.42	--	--	--	--
Subtotal	366.71	46.49	2.15	0	0	86.32	3.97	46.49	2.15	86.35	4.01	30.48	0.6	56.6	1.1
TOTAL	451.42	52.05	3.26	7.04	1.11	109.73	8.09	59.98	3.49	111.42	6.47	30.48	0.60	56.60	1.10

Notes:

- Day - 7:00 a.m. to 10:00 p.m.
- Night - 10:00 p.m. to 7:00 a.m.
- Day and night distributions are based on July 1991 distributions.
- Aircraft types based on that of September 1991, but modified to include more quiet aircraft.
- Total number of aircraft is based on LPA 1997 peak, but increased for 1998, and modified for this alternative.
- GA% is based on LPA 2012 data, but modified to match LPA T&G distributions for 1997.

TABLE K-9B
ASSIGNMENT OF OPERATIONS FOR THE
EXISTING AIRFIELD/MIXED USE ALTERNATIVE - 2003

AIRCRAFT (NAME)	PEAK MO. AVG. DAILY OPERATIONS	TAKEOFF FLIGHT TRACKS						ARRIVAL FLIGHT TRACKS				TOUCH & GO FLIGHT TRACKS			
		TRACK 35D1		TRACK 35D2		TRACK 17D1		TRACK 35A1		TRACK 17A1		TRACK 35D3		TRACK 17D3	
		DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT
PASSENGER AIRLINES															
757 (757RR)	21.04	1.66	0.18	1.66	0.18	6.16	0.68	2.95	0.74	5.47	1.37	--	--	--	--
737-400 (7373B2)	29.45	2.39	0.18	2.39	0.18	8.89	0.68	4.42	0.74	8.20	1.37	--	--	--	--
747-400 (74720B)	2.10	0.18	0.00	0.18	0.00	0.68	0.00	0.37	0.00	0.68	0.00	--	--	--	--
SAAB 340 (SF340)	25.26	2.03	0.18	2.03	0.18	7.53	0.68	4.05	0.37	7.53	0.68	--	--	--	--
DH8 (DHC8)	18.94	1.66	0.00	1.66	0.00	6.16	0.00	3.31	0.00	6.16	0.00	--	--	--	--
Subtotal	96.79	7.92	0.55	7.92	0.55	29.41	2.05	15.10	1.84	28.04	3.41				
CARGO															
C402 (CNA441)	8.64	--	--	1.51	0.00	2.81	0.00	1.51	0.00	2.81	0.00	--	--	--	--
GA															
SINGLE-ENGINE (COMPSEP)	272.02	27.47	1.47	--	--	51.02	2.73	27.47	1.47	51.02	2.73	36.64	0.68	68.04	1.28
MULTI-ENGINE PISTON (BEC58P)	17.20	2.34	0.11	--	--	4.37	0.19	2.34	0.11	4.37	0.19	1.12	0.00	2.06	0.00
MULTI-ENGINE TURBO (CNA441)	99.24	16.71	0.66	--	--	31.03	1.22	16.71	0.66	31.03	1.22	--	--	--	--
JET (LEAR35)	38.82	6.54	0.26	--	--	12.14	0.47	6.54	0.26	12.14	0.47	--	--	--	--
Subtotal	427.28	53.06	2.5			98.56	4.61	53.06	2.5	98.56	4.61	37.76	0.68	70.1	1.28
TOTAL	532.71	60.98	3.05	9.43	0.55	130.78	6.66	69.67	4.34	129.41	8.02	37.76	0.68	70.10	1.28

NOTES:

- Day - 7:00 a.m. to 10 p.m.
- Night - 10:00 p.m. to 7:00 a.m.
- Day and night distributions are based on 2012 data provided by LPA.
- Aircraft types are ased on 2012 predictions provided by LPA.
- Total number of aircraft is based on LPA 2002 peak, but increased for 2003, and modified for this alternative.
- GA% is based on LPA 2012 data but modified to match LPA T&G distributions for 2002.

TABLE K-9C
ASSIGNMENT OF OPERATIONS FOR THE
EXISTING AIRFIELD/MIXED-USE ALTERNATIVE - 2013

AIRCRAFT (NAME)	PEAK MO. AVG. DAILY OPERATIONS	TAKEOFF FLIGHT TRACKS						ARRIVAL FLIGHT TRACKS				TOUCH & GO FLIGHT TRACKS			
		TRACK 35D1		TRACK 35D2		TRACK 17D1		TRACK 35A1		TRACK 17A1		TRACK 35D3		TRACK 17D3	
		DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT
PASSENGER AIRLINES															
757 (757RR)	25.13	1.99	0.22	1.98	0.22	7.35	0.81	3.52	0.88	6.53	1.63	--	--	--	--
737-400 (7373B2)	35.10	2.85	0.22	2.85	0.22	10.59	0.81	5.27	0.88	9.78	1.62	--	--	--	--
747-400 (74720B)	2.50	0.23	0.00	0.22	0.00	0.81	0.00	0.44	0.00	0.81	0.00	--	--	--	--
SAAB 340 (SF340)	14.11	1.14	0.10	1.13	0.10	4.20	0.38	2.26	0.21	4.20	0.38	--	--	--	--
DH8 (DHC8)	22.59	1.99	0.00	1.97	0.00	7.34	0.00	3.95	0.00	7.34	0.00	--	--	--	--
	99.43	8.2	0.54	8.15	0.54	30.29	2.00	15.44	1.97	28.66	3.63				
CARGO															
C402 (CNA441)	6.93	--	--	1.21	0.00	2.25	0.00	1.21	0.00	2.25	0.00	--	--	--	--
GA															
SINGLE-ENGINE (COMSEP)	298.35	30.14	1.60	--	--	55.97	2.99	30.14	1.60	55.97	2.99	40.18	0.75	74.62	1.40
MULTI-ENGINE PISTON (BEC58P)	18.87	2.58	0.12	--	--	4.79	0.21	2.58	0.12	4.79	0.21	1.21	0.00	2.25	0.00
MULTI-ENGINE TURBO (CNA441)	108.91	18.34	0.73	--	--	34.05	1.34	18.34	0.73	34.05	1.34	--	--	--	--
JET (LEAR35)	42.58	7.17	0.27	--	--	13.32	0.52	7.17	0.27	13.32	0.52	--	--	--	--
Subtotal	468.71	58.23	2.72			108.13	5.07	58.23	2.72	108.13	5.07	41.39	0.75	76.87	1.40
TOTAL	575.06	66.43	3.26	9.36	0.54	140.68	7.07	74.88	4.69	139.05	8.70	41.39	0.75	76.87	1.40

NOTES:

- Day - 7:00 a.m. to 10:00 p.m.
- Night - 10:00 p.m. to 7:00 a.m.
- Day and night distributions are based on 2012 data provided by LPA.
- Aircraft types are based on 2012 predictions provided by LPA.
- Total number of aircrafts is based on annual service volume for one runway.
- GA% is based on LPA 2012 data, but modofied to match LPA T&G distributions for 2012.

TABLE K-9D
ASSIGNMENT OF OPERATIONS FOR THE
EXISTING AIRFIELD/MIXED-USE ALTERNATIVE - 2013
(RESTRICTED SECOND RUNWAY OPTION)

AIRCRAFT (NAME)	PEAK MO. AVG. DAILY OPERATIONS	TAKEOFF FLIGHT TRACKS						ARRIVAL FLIGHT TRACKS				TOUCH & GO FLIGHT TRACKS			
		TRACK 35D1 DAYNIGHT		TRACK 35D2 DAYNIGHT		TRACK 17D1 DAYNIGHT		TRACK 35A1 DAYNIGHT		TRACK 17A1 DAYNIGHT		TRACK 35D3 DAYNIGHT		TRACK 17D3 DAYNIGHT	
PASSENGER AIRLINES															
757 (757RR)	25.34	1.99	0.22	1.99	0.22	7.41	0.83	3.55	0.89	6.59	1.64	--	--	--	--
737-400 (7373B2)	35.47	2.88	0.22	2.88	0.22	10.71	0.83	5.32	0.89	9.88	1.64	--	--	--	--
747-400 (74720B)	2.54	0.22	0.00	0.22	0.00	0.83	0.00	0.44	0.00	0.83	0.00	--	--	--	--
SAAB 340 (SF340)	30.42	2.44	0.22	2.44	0.22	9.06	0.83	4.88	0.44	9.06	0.83	--	--	--	--
DH8 (DHC8)	22.80	1.99	0.00	1.99	0.00	7.41	0.00	3.99	0.00	7.41	0.00	--	--	--	--
Subtotal	116.57	9.53	0.67	9.53	0.67	35.41	2.48	18.18	2.22	33.77	4.11				
CARGO															
C402 (CNA441)	8.12	--	--	1.42	0.00	2.64	0.00	1.42	0.00	2.64	0.00	--	--	--	--
GA															
SINGLE-ENGINE (COMSEP)	34.16	4.46	0.43	--	--	2.40	0.23	4.46	0.43	2.40	0.23	12.43	0.00	6.69	0.00
MULTI-ENGINE PISTON (BEC58P)	3.05	0.86	0.04	--	--	0.46	0.02	0.86	0.04	0.46	0.02	0.29	0.00	0.00	0.00
MULTI-ENGINE TURBO (CNA441)	67.04	20.97	0.82	--	--	11.29	0.44	20.97	0.82	11.29	0.44	--	--	--	--
JET (LEAR35)	49.90	15.61	0.61	--	--	8.40	0.33	15.61	0.61	8.40	0.33	--	--	--	--
Subtotal	154.15	41.90	1.90			22.55	1.02	41.90	1.90	22.55	1.02	12.72	0.00	6.69	0.00

NOTES:

- Day - 7:00 a.m. to 10:00 p.m.
- Night - 10:00 p.m. to 7:00 a.m.

TABLE K-9D (Cont.)
ASSIGNMENT OF OPERATIONS FOR THE
EXISTING AIRFIELD/MIXED-USE ALTERNATIVE - 2013
(RESTRICTED SECOND RUNWAY OPTION)
(Page 2 of 2)

AIRCRAFT (NAME)	PEAK MO. AVG. DAILY OPERATIONS	TAKEOFF FLIGHT TRACKS				ARRIVAL FLIGHT TRACKS				TOUCH & GO FLIGHT TRACKS			
		TRACK 35D5 DAYNIGHT		TRACK 17D4 DAYNIGHT		TRACK 35A4 DAYNIGHT		TRACK 17A3 DAYNIGHT		TRACK 35D7 DAYNIGHT		TRACK 17D6 DAYNIGHT	
GA NEW RUNWAY													
SINGLE-ENGINE (COMSEP)	315.53	68.08	3.89	36.66	2.10	68.08	3.89	36.66	2.10	61.15	0.00	32.92	0.00
MULTI-ENGINE PISTON (BEC58P)	18.99	4.46	0.25	2.40	0.13	4.46	0.25	2.40	0.13	2.93	0.00	1.58	0.00
MULTI-ENGINE TURBO (CNA441)	60.66	18.97	0.75	10.21	0.40	18.97	0.75	10.21	0.40	--	--	--	--
JET (LEAR35)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--	--	--	--
Subtotal	395.18	91.51	4.89	49.27	2.63	91.51	4.89	49.27	2.63	64.08	0.00	34.50	0.00
Subtotal of GA	549.48												
TOTAL	674.17												

NOTES:
- Day - 7:00 a.m. to 10:00 p.m.
- Night - 10:00 p.m. to 7:00 a.m.
- Day and night distributions are based on 2012 data provided by LPA.
- Aircraft types are based on 2012 predictions provided by LPA.
- Total number of aircrafts is based on LPA 2012 data, but increased for 2013, and modified for this alternative.
- GA% is based on LPA 2012 data, but modofied to match LPA T&G distributions for 2012.
- GA runway distribution has been modified for this runway arrangement.

Surface traffic data used in the modeling were developed from the project traffic study and are shown in Tables K-10a and K-10b. The AADT values were calculated from the peak hour traffic volumes in the Transportation section. The background portion of the peak hour traffic is 7.90 percent of the AADT. For the Existing Airfield/Mixed Use Alternative, the development portion of the peak hour traffic is 9.44, 9.96, and 10.52 percent of the AADT for the years 1998, 2003, and 2013, respectively.

1.5 NO-ACTION ALTERNATIVE

The No-Action Alternative would result in continued operation of the Myrtle Beach Jetport with the remainder of the base in caretaker status. For this alternative there would be no new runway. It was assumed that the peak month average daily non-military operation for all future years would not exceed the maximum daily operation limit of 92 established in the Joint Use Agreement.

The fleet mix, peak month average day operations, and day-night split for all aircraft operations for 1998 are in Table K-11a, and for 2003 and 2013 are in Table K-11b. The DNL contours for the proposed flight operations are presented in Section 4.4.4, Noise. The proposed flight tracks modeled are the same as for the existing runway of the Proposed Action. A stage length of 1 was used for all aircraft but the B747, which has a stage length of 5. It was assumed that there would be no general aviation operations for this alternative.

No engine runup operations were assumed for this analysis.

A standard 3 degree glide slope and the takeoff profiles provided by the FAA's INM Database 3.9 were assumed for all aircraft.

Surface traffic data used in the modeling were developed from the project traffic study and are presented in Table K-12. The AADT values were calculated from the peak hour traffic volumes in the Transportation section. The background portion of the peak hour traffic is 7.90 percent of the AADT. For the No-Action Alternative, the development portion of the peak hour traffic is 6.55, 6.20, and 6.09 percent of the AADT for the years 1998, 2003, and 2013, respectively.

2 NOISE METRICS

Noise, as used in this context, refers to sound pressure variations audible to the ear. The audibility of a sound depends on the amplitude and frequency of the sound and the individual's capability to hear the sound. Whether the sound is judged as noise depends largely on the listener's current activity and attitude toward the sound source, as well as the amplitude and frequency of the sound. The range in sound pressures that the human ear can comfortably detect encompasses a wide range of amplitudes, typically a factor larger than a million. To obtain convenient measurements and sensitivities at extremely low and high sound pressures, sound is measured in units of the decibel (dB). The

Table K-10A. Surface Traffic Operations for Total Traffic Volumes: Existing Airfield/Mixed Use Alternative

Road Name	AADT	% Medium Truck	% Heavy Truck	Speed (mph)
1998				
U.S. 17 Business - From MBAFB toward south - From MBAFB toward north	 51,787 52,453	 5 5	 2 2	 45 45
U.S. 17 - From MBAFB toward north & south	66,724	2	3	55
SC 707 - From MBAFB toward west	25,991	2	2	45
U.S. 501 - From U.S. 17 Bypass toward west - From U.S. 17 Bypass toward east	 61,120 54,391	 5 5	 2 2	 45 45
SC 544 - From U.S. 17 Bus. to U.S. 17 Bypass - From U.S. 17 Bypass to S 707	 24,216 31,825	 3 3	 3 3	 45 55
Jetport Road - From jetport to SC 600	9,836	3	1	35
2003				
U.S. 17 Business - From MBAFB toward south - From MBAFB toward north	 69,184 66,952	 5 5	 2 2	 45 45
U.S. 17 Business - From MBAFB toward north & south	80,520	2	3	55
SC 707 - From MBAFB toward west	33,791	2	2	45
U.S. 501 - From U.S. 17 Bypass toward west - From U.S. 17 Bypass toward east	 72,587 65,279	 5 5	 2 2	 45 45
SC 544 - From U.S. 17 Bus. to U.S. 17 Bypass - From U.S. 17 Bypass to SC 707	 29,349 38,341	 3 3	 3 3	 45 55
Jetport Road - From jetport to SC 600	11,038	3	1	35
2013				
U.S. 17 Business - From MBAFB toward south - From MBAFB toward north	 95,066 88,035	 5 5	 2 2	 45 45
U.S. 17 - From MBAFB toward north and south	85,854	2	3	55
SC 707 - From MBAFB toward west	34,288	2	2	45
U.S. 501 - From U.S. 17 Bypass toward west - From U.S. 17 Bypass toward east	 105,898 86,962	 5 5	 2 2	 45 45
SC 544 - From U.S. 17 Bus. to U.S. 17 Bypass - From U.S. 17 Bypass to SC 707	 39,141 51,057	 3 3	 3 3	 45 55
Jetport Road - From jetport to SC 600	13,642	3	1	35

Table K–10B. Surface Traffic Operations for Total Traffic Volumes
Existing Airfield/Mixed–Use Alternative – Restricted Second Runway Option

Road Name	AADT	% Medium Truck	% Heavy Truck	Speed (mph)
2013				
U.S. 17 Business				
– From MBAF toward south	95209	5	2	45
– From MBAF toward north	88102	5	2	45
U.S. 17				
– From MBAF toward north & south	85940	2	3	55
S 707				
– From MBAF toward west	34326	2	2	45
U.S. 501				
– From US 17 Bypass toward west	105907	5	2	45
– From US 17 Bypass toward east	86962	5	2	45
S 544				
– From US 17 Business to US 17 Bypass	39141	3	3	45
– From US 17 Bypass to S 707	51066	3	3	55
Jetport Rd.				
– From jetport to S 600	13860	3	1	35

TABLE K-11A

ASSIGNMENT OF OPERATIONS FOR THE NO-ACTION ALTERNATIVE

AIRCRAFT (NAME)	PEAK MO. AVG. DAILY OPERATIONS	TAKEOFF FLIGHT TRACKS						ARRIVAL FLIGHT TRACKS				TOUCH AND GO FLIGHT TRACKS			
		TRACK 35D1		TRACK 35D2		TRACK 17D1		TRACK 35A1		TRACK 17A1		TRACK 35D3		TRACK 17D3	
		DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT
PASSENGER AIRLINES															
727-200 (727Q9)	9.32	0.82	0.00	0.82	0.00	3.02	0.00	1.63	0.00	3.03	0.00	--	--	--	--
737-200 (737QN)	2.08	0.18	0.01	0.18	0.01	0.64	0.02	0.36	0.00	0.68	0.00	--	--	--	--
737-300 (7373B2)	14.70	0.83	0.45	0.83	0.45	3.11	1.68	2.51	0.07	4.65	0.12	--	--	--	--
737-400 (7373B2)	12.40	1.09	0.00	1.09	0.00	4.02	0.00	2.17	0.00	4.03	0.00	--	--	--	--
757 (757RR)	1.84	0.16	0.00	0.16	0.00	0.60	0.00	0.32	0.00	0.60	0.00	--	--	--	--
F100 (MD81)	4.65	0.30	0.10	0.30	0.10	1.14	0.38	0.82	0.00	1.51	0.00	--	--	--	--
SAAB 340 (SF340)	27.58	1.86	0.55	1.86	0.55	6.93	2.04	4.36	0.47	8.10	0.86	--	--	--	--
DH8 (DHC8)	3.68	0.32	0.00	0.32	0.00	1.20	0.00	0.64	0.00	1.20	0.00	--	--	--	--
Subtotal	76.25	5.56	1.11	5.56	1.11	20.66	4.12	12.81	0.54	23.8	0.98				
CARGO															
C402 (CNA441)	8.46	--	--	1.48	0.00	2.75	0.00	0.68	0.80	1.27	1.48	--	--	--	--
TOTAL	84.71	5.56	1.11	7.04	1.11	23.41	4.12	13.49	1.34	25.07	2.46	0.00	0.00	0.00	0.00

Notes:

- Day - 7:00 a.m. to 10:00 p.m.
- Night - 10:00 p.m. to 7:00 a.m.
- Day and night distributions are based on July 1991 distributions.
- Aircraft types based on that of September 1991, but modified to include more quiet aircraft.
- Total number of aircraft is based on LPA 1997 peak, but increased for 1998.

TABLE K-11B
ASSIGNMENT OF OPERATIONS FOR THE NO-ACTION ALTERNATIVE
MODELED YEARS: 2003/2013

AIRCRAFT (NAME)	PEAK MO. AVG. DAILY OPERATIONS	TAKEOFF FLIGHT TRACKS						ARRIVAL FLIGHT TRACKS				TOUCH & GO FLIGHT TRACKS			
		TRACK 35D1		TRACK 35D2		TRACK 17D1		TRACK 35A1		TRACK 17A1		TRACK 35D3		TRACK 17D3	
		DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT
PASSENGER AIRLINES															
757 (757RR)	21.04	1.66	0.18	1.66	0.18	6.16	0.68	2.95	0.74	5.47	1.37	--	--	--	--
737-400 (7373B2)	29.45	2.39	0.18	2.39	0.18	8.89	0.68	4.42	0.74	8.20	1.37	--	--	--	--
747-400 (74720B)	2.10	0.18	0.00	0.18	0.00	0.68	0.00	0.37	0.00	0.68	0.00	--	--	--	--
SAAB 340 (SF340)	11.83	0.95	0.09	0.95	0.09	3.53	0.32	1.90	0.17	3.53	0.32	--	--	--	--
DH8 (DHC8)	18.94	1.66	0.00	1.66	0.00	6.16	0.00	3.31	0.00	6.16	0.00	--	--	--	--
Subtotal	83.36	6.84	0.45	6.84	0.45	25.41	1.68	12.94	1.64	24.04	3.05				
CARGO															
C402 (CNA441)	8.64	--	--	1.51	0.00	2.81	0.00	1.51	0.00	2.81	0.00	--	--	--	--
TOTAL	92.00	6.84	0.45	8.35	0.45	28.22	1.68	14.46	1.64	26.85	3.05	0.00	0.00	0.00	0.00

NOTES:

- Day - 7:00 a.m. to 10 p.m.
- Night - 10:00 p.m. to 7:00 a.m.
- Day and night distributions are based on 2012 data provided by LPA.
- Aircraft types are based on 2012 predictions provided by LPA.
- Total number of aircraft is based on LPA 2002 peak, but reducrd to the 92 operation limit as required by the Joint Use Agreement.

Table K-12. Surface Traffic Operations for Total Traffic Volumes: No-Action Alternative

Road Name	AADT	% Medium Truck	% Heavy Truck	Speed (mph)
1998				
U.S. 17 Business				
- From MBAFB toward south	46,367	5	2	45
- From MBAFB toward north	42,900	5	2	45
U.S. 17				
- From MBAFB toward north & south	60,861	2	3	55
SC 707				
- From MBAFB toward west	21,013	2	2	45
U.S. 501				
- From U.S. 17 Bypass toward west	59,785	5	2	45
- From U.S. 17 Bypass toward east	53,152	5	2	45
SC 544				
- From U.S. 17 Bus. to U.S. 17 Bypass	22,468	3	3	45
- From U.S. 17 Bypass to SC 707	30,734	3	3	55
Jetport Road				
- From jetport to SC 600	10,540	3	1	35
2003				
U.S. 17 Business				
- From MBAFB toward south	55,685	5	2	45
- From MBAFB toward north	51,199	5	2	45
U.S. 17 Business				
- From MBAFB toward north & south	71,987	2	3	55
SC 707				
- From MBAFB toward west	25,076	2	2	45
U.S. 501				
- From U.S. 17 Bypass toward west	71,051	5	2	45
- From U.S. 17 Bypass toward east	63,291	5	2	45
SC 544				
- From U.S. 17 Bus. to U.S. 17 Bypass	26,658	3	3	45
- From U.S. 17 Bypass to SC 707	36,544	3	3	55
Jetport Road				
- From jetport to SC 600	14,039	3	1	35
2013				
U.S. 17 Business				
- From MBAFB toward south	74,391	5	2	45
- From MBAFB toward north	68,828	5	2	45
U.S. 17				
- From MBAFB toward north and south	74,291	2	3	55
SC 707				
- From MBAFB toward west	21,684	2	2	45
U.S. 501				
- From U.S. 17 Bypass toward west	104,139	5	2	45
- From U.S. 17 Bypass toward east	84,177	5	2	45
SC 544				
- From U.S. 17 Bus. to U.S. 17 Bypass	35,557	3	3	45
- From U.S. 17 Bypass to SC 707	48,557	3	3	55
Jetport Road				
- From jetport to SC 600	17,994	3	1	35

dB is a dimensionless unit related to the logarithm of the ratio of the measured level to a reference level.

Because of the logarithmic nature of the decibel unit, sound levels cannot be added or subtracted directly. However, the following shortcut method can be used to combine sound levels:

Difference between two dB values	Add the following to the higher level
0 to 1	3
2 to 3	2
4 to 9	1
10 or more	0

The ear is not equally sensitive at all frequencies of sound. At low frequencies, characterized as a rumble or roar, the ear is not very sensitive; while at higher frequencies, characterized as a screech or a whine, the ear is most sensitive. The A-weighted level was developed to measure and report sound levels in a way that would more closely approach how people perceive the sound. All sound levels reported herein are in terms of A-weighted sound levels.

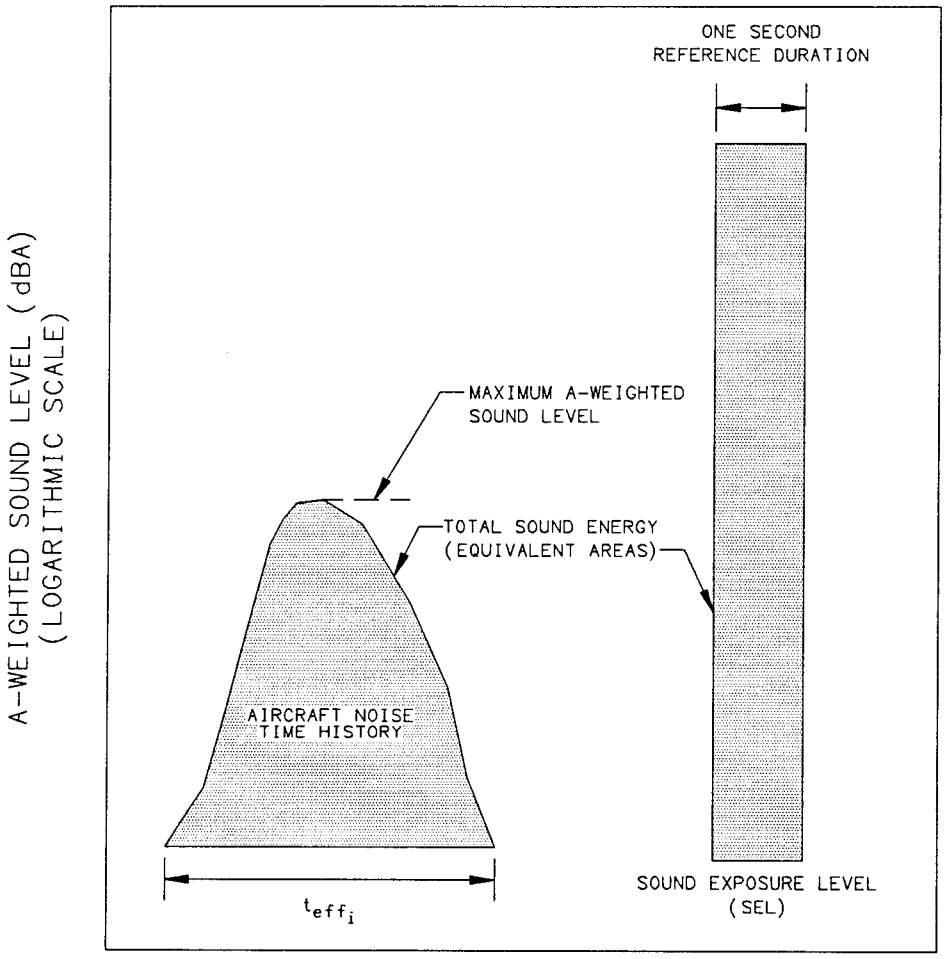
Environmental sound levels typically vary with time. This is especially true for areas near airports where noise levels will increase substantially as the aircraft passes overhead and afterwards diminish to typical community levels. Both the Department of Defense and the FAA have specified the following three noise metrics to describe aviation noise.

Day-Night Average Sound Level (DNL) is the 24-hour energy average A-weighted sound level with a 10 dB weighting added to those levels occurring between 10 P.M. and 7 A.M. the following morning. The 10 dB weighting is a penalty representing the added intrusiveness of noise during normal sleeping hours. DNL is used to determine land use compatibility with noise from aircraft and surface traffic. The expression L_{dn} is often used in equations to designate day-night average sound level.

Maximum Sound Level is the highest instantaneous sound level observed during a single noise event no matter how long the sound may persist (see Figure K-1).

Sound Exposure Level (SEL) value represents the A-weighted sound level integrated over the entire duration of the event and referenced to a duration of 1 second. Hence, it normalizes the event to a 1-second event. Typically, most events (aircraft flyover) last longer than 1 second, and the SEL value will be higher than the maximum sound level of the event. Figure K-1 illustrates the relationship between the maximum sound level and SEL.

Effective Perceived Noise Level (EPN) is perceived noise level of a single event adjusted for the added annoyance due to duration and for the presence of discrete frequencies (tones). The FAA has designated this rating scheme as



SOUND EXPOSURE LEVEL (SEL)

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE K-1

the basis for its aircraft noise certification procedure. Presently there are Stage 2 and Stage 3 aircraft in operation.

A "Stage 2 airplane" means an airplane that has been certified according to the Federal Aviation Regulation (FAR) Part 36 to meet Stage 2 noise limits. These limits for airplanes, regardless of the number of engines, are as follows:

(i) For takeoff - 108 EPNdB for maximum weights of 600,000 pounds or more, reduced by 5 EPNdB per halving of the 600,000 pounds maximum weight down to 93 EPNdB for maximum weights of 75,000 pounds and less.

(ii) For sideline and approach - 108 EPNdB for maximum weights of 600,000 pounds or more, reduced by 2 EPNdB per halving of the 600,000 pounds maximum weight down to 102 EPNdB for maximum weights of 75,000 pounds and less.

A "Stage 3 airplane" means an airplane that has been certified according to the FAR Part 36 to meet Stage 3 noise limits. Stage 3 noise limits are as follows:

(i) For takeoff

(A) For airplanes with more than 3 engines - 106 EPNdB for maximum weights of 850,000 pounds or more, reduced by 4 EPNdB per halving of the 850,000 pounds maximum weight down to 89 EPNdB for maximum weights of 44,673 pounds or less;

(B) For airplanes with 3 engines - 104 EPNdB for maximum weights of 850,000 pounds or more, reduced by 4 EPNdB per halving of the 850,000 pounds maximum weight down to 89 EPNdB for maximum weights of 63,177 pounds and less; and

(C) For airplanes with fewer than 3 engines - 101 EPNdB for maximum weights of 850,000 pounds or more, reduced by 4 EPNdB per having of the 850,000 pounds maximum weight down to 89 EPNdB for maximum weights of 106,250 pounds and less.

(ii) For sideline, regardless of the number of engines - 103 EPNdB for maximum weights of 882,000 pounds or more, reduced by 2.56 EPNdB per halving of the 882,000 pounds maximum weight down to 94 EPNdB for maximum weights of 77,200 pounds or less.

(iii) For approach, regardless of the number of engines - 105 EPNdB for maximum weights of 617,300 pounds or more, reduced by 2.33 EPNdB per halving of the 617,300 pounds weight down to 98 EPNdB for maximum weights of 77,200 pounds or less.

3 NOISE MODELS

3.1 AIR TRAFFIC

The FAA computer noise model INM, Version 3.9 (FAA, 1982), was used to predict aircraft noise levels. Since the early 1970s, the FAA has been actively developing and refining the INM program and its associated data base. The INM computer program is a comprehensive set of computer routines for calculating noise contours from aircraft flight and ground runup operations, using aircraft unique noise data for fixed-wing aircraft. The program requires specific input data, consisting of runway layout, aircraft types, number of operations, flight tracks, and noise performance data, to compute a grid of DNL values. The grid is then processed by a contouring program that draws the contours at selected intervals.

3.2 SURFACE TRAFFIC

The Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Noise Model FHWA-RD-77-108 (FHWA, 1978) was used to predict surface traffic noise. The model uses traffic volumes, vehicular mix, traffic speed, traffic distribution, and roadway length to estimate traffic noise levels.

4 ASSESSMENT CRITERIA

Criteria for assessing the effects of noise include annoyance, speech interference, sleep disturbance, noise-induced hearing loss, possible nonauditory health effects, reaction by animals, and land use compatibility.

These criteria are often developed using statistical methods. The validity of generalizing statistics devised from large populations are suspect when applied to small sample sizes as we have in the affected areas near Myrtle Beach AFB. Caution should be employed when interpreting the results of the impact analysis.

4.1 ANNOYANCE DUE TO SUBSONIC AIRCRAFT NOISE

Noise-induced annoyance is an attitude or mental process with both acoustic and nonacoustic determinants (Fidell et al., 1988). Noise-induced annoyance is perhaps most often defined as a generalized adverse attitude toward noise exposure. Noise annoyance is affected by many factors including sleep and speech interference and task interruption. The level of annoyance may also be affected by many non-acoustic factors.

In communities in which the prevalence of annoyance is affected primarily by noise, reductions in exposure can be expected to lead to reductions in prevalence of annoyance. In communities in which the prevalence of annoyance is controlled by nonacoustic factors, such as odor, traffic congestion, etc., there may be little or no reduction in annoyance associated with reductions in exposure. The intensity of community response to noise

exposure may even, in some cases, be essentially independent of physical exposure. In the case of community response to actions, such as airport siting or scheduling of supersonic transport aircraft, vigorous reaction has been encountered at the mere threat of exposure, or minor increases in exposure.

The standard method for determining the prevalence of annoyance in noise-exposed communities is by attitudinal survey. Surveys generally solicit self-reports of annoyance through one or more questions of the form "How bothered or annoyed have you been by the noise of (noise source) over the last (time period)?" Respondents are typically constrained in structured interviews to select one of a number of response alternatives, often named categories such as "Not At All Annoyed," "Slightly Annoyed," "Moderately Annoyed," "Very Annoyed," or "Extremely Annoyed." Other means are sometimes used to infer the prevalence of annoyance from survey data (for example, by interpretation of responses to activity interference questions or by construction of elaborate composite indices), with varying degrees of face validity and success.

Predictions of the prevalence of annoyance in a community can be made by extrapolation from an empirical dosage-effect relationship. Based on the results of a number of sound surveys, Schultz (1978) developed a relationship between percent highly annoyed and DNL:

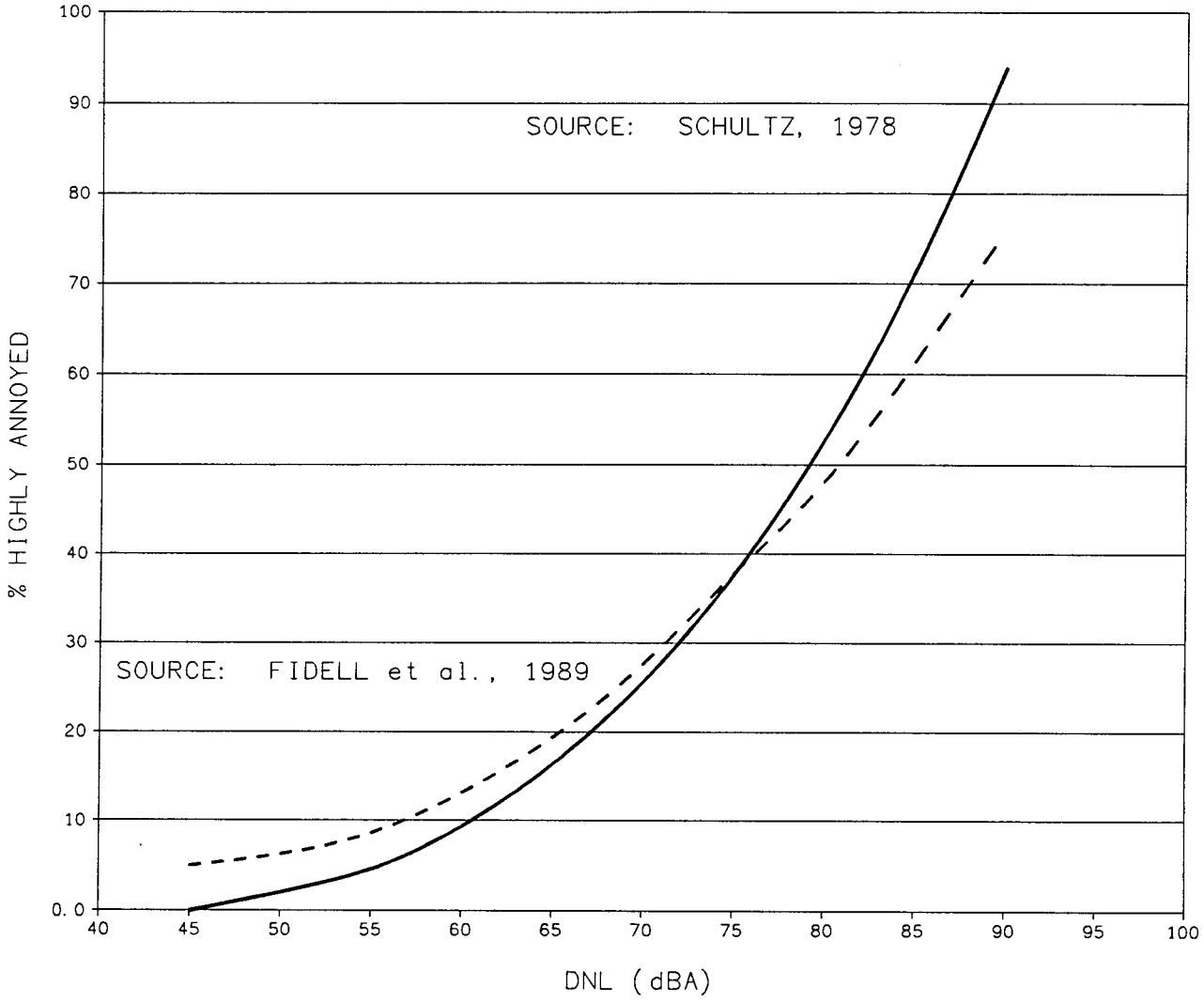
$$\%\ \textit{Highly Annoyed} = 0.8553\ DNL - 0.0401\ DNL^2 + 0.00047\ DNL^3$$

Note that this relationship should not be evaluated outside the range of DNL = 45 to 90 dB. Figure K-2 presents this equation graphically. Less than 15 to 20 percent of the population would be predicted to be annoyed by DNL values less than 65 dBA, whereas over 37 percent of the population would be predicted to be annoyed from DNL values greater than 75 dBA. The relationship developed by Schultz was presented in the *Guidelines for Preparing Environmental Impact Statements on Noise* (NAS, 1977).

These results were recently reviewed (Fidell et al., 1989) and the original findings updated with results of more recent social surveys, bringing the number of data points used in defining the relationship to over 400. The findings of the new study differ only slightly from those of the original study. Figure K-2 shows graphical comparison of the two studies.

4.2 SPEECH INTERFERENCE AND RELATED EFFECTS DUE TO AIRCRAFT FLYOVER NOISE

One of the ways that noise affects daily life is by preventing or impairing speech communication. In a noisy environment, understanding of speech is diminished by masking of speech signals by intruding noises. Speakers generally raise their voices or move closer to listeners to compensate for



COMMUNITY NOISE ANNOYANCE CURVES

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE K-2

masking noise in face-to-face communications, thereby increasing the level of speech at the listener's ear. As intruding noise levels rise higher and higher, speakers may cease talking altogether until conversation can be resumed at comfortable levels of vocal effort after noise intrusions end.

If the speech source is a radio or television, the listener may increase the volume during a noise intrusion. If noise intrusions occur repeatedly, the listener may choose to set the volume at a high level so that the program material can be heard even during noise intrusions.

In addition to losing information contained in the masked speech material, the listener may lose concentration because of the interruptions and thus become annoyed. If the speech message is some type of warning, the consequences could be serious.

Current practice in quantification of the magnitude of speech interference and predicting speech intelligibility ranges from metrics based on A-weighted sound pressure levels of the intruding noise alone to more complex metrics requiring detailed spectral information about both speech and noise intrusions. There are other effects of the reduced intelligibility of speech caused by noise intrusions. For example, if the understanding of speech is interrupted, performance may be reduced, annoyance may increase, and learning may be impaired.

As the noise level of an environment increases, people automatically raise their voices. The effect does not take place; however, if the noise event were to rise to a high level very suddenly.

4.2.1 Speech Interference Effects from Time-Varying Noise

Most research on speech interference due to noise has included the study of steady state noise. As a result, reviews and summaries of noise effects on speech communications concentrate on continuous or at least long duration noises (Miller, 1974). However, noise intrusions are not always continuous or of long duration, but are frequently transient in nature. Transportation noise generates many such noise intrusions, consisting primarily of individual vehicle pass-bys, such as aircraft flyovers. Noise emitted by other vehicles (motorboats, snowmobiles, and off-highway vehicles) is also transient in nature.

It has been shown, at least for aircraft flyover noise, that accuracy of predictors of speech intelligibility is ranked in a similar fashion for both steady state and time-varying or transient sounds (Williams et al., 1971; Kryter and Williams, 1966). Of course, if one measures the noise of a flyover by the maximum A-level then intelligibility associated with this level would be higher than for a steady noise of the same value, simply because the level is less than the maximum for much of the duration of the flyover.

4.2.2 Other Effects of Noise That Relate to Speech Intelligibility

Aside from the direct effects of reduction in speech intelligibility, related effects may occur that tend to compound the loss of speech intelligibility itself.

Learning. One of the environments in which speech intelligibility plays a critical role is the classroom. In classrooms of schools exposed to aircraft flyover noise, speech becomes masked or the teacher stops talking altogether during an aircraft flyover (Crook and Langdon, 1974). Pauses begin to occur when instantaneous flyover levels exceed 60 dBA. Masking of the speech of teachers who do not pause starts at about the same level.

At levels of 75 dBA some masking occurs for 15 percent of the flyovers and increases to nearly 100 percent at 82 dBA. Pauses occur for about 80 percent of the flyovers at this noise level. Since a marked increase in pauses and masking occurs when levels exceed 75 dBA, this level is sometimes considered as one above which teaching is impaired due to disruption of speech communication. The effect that this may have on learning is unclear at this time. However, one study (Arnoult et al., 1986) could find no effect of noise on cognitive tasks from jet or helicopter noise over a range from 60 to 80 dBA, even though intelligibility scores indicated a continuous decline starting at the 60 dBA level. In a Japanese study (Ando et al., 1975) researchers failed to find differences in mental task performance among children from communities with different aircraft noise exposure.

Although there seems to be no proof that noise from aircraft flyovers affects learning, it is reported (Mills, 1975) that children are not as able to understand speech in the presence of noise as are adults. It is hypothesized that part of the reason is due to the increased vocabulary that the adult can draw on as compared to the more limited vocabulary available to the young student. Also, when one is learning a language, it is more critical that all words be heard rather than only enough to attain 95 percent sentence intelligibility, which may be sufficient for general conversations. It was mentioned above that when the maximum noise level for aircraft flyovers heard in a classroom exceeds 75 dBA, masking of speech increases rapidly. However, it was also noted that pausing during flyovers and masking of speech for those teachers who continue to lecture during a flyover start at levels around 60 dBA (Pearsons and Bennett, 1974).

Annoyance. Klatt, Stevens, and Williams (1969) studied the annoyance of speech interference by asking people to judge the annoyance of aircraft noise in the presence and absence of speech material. The speech material was composed of passages from newspaper and magazine articles. In addition to rating aircraft noise on an acceptability scale (unacceptable, barely acceptable, acceptable, and of no concern), the subjects were required to answer questions about the speech material. The voice level was considered to represent a raised voice level (assumed to be 68 dBA). In general, for the raised voice talker, the rating of barely acceptable was given to flyover noise levels of 73 to 76 dBA. However, if the speech level was reduced, the rating of the aircraft

tended more toward unacceptable. The results suggested that if the speech level were such that 95 percent or better sentence intelligibility was maintained, then a barely acceptable rating or better acceptability rating could be expected. This result is in general agreement with the finding in schools that teachers pause or have their speech masked at levels above 75 dBA (Crook and Langdon, 1974).

Hall, Taylor, and Birnie (1985) recently tried to relate various types of activity interference in the home, related to speech and sleeping, to annoyance. The study found that there is a 50 percent chance that people's speech would be interfered with at a level of 58 dB. This result is in agreement with the other results, considering that the speech levels in the school environment of the Cook study are higher than the levels typically used in the home. Also, in a classroom situation the teacher raises his or her voice as the flyover noise increases in intensity.

4.2.3 Predicting Speech Intelligibility and Related Effects Due to Aircraft Flyover Noise

It appears, from the discussions in previous subsections, that when aircraft flyover noises exceed approximately 60 dBA, speech communication may be interfered with either by masking or by pausing on the part of the talker. Increasing the level of the flyover noise to 80 dBA would reduce the intelligibility to zero even if a loud voice is used by those attempting to communicate.

The levels mentioned above refer to noise levels measured indoors. The same noises measured outdoors would be 15 to 25 dB higher than these indoor levels during summer (windows open) and winter months (windows closed), respectively. These estimates are taken from U.S. Environmental Protection Agency (USEPA) reviews of available data (USEPA, 1974).

Levels of the aircraft noise measured inside dwellings and schools near the ends of runways at airports may exceed 60 dBA inside (75 dBA outside). During flyovers, speech intelligibility would be degraded. However, since the total duration is short, no more than a few seconds during each flyover, only a few syllables may be lost. People may be annoyed, but the annoyance may not be due to loss in speech communication, but rather due to startle or sleep disturbance as discussed in the following section.

4.3 SLEEP DISTURBANCE DUE TO NOISE

The effects of noise on sleep have long been a concern of parties interested in assuring suitable residential noise environments. Early studies, conducted mainly in the 1970s, noted background levels in people's bedrooms in which sleep was apparently undisturbed by noise. Various noise levels between 25 to 50 dBA were observed to be associated with an absence of sleep disturbance. Tests were conducted mainly in laboratory environments in which awakening was measured either by a verbal response or by a button push, or by brain

wave recordings (EEG) indicating stages of sleep (and awakening). Various types of noise were presented to the sleeping subjects throughout the night. These noises consisted primarily of transportation noises, including those produced by aircraft, trucks, cars, and trains. The aircraft noises included both subsonic flyover noises as well as sonic booms. Synthetic noises, including laboratory-generated sounds consisting of shaped noises and tones, were also studied.

Lukas (1975) and Goldstein and Lukas (1980) both reviewed data available in the 1970s on sleep-stage changes and waking effects of different levels of noise. Since no known health effects were associated with either waking or sleep-stage changes, either measure was potentially useful as a metric of sleep disturbance. However, since waking, unlike sleep-stage changes, is simple to quantify, it is often selected as the metric for estimating the effects of noise on sleep. These two reviews showed great variability in the percentage of people awakened by exposure to noise. The variability is not merely random error, but reflects individual differences in adaptation or habituation, and also interpretation of the meaning of the sounds. Such factors cannot be estimated from the purely acoustic measures in noise exposure.

Another major review, by Griefahn and Muzet (1978), provided similar information for effects of noise on waking. However, Griefahn and Muzet's results suggested less waking for a given level of noise than predicted by Lukas.

After reviewing the most recent scientific data, DNL is still considered the appropriate metric for assessing the noise impact of the vast majority of nighttime aircraft operations. The 10-dB night-time penalty levied against noise during the 10:00 P.M. to 7:00 A.M. period is designed to specifically account for the intrusiveness of noise during this period and its potential impact on sleep. However, some agencies recognize that an unusual number of night-time noise events may warrant supplemental information, such as sleep disruption predictions in an environmental analysis. This supplemental information is frequently single event analysis. for the purpose of providing supplemental information when warranted, the Air Force has developed an interim dose-response model to predict percent awakened as a function of single event noise levels (McKinley, 1992). This interim model is based on statistical adjustment of the most recent, inclusive analysis of published sleep disturbance studies conducted by Pearson et. al. (1989). The equation is:

$$\% \text{ Awakened} = 7.079 \times 10^{-6} * SEL_{(indoor)}^{3.496}$$

As reported in the 1989 study, the effort to develop an awakening prediction model identified the need for substantially more research in this area. Of concern were:

- Large discrepancies between laboratory and field studies
- Highly variable and incomplete data bases
- Lack of appropriate field studies

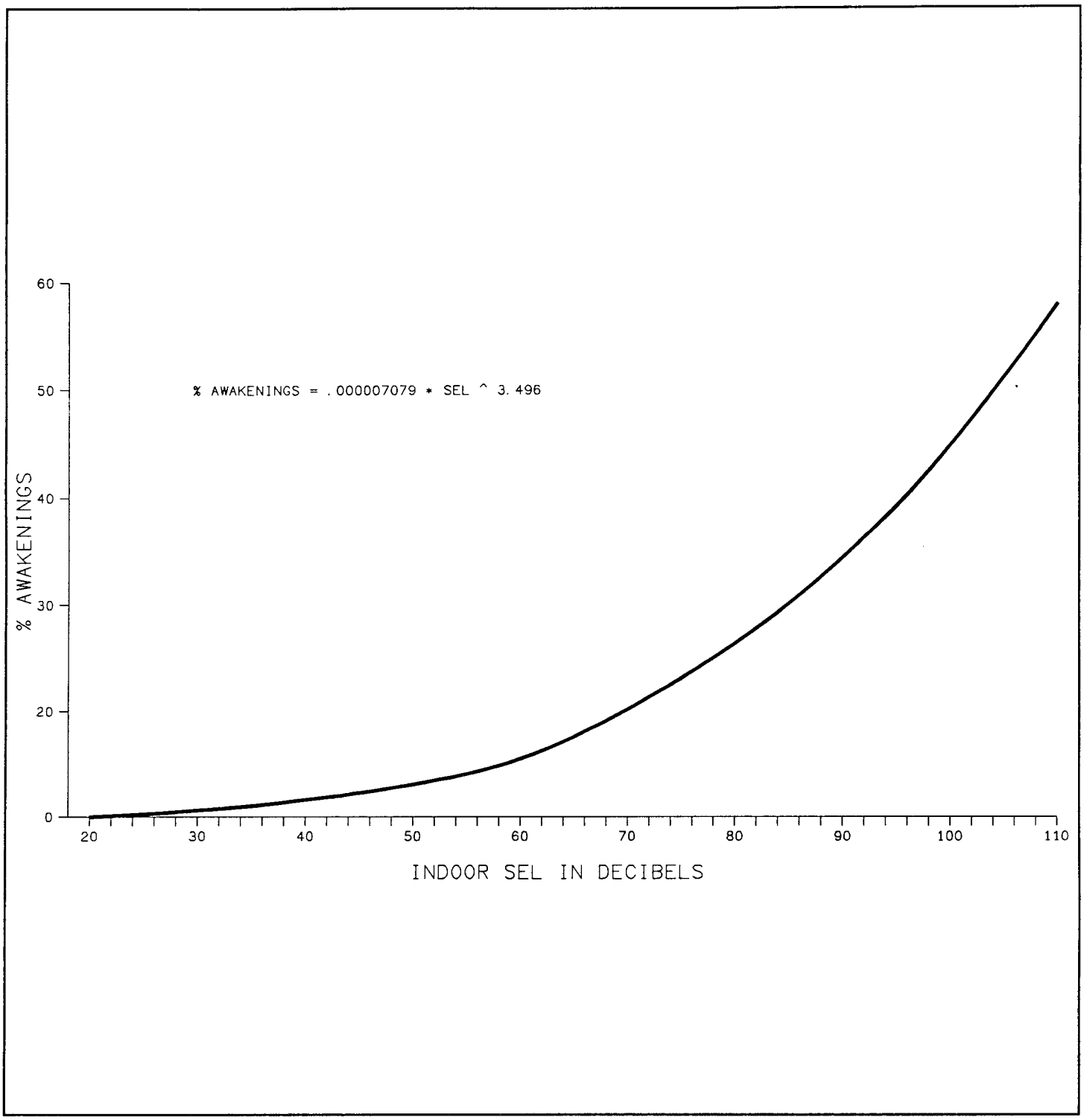
- How the studies were conducted
- The need to consider non-acoustic effects
- The role of habituation.

Currently, the Federal Interagency Committee on Noise (FICON) is considering this relationship for use in environmental assessments and environmental impact statements when supplemental analysis of potential sleep disturbance is necessary.

A graphic depiction of the interim dose-response curve is shown in Figure K-3. This relationship may be used to estimate the average percentage of the exposed population within various SEL intervals who would be expected to be awakened by a single aircraft noise event. The average percentages used in this analysis are summarized in Table K-13.

Table K-13. Average Percent Awakened as a Function of Indoor SEL Values

Response		Outdoor SEL Interval	Average % Awakened		
SEL	Percent Awakened		0 dB Attenuation (Outdoors)	17 dB Attenuation (Windows Open)	27 dB Attenuation (Windows Closed)
45	4.26				
50	6.16	45-50	5.34	1.16	0.30
55	8.60	50-55	7.55	1.95	0.63
60	11.65	55-60	10.35	3.08	1.16
65	15.41	60-65	13.82	4.60	1.95
70	19.97	65-70	18.05	6.60	3.08
75	25.42	70-75	23.13	9.15	4.60
80	31.85	75-80	29.16	12.34	6.60
85	39.37	80-85	36.23	16.26	9.15
90	48.08	85-90	44.45	20.99	12.34
95	58.09	90-95	53.92	26.63	16.26
100	69.50	95-100	64.76	33.27	20.99
105	84.42	100-105	77.06	41.02	26.63
110	96.98	105-110	90.95	49.98	33.27
115	113.28	>110	100.00	60.25	41.02



SLEEP DISTURBANCE

SOURCE: PEARSON et. al., 1989

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE K-3

In comparing predictions of the number of persons awakened by a single noise event, it must be noted that the SEL values used in noise modeling represent the average of numerous values collected under carefully controlled conditions and standardized to reference meteorological conditions. Even under carefully controlled conditions, SEL values for individual events show a significant variation. In actual airport operations, variations in aircraft weight, power settings, and flap configuration as well as specific meteorological conditions at the time of the event may result in even greater variations in SEL values for individual events. The SEL values for each type of operation by a single type of aircraft may exhibit a typical range of more than 20 dB, with a standard deviation of at least six to seven dB. Thus, the predicted values for single events are useful primarily for comparison of the long-term average effects and should not be considered as values for any single operation.

Currently, the Federal Interagency Committee on Noise (FICON) is considering this relationship for use in environmental assessments and environmental impact statements when supplemental analysis of potential sleep disturbance is necessary.

A graphic depiction of the interim dose-response curve is shown in Figure K-3. This relationship may be used to estimate the average percentage of the exposed population within various SEL intervals who would be expected to be awakened by a single aircraft noise event. The average percentages used in this analysis are summarized in Table K-13.

4.4 NOISE-INDUCED HEARING LOSS

Hearing loss is measured in decibels and refers to the permanent auditory threshold shift of an individual's hearing in an ear. Auditory threshold refers to the minimum acoustic signal that evokes an auditory sensation, i.e., the quietest sound a person can hear. When a threshold shift occurs a person's hearing is not as sensitive as before and the minimum sound that a person can hear must be louder. The threshold shift which naturally occurs with age is called presbycusis. Exposure to high levels of sound can cause temporary and permanent threshold shifts usually referred to as noise-induced hearing loss. Permanent hearing loss is generally associated with destruction of the hair cells of the inner ear.

The USEPA (1974) and the Committee on Hearing, Bioacoustics, and Biomechanics (National Academy of Sciences, 1981) have addressed the risk of outdoor hearing loss. They have concluded that hearing loss would not be expected for people living outside the noise contour of DNL of 75 dBA. Several studies of populations near existing airports in the U.S. and the U.K. have shown that the possibility for permanent hearing loss in communities near intense commercial take-off and landing patterns is remote. An FAA-funded study compared the hearing of the population near the Los Angeles International Airport to that of the population in a quiet area away from aircraft noise (Parnel et al., 1972). A similar study was performed in the vicinity of London Heathrow Airport (Ward et al., 1972). Both studies concluded that

there was no significant difference between the hearing loss of the two populations, and no correlation between the hearing level with the length of time people lived in the airport neighborhood.

4.5 NONAUDITORY HEALTH EFFECTS OF RESIDENTIAL AIRCRAFT NOISE

Based on summaries of previous research in the field (Thompson, 1981; Thompson and Fidell, 1989), predictions of nonauditory health effects of aircraft noise cannot be made. A valid predictive procedure requires: (1) evidence for causality between aircraft noise exposure and adverse nonauditory health consequences, and (2) knowledge of a quantitative relationship between amounts of noise exposure (dose) and specific health effects. Because results of studies of aircraft noise on health are equivocal, there is no sound scientific basis for making adequate risk assessments.

Alleged nonauditory health consequences of aircraft noise exposure that have been studied include birth defects, low birth weight, psychological illness, cancer, stroke, hypertension, sudden cardiac death, myocardial infarction, and cardiac arrhythmias. Of these, hypertension is the most biologically plausible effect of noise exposure. Noise appears to cause many of the same biochemical and physiological reactions, including temporary elevation of blood pressure, as do many other environmental impacts that cause stress. These temporary increases in blood pressure are believed to lead to a gradual resetting of the body's blood pressure control system. Over a period of years, permanent hypertension may develop (Peterson et al., 1984).

Studies of residential aircraft noise have produced contradictory results. Early investigations indicated that hypertension was from two to four times higher in areas near airports than in areas located away from airports (Karagodina et al., 1969). Although Meecham and Shaw (1988) continue to report excessive cardiovascular mortality among individuals 75 years or older living near the Los Angeles International Airport, their findings cannot be replicated (Frerichs et al., 1980). In fact, noise exposure increased over the years while there was a decline in all cause, age-adjusted death rates and inconsistent changes in age-adjusted cardiovascular, hypertension, and cerebrovascular disease rates.

Studies that have controlled for multiple factors have shown no, or a very weak, association between noise exposure and nonauditory health effects. This observation holds for studies of occupational and traffic noise as well as for aircraft noise exposure. In contrast to the early reports of two- to six-fold increases in hypertension due to high industrial noise (Thompson and Fidell, 1989), the more rigorously controlled studies of Talbott et al. (1985) and van Dijk et al. (1987) show no association between hypertension and prolonged exposure to high levels of occupational noise.

In the aggregate, studies indicate no association exists between street traffic noise and blood pressure or other cardiovascular changes. Two large prospective collaborative studies of heart disease are of particular interest. To date, cross-sectional data from these cohorts offer contradictory results. Data

from one cohort show a slight increase in mean systolic blood pressure (2.4 mm Hg) in the noisiest compared to the quietest area; while data from the second cohort show the lowest mean systolic blood pressure and highest high-density lipoprotein cholesterol (lipoprotein protective of heart disease) for men in the noisiest area (Babisch and Gallacher, 1990). These effects of traffic noise on blood pressure and blood lipids were more pronounced in men who were also exposed to high levels of noise at work.

It is clear from the foregoing that the current state of technical knowledge cannot support inference of a causal or consistent relationship, nor a quantitative dose-response, between residential aircraft noise exposure and health consequences. Thus, no technical means are available for predicting extra-auditory health effects of noise exposure. This conclusion cannot be construed as evidence of no effect of residential aircraft noise exposure on nonauditory health. Current findings, taken in sum, indicate only that further rigorous studies are needed.

4.6 DOMESTIC ANIMALS AND WILDLIFE

A recent study was published on the effects of aircraft noise on domestic animals that provided a review of the literature and a review of 209 claims pertinent to aircraft noise over a period spanning 32 years (Bowles et al., 1990). Studies since the late 1950s were motivated both by public concerns about what was at that time a relatively novel technology, supersonic flight, and by claims leveled against the U. S. Air Force for damage done to farm animals by very low-level subsonic overflights. Since that time over 40 studies of aircraft noise and sonic booms, both in the U.S. and overseas, have addressed acute effects, including effects of startle responses (sheep, horses, cattle, fowl), and effects on reproduction and growth (sheep, cattle, fowl, swine), parental behaviors (fowl, mink), milk letdown (dairy cattle, dairy goats, swine), and egg production.

The literature on the effects of noise on domestic animals is not large, and most of the studies have focused on the relation between dosages of continuous noise and effects. Chronic noises are not a good model for aircraft noise, which lasts only a few seconds, but which is often very startling. The review of claims suggest that a major source of loss was panics induced in naive animals.

Aircraft noise may have effects because it might trigger a startle response, a sequence of physiological and behavioral events that once helped animals avoid predators. There are good dose-response relations describing the tendency to startle to various levels of noise, and the effect of habituation on the startle response.

The link between startles and serious effects, i.e., effects on productivity, is less certain. Here, we will define an effect as any change in a domestic animal that alters its economic value, including changes in body weight or weight gain, numbers of young produced, weight of young produced, fertility, milk

production, general health, longevity, or tractability. At this point, changes in productivity are usually considered an adequate indirect measure of changes in well being, at least until objective legal guidelines are provided.

Recent focus on the effects on production runs counter to a trend in the literature toward measuring the relation between noise and physiological effects, such as changes in corticosteroid levels, and in measures of immune system function. As a result, it is difficult to determine the relation between dosages of noise and serious effects using only physiological measures. The experimental literature is inadequate to document long-term or subtle effects resulting from exposure to aircraft noise.

4.7 LAND USE COMPATIBILITY GUIDELINES

Widespread concern about the noise impacts of aircraft noise essentially began in the 1950s, which saw the major introduction of high power jet aircraft into military service. The concern about noise impacts in the communities around airbases, and also within the airbases themselves, led the Air Force to conduct major investigations into the noise properties of jets, methods of noise control for test operations, and the effects of noise from aircraft operations in communities surrounding airbases. These studies established an operational framework of investigation and identified the basic parameters affecting community response to noise. These studies also resulted in the first detailed procedures for estimating community response to aircraft noise (Stevens and Pietrasanta, 1957).

Although most attention was given to establishing methods of estimating residential community response to noise (and establishing the conditions of noise "acceptability" for residential use), community development involves a variety of land uses with varying sensitivity to noise. Thus, land planning with respect to noise requires the establishment of noise criteria for different land uses. This need was met with the initial development of aircraft noise compatibility guidelines for varied land uses in the mid-1960s (Bishop, 1964).

In residential areas, noise intrusions generate feelings of annoyance on the part of individuals. Increasing degrees of annoyance lead to the increasing potential for complaints and community actions (most typically, threats of legal actions, drafting of noise ordinances, etc.). Annoyance is based largely upon noise interference with speech communication, listening to radio and television, and sleep. Annoyance in the home may also be based upon dislike of "outside" intrusions of noise even though no specific task is interrupted.

Residential land use guidelines have developed from consideration of two related factors:

(a) Accumulated case history experience of noise complaints and community actions near civil and military airports;

(b) Relationships between environmental noise levels and degrees of annoyance (largely derived from social surveys in a number of communities).

In the establishment of land use guidelines for other land uses, the prime consideration is task interference. For many land uses, this translates into the degree of speech interference, after taking into consideration the importance of speech communication and the presence of non-aircraft noise sources related directly to the specific land use considered. For some noise-sensitive land uses where any detectable noise signals which rise above the ambient noise are unwanted (such as music halls), detectability may be the criterion rather than speech interference.

A final factor to be considered in all land uses involving indoor activities is the degree of noise insulation provided by the building structures. The land use guideline limits for unrestricted development within a specific land use assume noise insulation properties provided by typical commercial building construction. The detailed land use guidelines may also define a range of higher noise exposure where construction or development can be undertaken, provided a specified amount of noise insulation is included in the buildings. Special noise studies, undertaken by architectural or engineering specialists, may be needed to define the special noise insulation requirements for construction in these guideline ranges.

Estimates of total noise exposure resulting from aircraft operations, as expressed in DNL values, can be interpreted in terms of the probable effect on land uses. Suggested compatibility guidelines for evaluating land uses in aircraft noise exposure areas were originally developed by the FAA as presented in Section 3.4.4, Noise. Part 150 of the FAA regulations prescribes the procedures, standards, and methodology governing the development, submission, and review of airport noise exposure maps and airport noise compatibility programs. It prescribes the use of yearly DNL in the evaluation of airport noise environments. It also identifies those land use types which are normally compatible with various levels of noise exposure. Compatible or incompatible land use is determined by comparing the predicted or measured DNL level at a site with the values given in the table. The guidelines reflect the statistical variability of the responses of large groups of people to noise. Therefore, any particular level might not accurately assess an individual's perception of an actual noise environment.

While the FAA guidelines specifically apply to aircraft noise, it should be noted that DNL is also used to describe the noise environment due to other community noise sources, including motor vehicles and railroads. The use of DNL is endorsed by the scientific community to assess land use compatibility as it pertains to noise (ANSI, 1990). Hence, the land use guidelines presented by the FAA can also be used to assess the noise impact from community noise sources other than aircraft.

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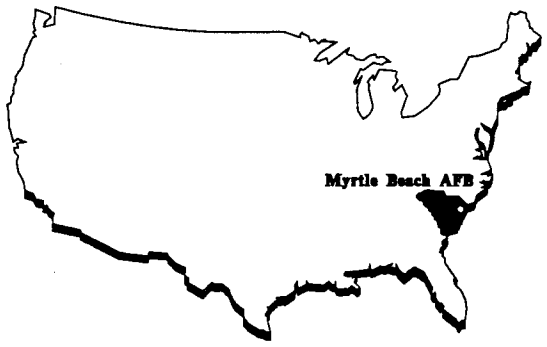
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APPENDIX L

APPENDIX L
SECTION 7 CONSULTATION
THREATENED AND ENDANGERED SPECIES

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DEPARTMENT OF THE AIR FORCE
AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE (AFCEE)
BROOKS AIR FORCE BASE, TEXAS 78235-5000

18 FEB 1992

Ms. Lori Duncan
Endangered Species Specialist
U.S. Fish and Wildlife Service
P.O. Box 12559
Charleston, South Carolina 29422

RE: Initiation of a Section 7 Consultation for Closure of Myrtle Beach Air Force Base (AFB), Horry County, South Carolina

Dear Ms Duncan,

The Air Force Center for Environmental Excellence (AFCEE) at Brooks AFB, Texas, is supporting the Department of Defense's decision-making process involving base closures and reuse. As part of this process, the AFCEE is preparing an environmental impact statement (EIS) to analyze environmental impacts of reuse actions and alternatives for the disposal of Myrtle Beach AFB.

To comply with the requirements of Section 7 of the Endangered Species Act of 1978, as amended, the Air Force is requesting your input regarding threatened and endangered species that may be impacted by the base disposal and reuse. We would appreciate your input regarding 1) any listed or proposed for listing threatened or endangered species residing or seasonally occurring on Myrtle Beach AFB, 2) any possible effects the proposed closure and reuse may have on such species, and 3) suggested measures to avoid or minimize adverse impacts on these species. In order that your comments receive their fullest consideration within the time frame available for the preparation of the draft EIS, we ask that you submit your comments within 30 days after receipt of this letter to AFCEE/ESEM, Brooks AFB, TX 78235.

Thank you for your assistance in this matter. Capt Briesmaster of my office can provide you with additional information on the project. He can be reached at 512-536-3804.

GARY P. BAUMGARTEL, Lt Col, USAF
Chief, Environmental Planning Division

cc: HQ TAC/DEV
354 CSG/CGX (CARE)/DEV
Engineering-Science

DEPARTMENT OF THE AIR FORCE
AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE (AFCEE)
BROOKS AIR FORCE BASE, TEXAS 78235-5000

18 FEB 1992

Mr. Terry Henwood
National Marine Fisheries Service
9450 Koger Boulevard
St. Petersburg, Florida 33702

RE: Initiation of a Section 7 Consultation for Closure of Myrtle Beach Air Force Base (AFB), Horry County, South Carolina

Dear Mr Henwood,

The Air Force Center for Environmental Excellence (AFCEE) at Brooks AFB, Texas, is supporting the Department of Defense's decision-making process involving base closures and reuse. As part of this process, the AFCEE is preparing an environmental impact statement (EIS) to analyze environmental impacts of reuse actions and alternatives for the disposal of Myrtle Beach AFB.

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GARY P. BAUMGARTEL, Lt Col, USAF
Chief, Environmental Planning Division

cc: HQ TAC/DEV
354 CSG/CCX (CARE)/DEV
Engineering-Science

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office
9450 Koger Boulevard
St. Petersburg, FL 33702

March 12, 1992 F/SEO13:JEB

Lt Col Gary P. Baumgartel
Chief, Environmental Planning Division
Department of the Air Force
AFCEE/ESEM
Brooks Air Force Base, TX 78235

Dear Colonel Baumgartel:

This responds to your February 18, 1992, letter requesting input regarding threatened and endangered species that may be impacted by the closure and reuse of Myrtle Beach Air Force Base, South Carolina. Endangered or threatened species under our jurisdiction which may be affected by reuse of this property are the loggerhead turtle (Caretta caretta), the green turtle (Chelonia mydas), the Kemp's ridley turtle (Lepidochelys kempi), the leatherback turtle (Dermochelys coriacea), and the shortnose sturgeon (Acipenser brevirostrum).

Mr. Jeffrey Brown of my staff spoke with Captain Briesmaster today and he informed me that the only portion of the base property directly associated with the marine environment was a fuel dock located on the intracoastal waterway. The National Marine Fisheries Service (NMFS) believes that if the dock retains its function, by supplying fuel for civilian aircraft it should pose little threat of adverse impact to listed species due to the spill prevention procedures already in place. Endangered species may be adversely affected if the reuse of this property involves such things as demolition or construction in the intracoastal waterway or disposal of wastes (e.g. sewage or industrial wastes).

To ensure proper coordination on this project please inform my office when the type of reuse is determined for this property and please provide NMFS a copy of the environmental impact statement when it is available. If you have any questions please call Jeffrey Brown at (813) 893-3366.

Sincerely,

Charles Oravetz

Charles Oravetz, Chief
Protected Species Management
Branch

United States Department of the Interior
FISH AND WILDLIFE SERVICE
P.O. BOX 12559
217 FORT JOHNSON ROAD
CHARLESTON, SOUTH CAROLINA 29412

April 7, 1992

Gary P. Baumgartel, Lt. Col., USAF
Department of the Air Force
Air Force Center for Environmental Excellence
Brooks Air Force Base, Texas 78235-5000

Re: Closure of Myrtle Beach Air Force Base
FWS Log No. 4-6-92-249

Dear Colonel Baumgartel:

Please find listed below the federally listed endangered (E) and threatened (T) species which are known to occur in Horry County, South Carolina.

Red-cockaded woodpecker (Picoides borealis) - E
Wood stork (Mycteria americana) - E
Piping plover (Charadrius melodus) - T
Arctic peregrine falcon (Falco peregrinus tundrius) - T
Loggerhead sea turtle (Caretta) - T
Canby's dropwort (Oxypolis canbyi) - E
Rough-leaved loosestrife (Lysimachia asperulaefolia) - E
Pondberry (Lindera melissifolia) - E
Cooley's meadowrue (Thalictrum cooleyi) - E
Schweinitz' sunflower (Helianthus schweinitzii) - E
Chaff-seed (Schwalbea americana) - PE
Bachman's sparrow (Aimophila aestivalis) - C2
Loggerhead shrike (Lanius ludocivianus) - C2
Black rail (Laterallus jamaicensis) - C2
Vahl's fimbry (Fimbristylis perpusilla) - C2
Pondspice (Litsea aestivalis) - C2
Godfrey's sandwort (Minuartia godfreyi) - C2
Carolina grass-of-parnassus (Parnassia caroliniana) - C2
Slender-leaf dragon-head (Physostegia leptophylla) - C2
Pineland plantain (Plantago sparsiflora) - C2
Pickering's morning-glory
(Stylisma pickeringii var. pusillum) - C2

The list also includes candidate species under review by the Service. Candidate species are not legally protected under the Endangered Species Act, and are not subject to any of its provisions, including Section 7, until they are formally proposed or listed as endangered/threatened. We are

including these species in our response for the purpose of giving you advance notification. These species may be listed in the future, at which time they will be protected under the Endangered Species Act. In the meantime, we would appreciate anything you might do to avoid impacting them.

We recommend you contact the personnel with the South Carolina Heritage Trust Program concerning known populations of federal and/or state endangered or threatened species.

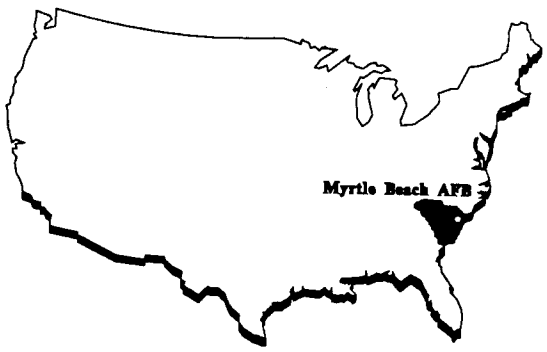
Your interest in ensuring the protection of endangered and threatened species is appreciated.

Sincerely yours,

Roger L. Banks
Field Supervisor

RLB/LWD/km

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APPENDIX M

APPENDIX M
SECTION 106 CONSULTATION
CULTURAL RESOURCES

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DEPARTMENT OF THE AIR FORCE
AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE (AFCEE)
BROOKS AIR FORCE BASE, TEXAS 78235-5000

18 FEB 1992

Mr. Don Klima, Director
Eastern Office of Project Review
Advisory Council on Historic Preservation
1100 Pennsylvania Avenue, NW
Suite 809
Washington, DC 20004

RE: Myrtle Beach Air Force Base (AFB), Section 106 Review

Dear Mr. Klima,

The Air Force Center for Environmental Excellence (AFCEE) at Brooks AFB, Texas, is supporting the Department of Defense's decision-making process in defense base closure and reuse. The AFCEE is required to conduct an Environmental Impact Analysis Process to analyze the environmental and socioeconomic impacts of reuse actions and alternatives at 14 Air Force bases scheduled for partial or complete closure. One of these bases is Myrtle Beach AFB in Myrtle Beach, South Carolina.

The purpose of this correspondence is to initiate the Section 106 process at Myrtle Beach for this analysis. The Air Force intends to follow procedures for compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (Public Law 89-665), defined by the Advisory Council on Historic Preservation and Secretary of the Interior. We are currently in the process of consulting with the State Historic Preservation Officer (see atch 1). In order that your comments receive their fullest consideration within the time frame available for the preparation of the draft EIS, we ask that you submit your comments within 30 days after receipt of this letter to AFCEE/ESEM, Brooks AFB, TX 78235.

We have started gathering information concerning previous archaeological and historical studies at Myrtle Beach AFB and will continue during the next several months. We would appreciate any assistance in helping retrieve this information and in an analysis of necessary future actions concerning protection of the cultural resources within the affected environment of the proposed action and its alternatives.

Thank you for your assistance in this matter. Should you have questions regarding this, please contact Capt Briesmaster at 512-536-3804.

GARY P. BAUMGARTEL, Lt Col, USAF
Chief, Environmental Planning Division

1 Atch
Letter to Dr Vogt

cc: HQ TAC/DEV
345 CSG/CCX (CARE)/DEV
Engineering-Science

DEPARTMENT OF THE AIR FORCE
AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE (AFCEE)
BROOKS AIR FORCE BASE, TEXAS 78235-5000

18 FEB 1992

Dr. George L. Vogt
SHPO and Director
Department of Archives & History
P.O. Box 11669
Capitol Station
Columbia, SC 29211

RE: Myrtle Beach Air Force Base (AFB), Section 106 Review

Dear Dr. Vogt,

The Air Force Center for Environmental Excellence (AFCEE) at Brooks AFB, Texas, is supporting the Department of Defense's decision-making process in defense base closure and reuse. The AFCEE is required to conduct an Environmental Impact Analysis Process to analyze the environmental and socioeconomic impacts of reuse actions and alternatives at 14 Air Force bases scheduled for partial or complete closure. One of these bases is Myrtle Beach AFB in Myrtle Beach, South Carolina.

The purpose of this correspondence is to initiate the Section 106 process at Myrtle Beach for this analysis. The Air Force intends to follow procedures for compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (Public Law 89-665), defined by the Advisory Council on Historic Preservation and Secretary of the Interior. In order that your comments receive their fullest consideration within the time frame available for the preparation of the draft EIS, we ask that you submit your comments within 30 days after receipt of this letter to AFCEE/ESEM, Brooks AFB, TX 78235.

We have started gathering information concerning previous archaeological and historical studies at Myrtle Beach AFB and will continue during the next several months. We would appreciate any assistance in helping retrieve this information and in an analysis of necessary future actions concerning protection of the cultural resources within the affected environment of the proposed action and its alternatives. We welcome any significant issues and concerns that your agency may have.

Thank you for your assistance in this matter. Should you have questions regarding this, please contact Capt Briesmaster at 512-536-3804.

GARY P. BAUMGARTEL, Lt Col, USAF
Chief, Environmental Planning Division

cc: HQ TAC/DEV
345 CSG/CCX (CARE)/DEV
Engineering-Science

South Carolina Department of Archives and History

1430 Senate Street, P.O. Box 11,669, Columbia, South Carolina 29211 (803) 734-8577
State Records (803) 734-7914; Local Records (803) 734-7917

November 13, 1991

Lt. Col. Tom Bartol
Director of Programs
AFRCE-BMS/DEP
Building 520, Room 131
Norton AFB, California 92409-6884

RE: Myrtle Beach Air Force Base Closure
Myrtle Beach, Horry County

Dear Col. Bartol:

The comments included in this letter will be presented at the public scoping meeting to be held on November 14, 1991 regarding the closure of Myrtle Beach AFB.

The South Carolina State Historic Preservation Office is concerned about the future protection of cultural resources located at MBAFB, both structures and archaeological sites. Some of these resources have been identified as being eligible for inclusion in the National Register of Historic Places. These resources were first identified in a 1980 report A CULTURAL RESOURCES INVENTORY OF MYRTLE BEACH AIR FORCE BASE, and later in the 1991 DRAFT ENVIRONMENTAL IMPACT STATEMENT (EIS), PROPOSED CLOSURE OF MYRTLE BEACH AFB, SOUTH CAROLINA.

There are five structures and one archaeological site that have been determined to be eligible for the National Register. These sites are:

-two Norden Bomb Sight Vaults (C. 1942)- 192 sq. foot concrete pillbox type construction. At the beginning of WWII, the Norden Bomb Sight was top secret. It was removed from the airplane at night and placed in guarded vaults. Only two remain at Myrtle Beach.

-World War II Revetment or Disposal System (c. early 1940's)- Scattered sites used for airplane storage when there was a threat of air attack.

-General Bombing & Gunnery Range (c. early 1940's)- 300 acres, including some building remnants.

-Civilian Conservation Corps Shed,Building 172 (c. 1934)- Oldest building on the base. Built when the site was a CCC Camp.

A total of 14 archaeological sites have been identified at the base. Site #38HR114 has been determined to be eligible for the National Register. This site is comprised of three mortared heating troughs and a pumphouse built by the CCC.

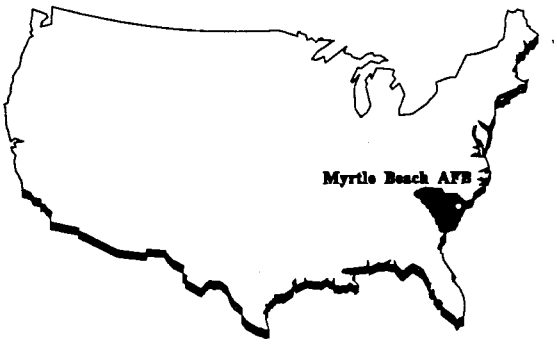
We understand that the Air Force proposes to undertake additional documentation and archival research as part of the eligibility evaluation for identified resources. In addition, the Air Force proposes to enter into a Memorandum of Agreement with the South Carolina State Historic Preservation Office and the Advisory Council on Historic Preservation for the treatment of cultural resources. These measures should ensure that adequate protection of the resources will be taken into consideration during reuse planning and development.

If you have any questions, or if we can be of further assistance, please call either Ms. Nancy Brock, Review and Compliance Branch Supervisor, or Mr. Ian Hill, Intergovernmental review Coordinator, at 803/734-8609.

Sincerely,

Mary Watson Edmonds.

Mary Watson Edmonds
Deputy Historic Preservation Officer



APPENDIX N

APPENDIX N

PERMITTING

Existing state, federal, and local permits and agreements are required to continue specific base activities associated with hazardous materials and hazardous wastes, air emissions, discharges to surface water, utilities, and airspace use. Both general and specific permit conditions have bearing on existing and future base activities such as reporting, monitoring, and operating protocol and requirements. Additionally, some permits have specific requirements for maintaining financial responsibility, transfer of permits, notification, and closure of facilities. These requirements are summarized in the following sections. Permits and agreements that the base currently has in place are listed in Table N-1.

Air Emissions. The South Carolina air pollution control program is managed by the South Carolina Department of Health and Environmental Control (SCDHEC) under authority of the 1976 South Carolina Code of Laws, as amended and the 1970 Pollution Control Act of South Carolina. The policy inherent in the permits program is to protect the air quality existing at the time air quality standards were adopted or to upgrade or improve the quality of the air within the state.

The owner or operator of a facility that emits or can reasonably be expected to emit any air pollutant must obtain an appropriate permit from SCDHEC. The SCDHEC issues two types of permits: construction permits and operating permits. A construction permit must be obtained by the owner or operator of any proposed new or modified source prior to construction, alteration, or addition to a source of air contaminants, including installation of any device for the control of air contaminant discharge. The construction permit is issued for a period of time sufficient to allow construction or modification of the source.

To obtain an operating permit, the owner or operator of the source must submit a written request to SCDHEC no less than 15 days prior to placing any new, increased, or altered source into operation. The operating permit specifies the parameters of the emissions permitted and the applicable emission limiting standard or performance standard and requires proper operation and maintenance of pollution control equipment.

Prior to the expiration of the operating permit, a representative of the SCDHEC will inspect the source in order to decide whether to renew the permit. Renewal is based on the past compliance record and the future probability of compliance.

Transfer of a permit is accomplished by written notification of the transfer to the SCDHEC within 30 days of the transaction. The transfer of the construction or operating permit is effective upon written approval of the SCDHEC.

At the present time, Myrtle Beach AFB has one operating permits for four sources and construction permits for two sources.

Hazardous Materials and Hazardous Waste. Hazardous waste permit status is discussed in detail in Section 3.3.2. In summary, Myrtle Beach AFB currently has hazardous waste generator status and a Resource Conservation and Recovery Act (RCRA) interim status storage permit for two locations. The interim status permit will expire in November 1992 and is, at this time, nonrenewable and nonextendable. Upon closure, hazardous waste generated by the Air Force Base Disposal Agency operating location (OL) will be handled as required by RCRA regulations for hazardous waste generation (40 CFR 262.34).

Surface Water. Myrtle Beach AFB currently holds a National Pollutant Discharge Elimination System (NPDES) permit for surface water discharge to drainage ditches on the base. In addition, the Air Force has submitted to USEPA a group permit storm water discharge application to cover all Air Force bases. The U.S. Environmental Protection Agency (USEPA) has not yet approved the application. Upon closure, the permits will be continued while OL activities proceed.

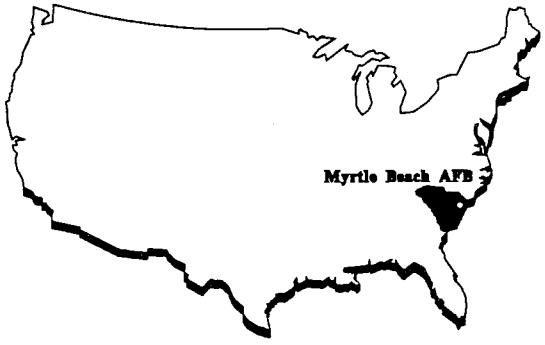
Wastewater. Myrtle Beach AFB has a construction permit for a wastewater pretreatment facility at corrosion control. This facility is used to treat rinseate from airplane washing. The treated wastewater is discharged to the Grand Strand Water and Sewer Authority.

Table N-1. Permits Held by Myrtle Beach AFB

Resource Area	Activity	Agency/Oversight	Regulation Permit/Contract #
Air Emissions	Operating permit -- hospital pathological waste incinerator	United States Environmental Protection Agency (USEPA); South Carolina Department of Health and Environmental Control (SCDHEC)	Clean Air Act (42 USC 7401); South Carolina Pollution Control Act (48 SCCL 1), Reg. 62 et al.; Permit #1340-0005
	Operating permit -- classified waste incinerator	USEPA; SCDHEC	Clean Air Act; SC Pollution Control Act, Reg. 62 et al.; Permit #1340-0005
	Operating permit -- hospital heating boilers	USEPA; SCDHEC	Clean Air Act; SC Pollution Control Act, Reg. 62 et al.; Permit #1340-0005
	Construction permit -- air curtain incinerator (no construction proposed due to closure)	USEPA; SCDHEC	Clean Air Act; SC Pollution Control Act, Reg. 62 et al.; Permit #1340-0005-CD
	Operating permit -- oil - filled boiler at corrosion control facility	USEPA; SCDHEC	Clean Air Act; SC Pollution Control Act, Reg. 62 et al.; Permit #1340-0005-CA
	Construction permit -- paint spray booth at corrosion control facility	USEPA; SCDHEC	Clean Air Act; SC Pollution Control Act, Reg. 62 et al.; Permit #1340-0005-CB
Wastewater	Construction permit -- pretreatment facility at corrosion control facility	USEPA; SCDHEC	Water Pollution Control Act (33 USC 1251 et seq.); SC Pollution Control Act, Reg. 48-1-10 et seq.; Permit #16871

Table N-1. Permit/Contract Activity (Continued)

Resource Area	Activity	Agency/Oversight	Regulation Permit/Contract #
Hazardous Waste Management	RCRA generator	USEPA; SCDHEC; Department of Defense -- U.S. Air Force	RCRA (42 USC 9601 et seq.; 40 CFR 262 et seq.); SC Hazardous Waste Management Act (44 SCCL 55,56); AF Regulation 19, 69; AF Occupational Safety & Health Standard 127; ID# SC7570024821
	RCRA storage facility (interim status)	USEPA; SCDHEC; Department of Defense -- U.S. Air Force	RCRA (40 CFR 264 et seq.); SC Hazardous Waste Management Act (44 SCCL 55, 56); AFR 19,69; AF Occupational Safety & Health Standard 127; ID# SC7570024821
Surface Water Discharge	Industrial/domestic wastewater discharge	USEPA; SCDHEC; Department of Defense -- U.S. Air Force	Clean Water Act (33 USC 1251 et seq.); National Pollutant Discharge Elimination System (40 CFR 122) Permit #SC0002097



APPENDIX O

APPENDIX O

ENVIRONMENTAL IMPACTS OF MYRTLE BEACH AFB REUSE BY LAND USE CATEGORY

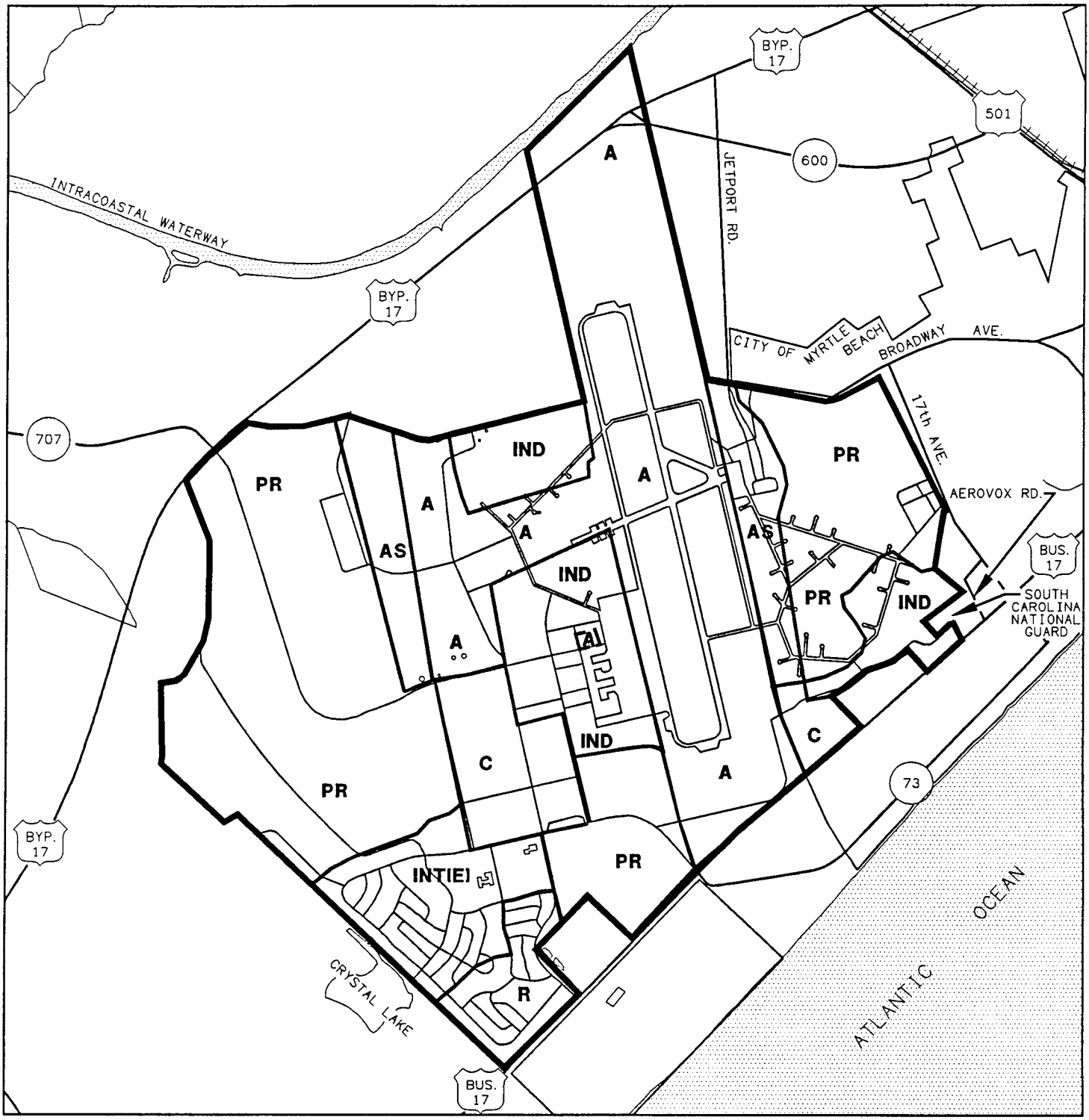
The purpose of this appendix is to quantify the environmental impacts of each land use category identified for the five alternatives, including the Proposed Action, evaluated in this Environmental Impact Statement (EIS) (Figures O-1 through (O-8). The data in Tables O-1 through O-17 present the impacts of individual land use activities, such as industrial, commercial, or institutional, on their respective Regions of Influence as well as compare the impacts of the Proposed Action and alternatives for three benchmark years, 1998, 2003, and 2013, where applicable.

Tables O-1 through O-4 present data on the influencing factors (factors that drive environmental impacts); Tables O-5 through O-17 list the impacts on individual environmental resources evaluated in the EIS. These resources include transportation, utilities, hazardous materials and hazardous waste management, soils and geology, water resources, air quality, noise, biological resources, and cultural and paleontological resources. Included in this appendix is at least one table for each resource area, except water resources. Data on water demand is presented as part of the utilities analysis; the effects on surface and groundwater resources in and around the base have not been quantified in the EIS and have not been disaggregated in this appendix.

No quantification is provided in Table O-11 because the quantities of hazardous substances used and hazardous wastes generated will depend on the type and intensity of industrial and commercial activities developed on the site. Table O-11 presents a generalized description of the hazardous materials used under individual land use categories. Table O-12 summarizes the number of Installation Restoration Program (IRP) sites identified on the base as of 1992, but does not give the likely status of these sites in 1998, 2003, and 2013. It is expected that most of the sites will be remediated by the first benchmark year, 1998.

A number of factors and assumptions were used in disaggregating the total impacts of an alternative to individual land use categories. These are presented as footnotes on the relevant tables.

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EXPLANATION

A	AIRFIELD	**INT(E)**	INSTITUTIONAL (EDUCATIONAL)	**AGR**	AGRICULTURE*	* NOT APPLICABLE
AS	AVIATION SUPPORT	**C**	COMMERCIAL	**V**	VACANT LAND*	
IND	INDUSTRIAL	**R**	RESIDENTIAL			
INT(M)	INSTITUTIONAL* (MEDICAL)	**PR**	PUBLIC FACILITIES & RECREATION			

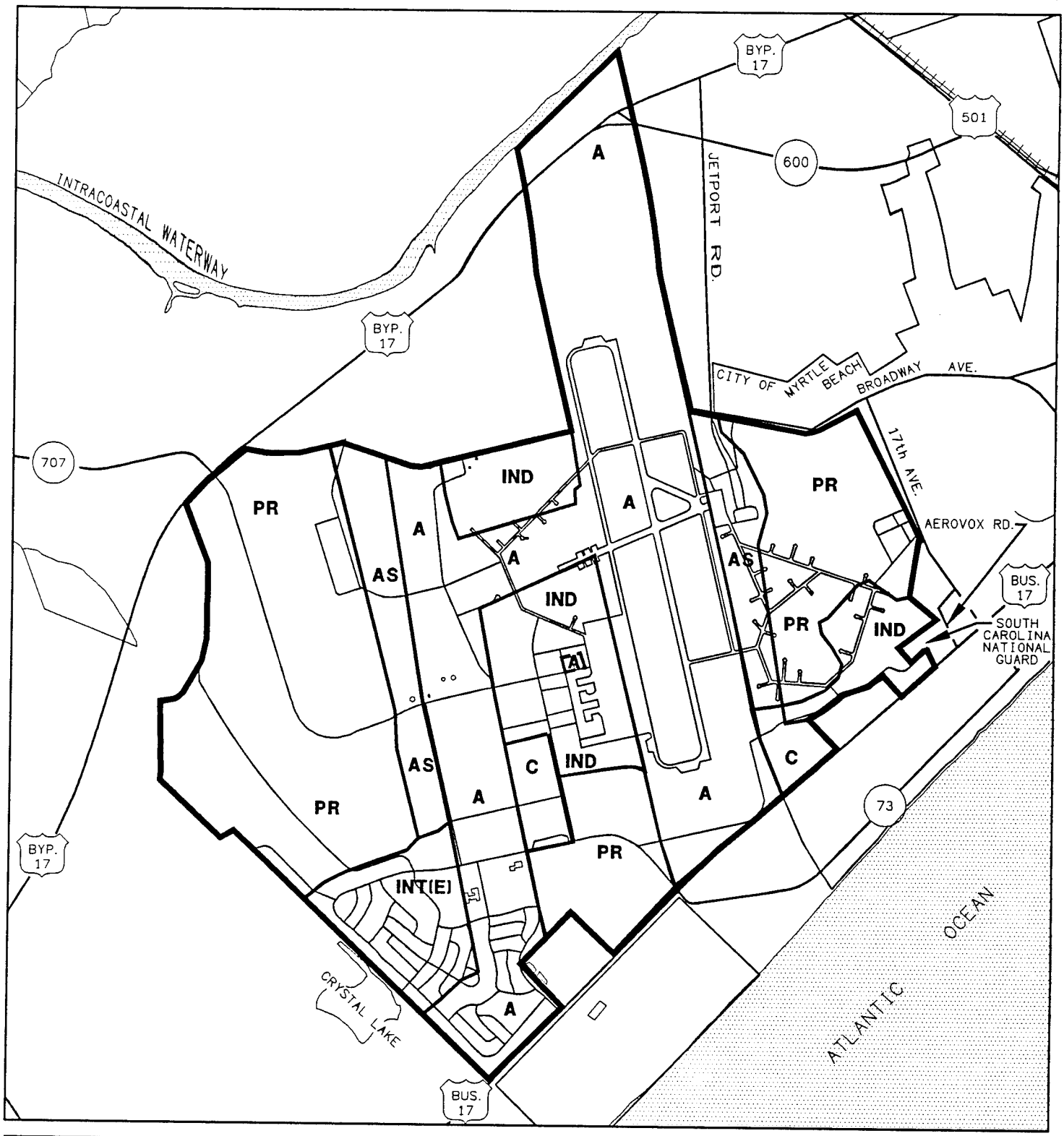
SOURCE: MYRTLE BEACH AFB REDEVELOPMENT TASK FORCE

0 1000 3000 feet

PROPOSED ACTION PRE 2010

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE O-1



EXPLANATION

A	AIRFIELD	**INT(E)**	INSTITUTIONAL (EDUCATIONAL)	**AGR**	AGRICULTURE*
AS	AVIATION SUPPORT	**C**	COMMERCIAL	**V**	VACANT LAND*
IND	INDUSTRIAL	**R**	RESIDENTIAL		
INT(M)	INSTITUTIONAL* (MEDICAL)	**PR**	PUBLIC FACILITIES & RECREATION		

* NOT APPLICABLE

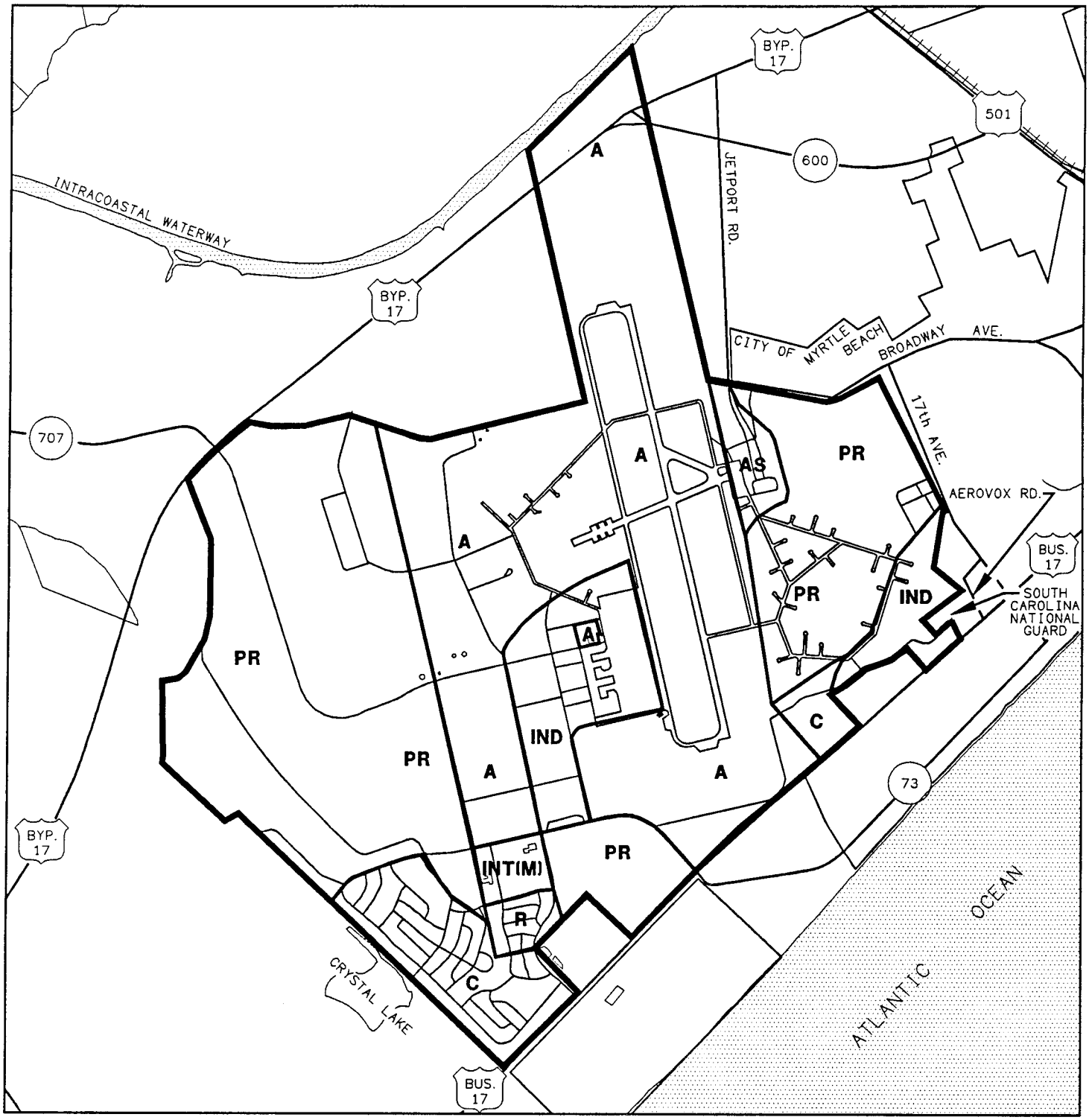
SOURCE: MYRTLE BEACH AFB REDEVELOPMENT TASK FORCE

0 1000 3000 feet

PROPOSED ACTION POST 2010

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE O-2



EXPLANATION

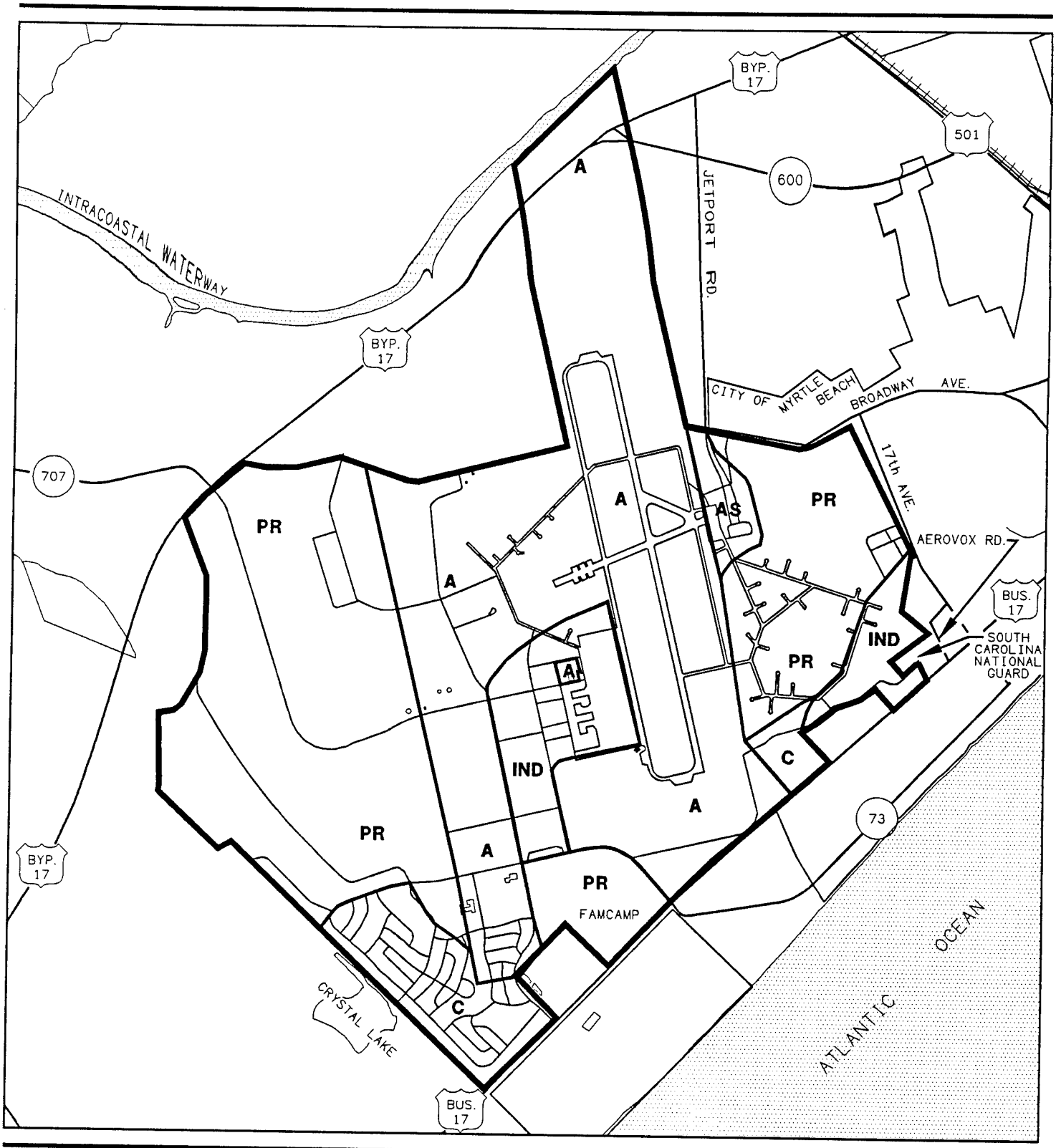
A	AIRFIELD	**INT(E)**	INSTITUTIONAL* (EDUCATIONAL)	**AGR**	AGRICULTURE*	*	NOT APPLICABLE
AS	AVIATION SUPPORT	**C**	COMMERCIAL	**V**	VACANT LAND*		
IND	INDUSTRIAL	**R**	RESIDENTIAL				
INT(M)	INSTITUTIONAL (MEDICAL)	**PR**	PUBLIC FACILITIES & RECREATION				

0 1000 3000 feet

EXPANDED AIRFIELD/ RESORT-RECREATION ALTERNATIVE PRE 2010

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE O-3



EXPLANATION

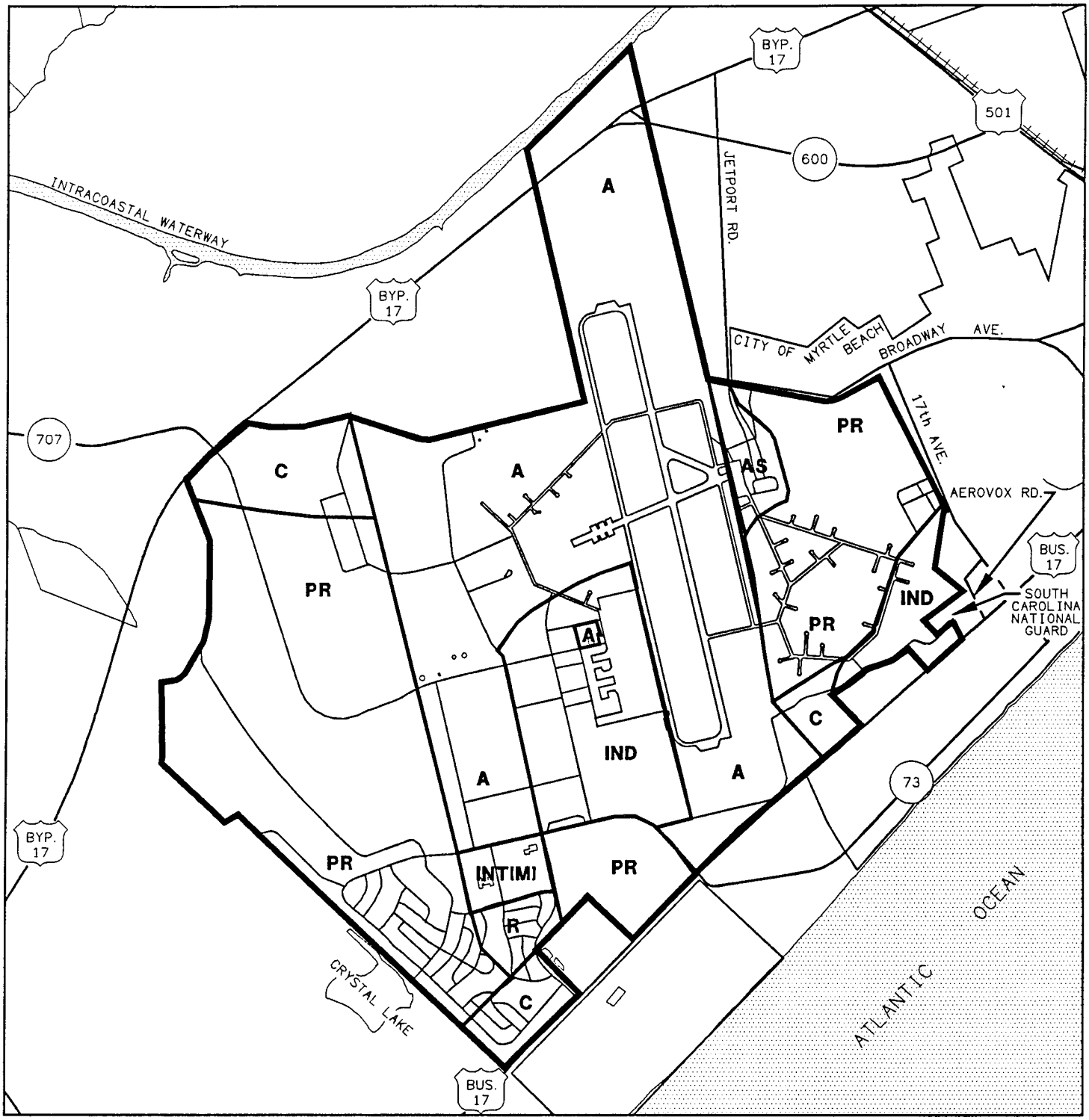
A	AIRFIELD	**INT(E)**	INSTITUTIONAL* (EDUCATIONAL)	**AGR**	AGRICULTURE*	* NOT APPLICABLE
AS	AVIATION SUPPORT	**C**	COMMERCIAL	**V**	VACANT LAND*	
IND	INDUSTRIAL	**R**	RESIDENTIAL			
INT(M)	INSTITUTIONAL (MEDICAL)	**PR**	PUBLIC FACILITIES & RECREATION			

0 1000 3000 feet

EXPANDED AIRFIELD/ RESORT-RECREATION ALTERNATIVE POST 2010

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE O-4



EXPLANATION

A	AIRFIELD	**INT(E)**	INSTITUTIONAL* (EDUCATIONAL)	**AGR**	AGRICULTURE*	* NOT APPLICABLE
AS	AVIATION SUPPORT	**C**	COMMERCIAL	**V**	VACANT LAND*	
IND	INDUSTRIAL	**R**	RESIDENTIAL			
INT(M)	INSTITUTIONAL (MEDICAL)	**PR**	PUBLIC FACILITIES & RECREATION			

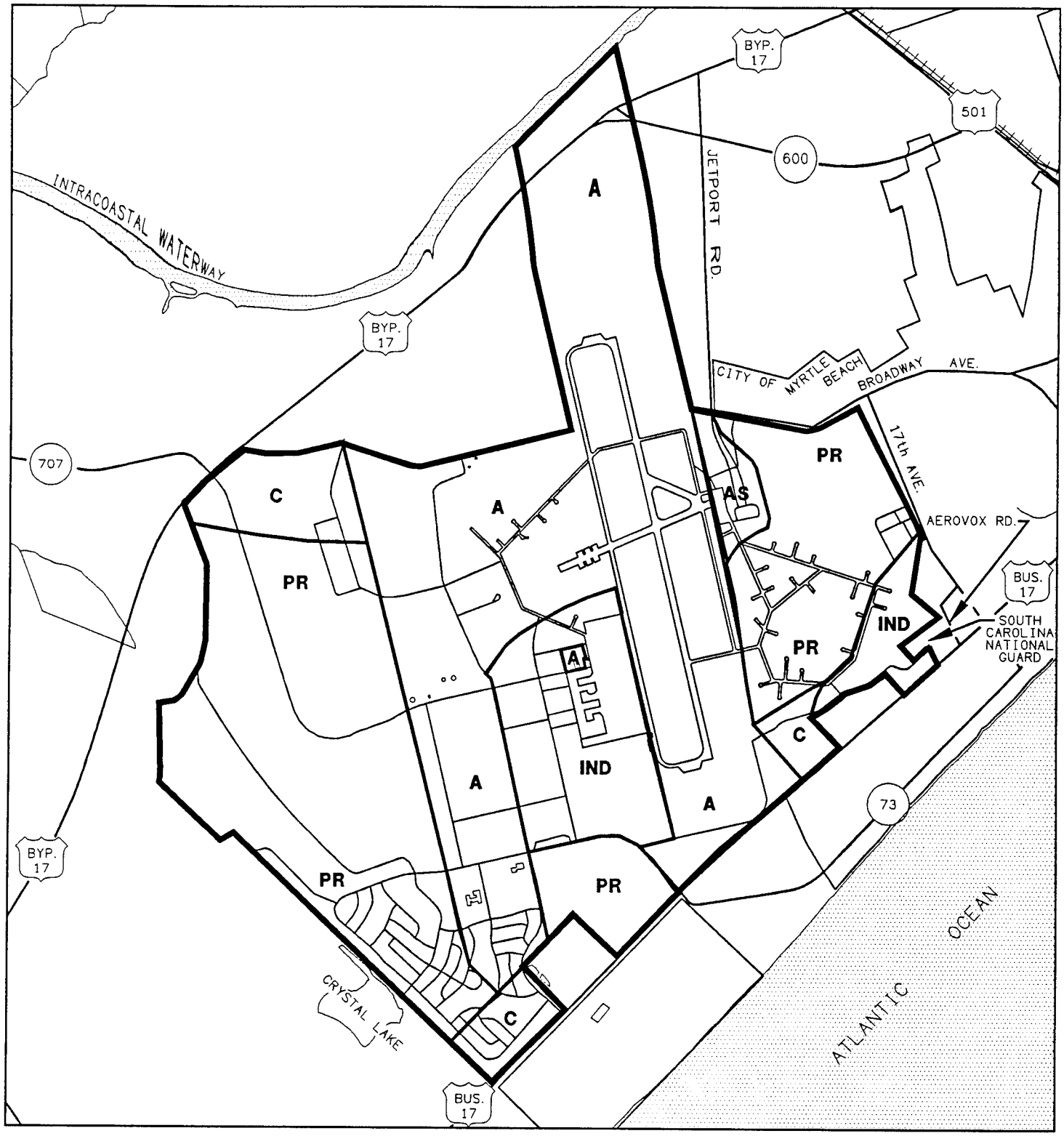
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N W E S

EXPANDED AIRFIELD/ RESORT-COMMERCIAL-INDUSTRIAL ALTERNATIVE PRE 2010

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE O-5



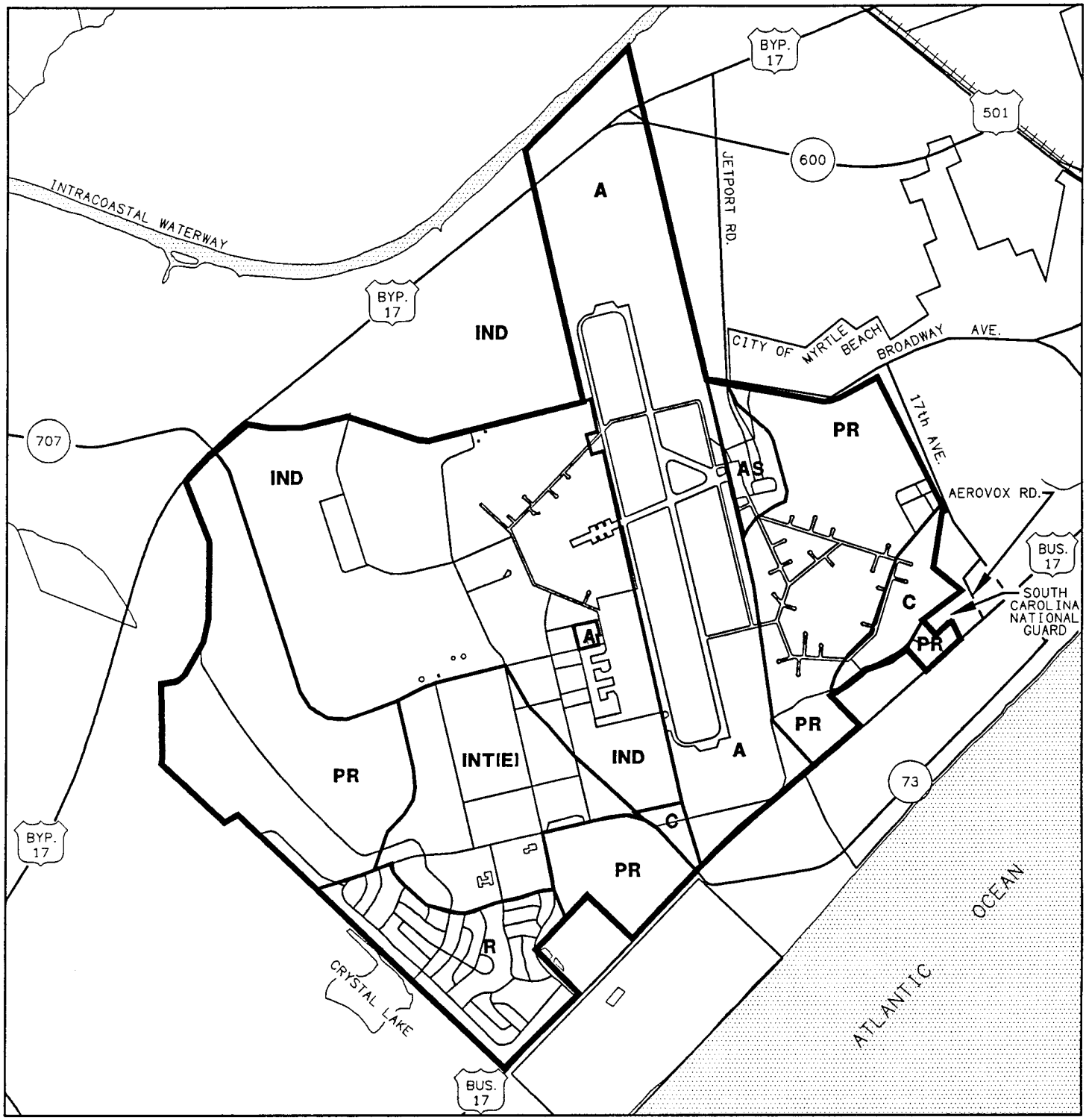
EXPLANATION

A	AIRFIELD	**INT(E)**	INSTITUTIONAL* (EDUCATIONAL)	**AGR**	AGRICULTURE*	* NOT APPLICABLE
AS	AVIATION SUPPORT	**C**	COMMERCIAL	**V**	VACANT LAND*	
IND	INDUSTRIAL	**R**	RESIDENTIAL			
INT(M)	INSTITUTIONAL (MEDICAL)	**PR**	PUBLIC FACILITIES & RECREATION			

EXPANDED AIRFIELD/ RESORT-COMMERCIAL-INDUSTRIAL ALTERNATIVE POST 2010

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE O-6



EXPLANATION

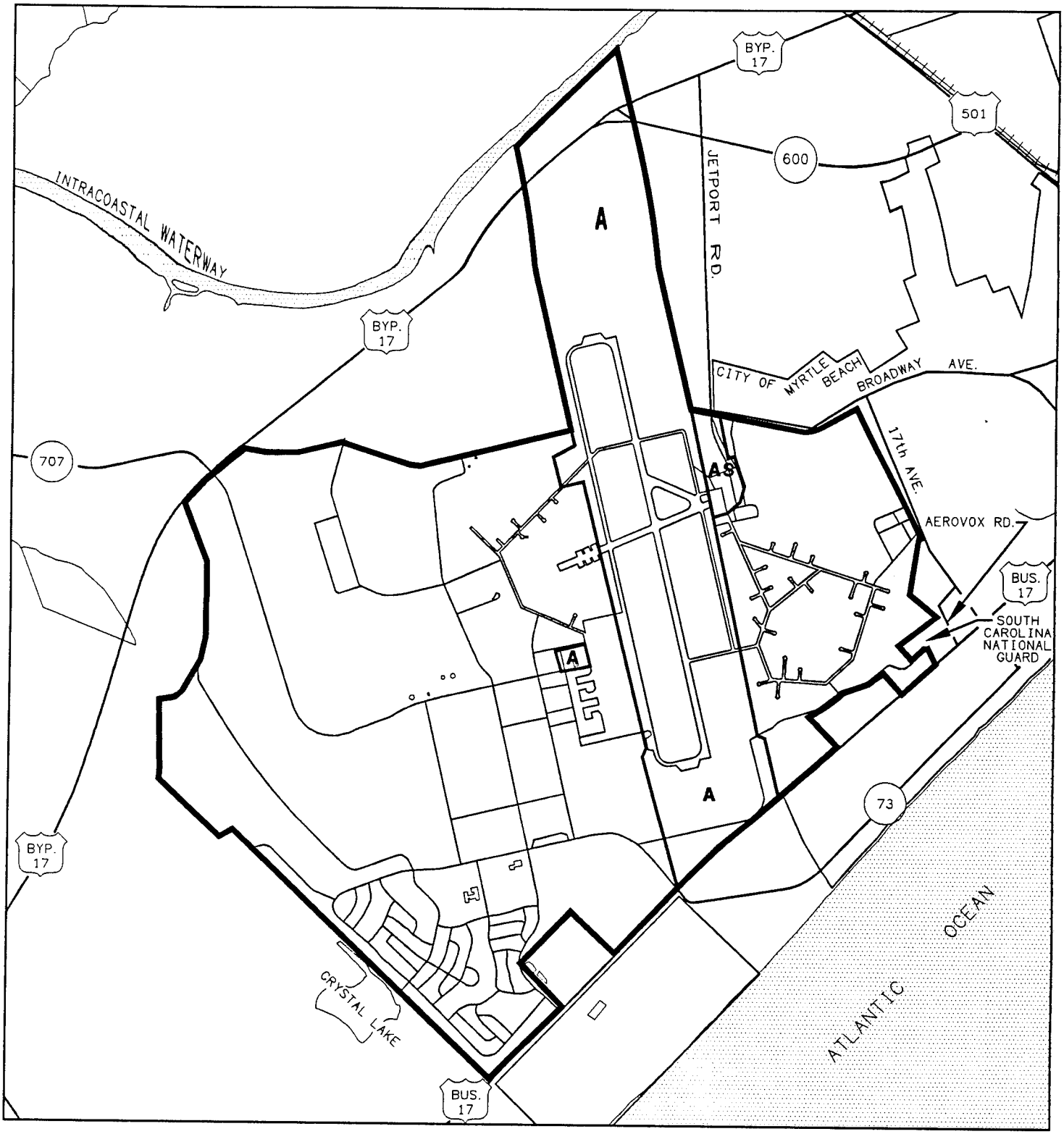
A	AIRFIELD	**INT(E)**	INSTITUTIONAL (EDUCATIONAL)	**AGR**	AGRICULTURE*	*	NOT APPLICABLE
AS	AVIATION SUPPORT	**C**	COMMERCIAL	**V**	VACANT LAND*		
IND	INDUSTRIAL	**R**	RESIDENTIAL				
INT(M)	INSTITUTIONAL* (MEDICAL)	**PR**	PUBLIC FACILITIES & RECREATION				

0 1000 3000 feet

EXISTING AIRFIELD/ MIXED USE ALTERNATIVE

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE O-7



EXPLANATION

A	AIRFIELD	**INT(E)**	INSTITUTIONAL* (EDUCATIONAL)	**AGR**	AGRICULTURE*	* NOT APPLICABLE
AS	AVIATION SUPPORT	**C**	COMMERCIAL*	**V**	VACANT LAND*	
IND	INDUSTRIAL*	**R**	RESIDENTIAL*			
INT(M)	INSTITUTIONAL* (MEDICAL)	**PR**	PUBLIC FACILITIES & RECREATION*			

0 1000 3000 feet

N W E S

NO-ACTION ALTERNATIVE

MYRTLE BEACH AFB, SOUTH CAROLINA

FIGURE O-8

TABLE O-1

Direct Employment by Land Use Category, Myrtle Beach AFB Reuse

Land Use Category	1998					2003					2013				
	P.A.	R.R.	Res./ Comm. /Ind.	M.U.	No-Act.	P.A.	R.R.	Res./ Comm. /Ind.	M.U.	No-Act.	P.A.	R.R.	Res./ Comm. /Ind.	M.U.	No-Act.
Airfield	114	203	224	142	0	346	326	450	248	0	891	583	1,220	373	0
Aviation Support	93	47	144	128	315	442	102	221	389	400	1,108	229	618	746	470
Industrial	535	910	777	1,208	N/A	1,004	1,379	1,185	2,239	N/A	2,429	2,337	2,124	3,441	N/A
Institutional (Medical)	N/A	188	252	N/A	N/A	N/A	193	333	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Institutional (Educational)	44	N/A	N/A	160	N/A	85	N/A	N/A	383	N/A	149	N/A	N/A	672	N/A
Commercial	135	389	969	960	N/A	323	636	1,802	2,089	N/A	544	1,443	3,228	3,638	N/A
Residential	110	49	911	127	N/A	140	52	1,433	217	N/A	N/A	N/A	N/A	305	N/A
Public Facilities & Recreation	2,760	2,165	1,565	323	N/A	4,272	2,998	2,217	525	N/A	4,522	3,686	2,969	714	N/A
Caretaker Status	N/A	N/A	N/A	N/A	60	N/A	N/A	N/A	N/A	60	N/A	N/A	N/A	N/A	60
Total	3,791	3,951	4,842	3,048	375	6,612	5,686	7,641	6,090	460	9,643	8,281	10,159	9,889	530

P.A. = Proposed Action; R.R. = Expanded Airfield/Resort-Recreation; Res./Comm./Ind. = Expanded Airfield/Resort-Commercial-Industrial; M.U. = Existing Airfield/Mixed Use; No-Act. = No-Action.
N/A = Not Applicable.

TABLE O-2

Total Employment[1] by Land Use Category, Myrtle Beach AFB Reuse

Land Use Category	1998					2003					2013				
	P.A.	R.R.	Res./ Comm. /Ind.	M.U.	No-Act.	P.A.	R.R.	Res./ Comm. /Ind.	M.U.	No-Act.	P.A.	R.R.	Res./ Comm. /Ind.	M.U.	No-Act.
Airfield	276.79	489.10	556.47	275.06	153.18	624.59	586.64	813.82	479.33	188.24	1,528.35	912.57	2,152.11	622.42	215.79
Aviation Support	225.80	113.24	328.41	247.94	11.78	761.78	183.55	399.67	432.07	11.76	1,895.39	317.16	1,160.91	1,244.84	15.69
Industrial	1,296.54	2,192.52	1,772.03	2,339.93	N/A	1,812.39	2,481.52	2,141.24	4,077.64	N/A	4,165.81	3,747.75	3,715.85	5,745.30	N/A
Institutional (Medical)	N/A	452.96	574.71	N/A	N/A	N/A	347.30	602.22	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Institutional (Educational)	106.83	N/A	N/A	309.92	N/A	153.44	N/A	N/A	540.09	N/A	251.68	N/A	N/A	1,121.36	N/A
Commercial	327.78	937.24	2,209.91	1,859.55	N/A	583.07	1,144.49	3,258.89	3,240.51	N/A	1,231.22	1,718.53	5,116.97	6,070.69	N/A
Residential	267.08	118.06	2,077.64	246.00	N/A	252.72	93.57	2,591.56	428.69	N/A	N/A	N/A	N/A	2,937.63	N/A
Public Facilities & Recreation	6,701.19	5,213.87	3,525.82	627.60	N/A	7,746.00	5,394.92	4,007.60	1,093.67	N/A	7,781.54	8,086.98	4,755.98	1,191.44	N/A
Caretaker Status	N/A	N/A	N/A	N/A	487.04	N/A	N/A	N/A	N/A	600.00	N/A	N/A	N/A	N/A	690.52
Total	9,202	9,517	11,045	5,906	652	11,934	10,232	13,815	10,292	800	16,854	14,783	17,871	16,505	922

P.A. = Proposed Action; R.R. = Expanded Airfield/Resort-Recreation; Res./Comm./Ind. = Expanded Airfield/Resort-Commercial-Industrial; M.U. = Existing Airfield/Mixed Use; No-Act. = No-Action.
N/A = Not Applicable.
[1]Total employment includes direct, secondary, and construction employment.

TABLE O-3

Population In-migration by Land Use Category, Myrtle Beach AFB Reuse

Land Use Category	1998					2003					2013				
	P.A.	R.R.	Res./ Comm. /Ind.	M.U.	No-Act.	P.A.	R.R.	Res./ Comm. /Ind.	M.U.	No-Act.	P.A.	R.R.	Res./ Comm. /Ind.	M.U.	No-Act.
Airfield	243	330	377	184	39	317	366	535	353	48	356	539	782	416	60
Aviation Support	222	188	222	166	3	388	284	206	249	3	287	126	466	833	4
Industrial	841	1,628	1,199	1,570	N/A	920	1,153	1,912	2,031	N/A	1,657	2,423	2,494	3,842	N/A
Institutional (Medical)	N/A	316	389	N/A	N/A	N/A	91	348	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Institutional (Educational)	175	N/A	N/A	207	N/A	78	N/A	N/A	171	N/A	136	N/A	N/A	750	N/A
Commercial	262	498	1,496	1,245	N/A	2,208	1,465	1,490	1,420	N/A	297	1,032	3,105	4,059	N/A
Residential	239	189	1,409	163	N/A	128	86	745	136	N/A	N/A	N/A	N/A	341	N/A
Public Facilities & Recreation	4,125	3,167	2,242	419	N/A	3,934	3,395	3,987	2,534	N/A	8,524	5,752	5,085	800	N/A
Caretaker Status	N/A	N/A	N/A	N/A	37	N/A	N/A	N/A	N/A	102	N/A	N/A	N/A	N/A	149
Total	6,107	6,316	7,334	3,954	79	4,973	6,840	9,223	6,894	153	11,257	9,872	11,932	11,041	231

P.A. = Proposed Action; R.R. = Expanded Airfield/Resort-Recreation; Res./Comm./Ind. = Expanded Airfield/Resort-Commercial-Industrial; M.U. = Existing Airfield/Mixed Use; No-Act. = No-Action.
N/A = Not Applicable.

TABLE O-4

Land Use Impacts by Land Use Category, Myrtle Beach AFB Reuse
(acres)

Land Use Category	1998					2003					2013				
	P.A.	R.R.	Res./ Comm. /Ind.	M.U.	No-Act.	P.A.	R.R.	Res./ Comm. /Ind.	M.U.	No-Act.	P.A.	R.R.	Res./ Comm. /Ind.	M.U.	No-Act.
Airfield	1,159	1,540	1,510	875	905	1,159	1,540	1,510	875	905	1,445	1,614	1,605	875	905
Aviation Support	231	62	62	62	32	231	62	62	62	32	279	62	62	62	32
Industrial	446	305	416	1,082	N/A	446	305	416	1,082	N/A	446	305	416	1,082	N/A
Institutional (Medical)	N/A	41	50	N/A	N/A	N/A	41	50	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Institutional (Educational)	234	N/A	N/A	360	N/A	234	N/A	N/A	360	N/A	185	N/A	N/A	360	N/A
Commercial	214	260	244	86	N/A	214	260	244	86	N/A	91	260	244	86	N/A
Residential	117	33	45	230	N/A	117	33	45	230	N/A	N/A	N/A	N/A	230	N/A
Public Facilities & Recreation	1,343	1,503	1,417	1,049	N/A	1,343	1,503	1,417	1,049	N/A	1,298	1,503	1,417	1,049	N/A
Caretaker Status	N/A	N/A	N/A	N/A	2,807	N/A	N/A	N/A	N/A	2,807	N/A	N/A	N/A	N/A	2,807
Total	3,744	3,744	3,744	3,744	3,744	3,744	3,744	3,744	3,744	3,744	3,744	3,744	3,744	3,744	3,744

P.A. = Proposed Action; R.R. = Expanded Airfield/Resort-Recreation; Res./Comm./Ind. = Expanded Airfield/Resort-Commercial-Industrial; M.U. = Existing Airfield/Mixed Use; No-Act. = No-Action.
N/A = Not Applicable.

TABLE O-5

Transportation Impacts by Land Use Category, Myrtle Beach AFB Reuse
(Average Daily Trips)

Land Use Category	1998					2003					2013				
	P.A.	R.R.	Res./ Comm. /Ind.	M.U.	No-Act.	P.A.	R.R.	Res./ Comm. /Ind.	M.U.	No-Act.	P.A.	R.R.	Res./ Comm. /Ind.	M.U.	No-Act.
Airfield	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aviation Support	6,220	6,219	6,193	6,199	5,301	9,043	9,081	9,052	8,980	7,935	11,000	11,047	11,010	10,163 (10,923)	9,615
Industrial	7,271	6,614	5,874	6,296	N/A	12,536	44,095	9,391	13,338	N/A	19,190	17,069	13,643	22,246	N/A
Institutional (Medical)	N/A	3,145	3,145	N/A	N/A	N/A	11,095	3,145	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Institutional (Educational)	1,963	N/A	N/A	1,963	N/A	3,423	N/A	N/A	3,423	N/A	4,695	N/A	N/A	4,695	N/A
Commercial	11,368	10,834	21,463	15,323	N/A	21,036	14,920	30,906	26,690	N/A	29,727	20,131	38,234	38,128	N/A
Residential	519	173	251	1,033	N/A	519	173	251	1,033	N/A	N/A	N/A	N/A	0	N/A
Public Facilities & Recreation	37,592	37,640	37,248	6,466	N/A	50,396	50,444	50,052	6,472	N/A	51,861	51,909	51,517	6,472	N/A
Construction Activities	2,549	2,116	3,000	699	0	2,423	2,809	2,822	649	0	0	0	0	0	0
Caretaker Status	N/A	N/A	N/A	N/A	300	N/A	N/A	N/A	N/A	300	N/A	N/A	N/A	N/A	300
Total	67,462	66,741	77,174	37,979	5,601	99,376	91,667	105,619	60,585	8,235	116,473	100,156	114,404	82,737 (83,497)	9,915

P.A. = Proposed Action; R.R. = Expanded Airfield/Resort-Recreation; Res./Comm./Ind. = Expanded Airfield/Resort-Commercial-Industrial; M.U. = Existing Airfield/Mixed Use; No-Act. = No-Action.
N/A = Not Applicable.
(#) = Effects of optional runway.

TABLE O-6

Water Demand by Land Use Category, Myrtle Beach AFB Reuse
(million gallons per day)

Land Use Category	1998					2003					2013				
	P.A.	R.R.	Res./ Comm. /Ind.	M.U.	No-Act.	P.A.	R.R.	Res./ Comm. /Ind.	M.U.	No-Act.	P.A.	R.R.	Res./ Comm. /Ind.	M.U.	No-Act.
Airfield	0.060	0.100	0.102	0.029	0.012	0.140	0.144	0.164	0.056	0.014	0.108	0.185	0.222	0.082	0.014
Aviation Support	0.026	0.025	0.064	0.027	0.001	0.170	0.039	0.082	0.089	0.001	0.088	0.051	0.139	0.165	0.001
Industrial	0.277	0.463	0.343	0.249	N/A	0.405	0.590	0.438	0.510	N/A	0.501	0.808	0.749	0.759	N/A
Institutional (Medical)	N/A	0.100	0.114	N/A	N/A	N/A	0.079	0.123	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Institutional (Educational)	0.022	N/A	N/A	0.034	N/A	0.035	N/A	N/A	0.087	N/A	0.040	N/A	N/A	0.148	N/A
Commercial	0.070	0.188	0.419	0.198	N/A	0.129	0.275	0.657	0.476	N/A	0.089	0.373	0.915	0.802	N/A
Residential	0.057	0.025	0.394	0.027	N/A	0.056	0.026	0.534	0.050	N/A	N/A	N/A	N/A	0.067	N/A
Public Facilities & Recreation	1.438	1308 9	0.674	0.236	N/A	1.726	1.297	0.821	0.122	N/A	2.594	1.734	1.445	0.156	N/A
Caretaker Status	N/A	N/A	N/A	N/A	0.037	N/A	N/A	N/A	N/A	0.045	N/A	N/A	N/A	N/A	0.045
Total	1.950	1.990	2.110	0.800	0.050	2.660	2.450	2.820	1.390	0.006	3.420	3.150	3.470	2.180	0.060

P.A. = Proposed Action; R.R. = Expanded Airfield/Resort-Recreation; Res./Comm./Ind. = Expanded Airfield/Resort-Commercial-Industrial; M.U. = Existing Airfield/Mixed Use; No-Act. = No-Action.
N/A = Not Applicable.

TABLE O-7

Wastewater Generation by Land Use Category, Myrtle Beach AFB Reuse
(millon gallons per day)

Land Use Category	1998					2003					2013				
	P.A.	R.R.	Res./ Comm. /Ind.	M.U.	No-Act.	P.A.	R.R.	Res./ Comm. /Ind.	M.U.	No-Act.	P.A.	R.R.	Res./ Comm. /Ind.	M.U.	No-Act.
Airfield	0.050	0.085	0.086	0.025	0.009	0.108	0.122	0.139	0.048	0.012	0.092	0.157	0.188	0.070	0.012
Aviation Support	0.022	0.021	0.054	0.023	0.001	0.123	0.033	0.070	0.076	0.001	0.075	0.043	0.118	0.141	0.001
Industrial	0.235	0.393	0.291	0.212	N/A	0.413	0.501	0.371	0.433	N/A	0.425	0.702	0.635	0.648	N/A
Institutional (Medical)	N/A	0.085	0.097	N/A	N/A	N/A	0.067	0.104	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Institutional (Educational)	0.019	N/A	N/A	0.028	N/A	0.027	N/A	N/A	0.74	N/A	0.064	N/A	N/A	0.126	N/A
Commercial	0.059	0.159	0.356	0.169	N/A	0.100	0.234	0.557	0.404	N/A	0.075	0.340	0.775	0.684	N/A
Residential	0.048	0.021	0.334	0.023	N/A	0.043	0.022	0.452	0.042	N/A	N/A	N/A	N/A	0.057	N/A
Public Facilities & Recreation	1.217	0.925	0.572	0.200	N/A	1.437	1.101	0.696	0.103	N/A	2.200	1.429	1.224	0.133	N/A
Caretaker Status	N/A	N/A	N/A	N/A	0.030	N/A	N/A	N/A	N/A	0.038	N/A	N/A	N/A	N/A	0.037
Total	1.650	1.690	1.790	.0680	0.040	2.260	2.080	2.390	1.180	0.050	2.900	2.670	2.940	1.850	0.050

P.A. = Proposed Action; R.R. = Expanded Airfield/Resort-Recreation; Res./Comm./Ind. = Expanded Airfield/Resort-Commercial-Industrial; M.U. = Existing Airfield/Mixed Use; No-Act. = No-Action.
N/A = Not Applicable.

TABLE O-8

Solid Waste Generation by Land Use Category, Myrtle Beach AFB Reuse
(tons per day)

Land Use Category	1998					2003					2013				
	P.A.	R.R.	Res./ Comm. /Ind.	M.U.	No-Act.	P.A.	R.R.	Res./ Comm. /Ind.	M.U.	No-Act.	P.A.	R.R.	Res./ Comm. /Ind.	M.U.	No-Act.
Airfield	0.667	1.132	1.263	0.520	0.138	1.497	1.135	1.917	1.000	0.173	1.369	2.321	2.725	1.490	0.197
Aviation Support	0.292	0.283	0.789	0.472	0.005	1.825	0.391	0.859	1.575	0.011	1.034	0.595	1.706	2.981	0.014
Industrial	3.098	5.236	4.261	4.393	N/A	4.334	5.872	5.111	9.028	N/A	5.889	9.121	9.195	12.723	N/A
Institutional (Medical)	N/A	1.132	1.420	N/A	N/A	N/A	0.783	1.429	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Institutional (Educational)	0.250	N/A	N/A	0.590	N/A	0.371	N/A	N/A	1.545	N/A	0.470	N/A	N/A	2.670	N/A
Commercial	0.778	20123	5.208	3.495	N/A	1.383	2.740	7.666	8.422	N/A	1.046	4.379	11.233	14.499	N/A
Residential	0.639	0.283	4.893	0.472	N/A	0.599	0.261	6.229	0.879	N/A	N/A	N/A	N/A	1.211	N/A
Public Facilities & Recreation	16.076	12.311	8.365	4.157	N/A	18.491	12.918	9.583	2.151	N/A	30.491	18.785	17.740	2.825	N/A
Caretaker Status	N/A	N/A	N/A	N/A	0.447	N/A	N/A	N/A	N/A	0.548	N/A	N/A	N/A	N/A	0.629
Total	21.800	22.500	26.200	14.100	0.590	28.500	24.400	32.900	24.600	0.73	40.200	35.200	42.600	39.400	0.84

P.A. = Proposed Action; R.R. = Expanded Airfield/Resort-Recreation; Res./Comm./Ind. = Expanded Airfield/Resort-Commercial-Industrial; M.U. = Existing Airfield/Mixed Use; No-Act. = No-Action.
N/A = Not Applicable.

TABLE O-9

Electricity Demand by Land Use Category, Myrtle Beach AFB Reuse
(megawatt hours per day)

Land Use Category	1998					2003					2013				
	P.A.	R.R.	Res./ Comm. /Ind.	M.U.	No-Act.	P.A.	R.R.	Res./ Comm. /Ind.	M.U.	No-Act.	P.A.	R.R.	Res./ Comm. /Ind.	M.U.	No-Act.
Airfield	3.943	6.707	7.455	3.073	0.825	8.835	8.488	11.336	5.913	1.012	7.500	15.908	16.109	8.813	1.161
Aviation Support	1.725	1.677	4.660	2.794	0.063	10.770	2.315	5.668	9.318	0.063	6.111	3.337	10.087	17.636	0.084
Industrial	18.320	31.019	25.162	25.984	N/A	25.579	34.725	30.229	53.398	N/A	34.792	53.053	54.351	84.155	N/A
Institutional (Medical)	N/A	6.707	8.387	N/A	N/A	N/A	4.630	8.502	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Institutional (Educational)	1.479	N/A	N/A	2.492	N/A	2.188	N/A	N/A	9.139	N/A	2.778	N/A	N/A	15.790	N/A
Commercial	4.601	12.575	30.754	20.675	N/A	8.162	16.205	45.344	49.814	N/A	6.181	23.458	66.397	85.745	N/A
Residential	3.779	1.677	28.890	2.794	N/A	3.534	1.543	36.842	5.196	N/A	N/A	N/A	N/A	7.161	N/A
Public Facilities & Recreation	95.052	72.938	49.392	24.587	N/A	109.132	76.398	56.680	12.722	N/A	180.139	112.243	104.856	16.708	N/A
Caretaker Status	N/A	N/A	N/A	N/A	2.622	N/A	N/A	N/A	N/A	3.225	N/A	N/A	N/A	N/A	3.715
Total	128.900	133.300	154.700	83.400	2.510	168.200	144.300	194.600	145.500	4.300	237.500	208.000	251.800	233.000	4.960

P.A. = Proposed Action; R.R. = Expanded Airfield/Resort-Recreation; Res./Comm./Ind. = Expanded Airfield/Resort-Commercial-Industrial; M.U. = Existing Airfield/Mixed Use; No-Act. = No-Action.
N/A = Not Applicable.

TABLE O-10

Natural Gas Demand by Land Use Category, Myrtle Beach AFB Reuse
(therms per day)

Land Use Category	1998					2003					2013				
	P.A.	R.R.	Res./ Comm. /Ind.	M.U.	No-Act.	P.A.	R.R.	Res./ Comm. /Ind.	M.U.	No-Act.	P.A.	R.R.	Res./ Comm. /Ind.	M.U.	No-Act.
Airfield	213.0	362.3	402.9	166.1	44.5	477.4	454.6	612.2	319.4	56.7	405.2	717.8	870.1	476.2	62.7
Aviation Support	93.2	90.6	251.8	151.0	3.4	582.0	124.0	306.1	503.3	3.4	330.1	205.5	544.8	952.4	4.6
Industrial	989.5	1,675.5	1,359.9	1,404.5	N/A	1,382.2	1,879.7	1,632.6	2,884.2	N/A	1,879.5	2,807.2	2,935.6	4,385.2	N/A
Institutional (Medical)	N/A	362.3	453.3	N/A	N/A	N/A	248.0	459.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Institutional (Educational)	79.9	N/A	N/A	188.8	N/A	118.2	N/A	N/A	493.6	N/A	150.1	N/A	N/A	853.2	N/A
Commercial	248.5	679.2	1,662.1	1,117.6	N/A	441.0	867.9	2,448.9	2,690.6	N/A	333.9	1,373.7	3,586.2	4,633.2	N/A
Residential	204.1	90.6	1,561.4	151.0	N/A	191.0	82.7	1,989.8	280.7	N/A	N/A	N/A	N/A	386.9	N/A
Public Facilities & Recreation	5,133.9	3,939.6	2,669.5	1,329.0	N/A	5,897.2	4,141.3	3,061.2	687.2	N/A	9,731.3	6,145.9	5,663.4	902.8	N/A
Caretaker Status	N/A	N/A	N/A	N/A	141.6	N/A	N/A	N/A	N/A	174.4	N/A	N/A	N/A	N/A	200.6
Total	6,962	7,200	8,361	4,508	189.5	9,089	7,798	10,510	7,859	232.5	12,830	11,250	13,600	12,590	267.8

P.A. = Proposed Action; R.R. = Expanded Airfield/Resort-Recreation; Res./Comm./Ind. = Expanded Airfield/Resort-Commercial-Industrial; M.U. = Existing Airfield/Mixed Use; No-Act. = No-Action.
N/A = Not Applicable.

TABLE O-11

Hazardous Substances Usage[1] by Land Use Category, Myrtle Beach AFB Reuse, 1998-2013

Land Use Category	Proposed Action	Expanded Airfield/Resort-Recreation	Expanded Airfield/Resort-Commercial-Industrial	Existing Airfield/ Mixed Use	No-Action
Airfield	Aviation fuels, ethylene glycol, diesel, AFFF, heating oil				
Aviation Support	Fuels, solvents, paints, hydraulic fluids, heating oil, other petroleums, plating waste	Fuels, solvents, paints, hydraulic fluids, heating oil, other petroleums, plating waste	Fuels, solvents, paints, hydraulic fluids, heating oil, other petroleums, plating waste	Fuels, solvents, paints, hydraulic fluids, heating oil, other petroleums, plating waste	
Industrial	Fuels, solvents, paints, other petroleums, ignitables, cyanides, corrosives, metals waste, cleansers	Fuels, solvents, paints, other petroleums, ignitables, cyanides, corrosives, metals waste, cleansers	Fuels, solvents, paints, other petroleums, ignitables, cyanides, corrosives, metals waste, cleansers	Fuels, solvents, paints, other petroleums, ignitables, cyanides, corrosives, metals waste, cleansers	N/A
Institutional (Medical)	N/A	Laboratory chemicals, photochemicals, ionizing radiation source (x-ray), heating oil, drugs and other medical supplies, pressurized gas cylinders, cleansers, disinfectants, biohazardous waste, fuels and oils associated with grounds maintenance	Laboratory chemicals, photochemicals, ionizing radiation source (x-ray), heating oil, drugs and other medical supplies, pressurized gas cylinders, cleansers, disinfectants, biohazardous waste, fuels and oils associated with grounds maintenance	N/A	N/A
Institutional (Educational)	Laboratory chemicals, heating oil, cleansers, fuels and oils associated with grounds maintenance, possibly photochemicals, printing and copy machine chemicals	N/A	N/A	Laboratory chemicals, heating oil, cleansers, fuels and oils associated with grounds maintenance, possibly photochemicals, printing and copy machine chemicals	N/A
Commercial	Fuels, solvents, paints, pesticides, cleansers	Fuels, solvents, paints, pesticides, cleansers	Fuels, solvents, paints, pesticides, cleansers	Fuels, solvents, paints, pesticides, cleansers	N/A
Residential	Fuels, waste oil, pesticides, fertilizers, chlorine, cleaners	Fuels, waste oil, pesticides, fertilizers, chlorine, cleaners	Fuels, waste oil, pesticides, fertilizers, chlorine, cleaners	Fuels, waste oil, pesticides, fertilizers, chlorine, cleaners	N/A
Public Facilities & Recreation	Pesticides, fertilizers, corrosives, fuels, paint, solvents, cleaners, lead	Pesticides, fertilizers, corrosives, fuels, paint, solvents, cleaners, lead	Pesticides, fertilizers, corrosives, fuels, paint, solvents, cleaners, lead	Pesticides, fertilizers, corrosives, fuels, paint, solvents, cleaners, lead	N/A
Caretaker Status	N/A	N/A	N/A	N/A	Pesticides, paints and thinner

N/A = Not Applicable.

[1]Quantities of hazardous materials used will depend on the specific industrial development and are not reported here.

TABLE O-12

Number of Installation Restoration Program Sites by Land Use Category, Myrtle Beach AFB Reuse

Land Use Category	1993				
	Proposed Action	Expanded Airfield/Resort-Recreation	Expanded Airfield/Resort-Commercial-Industrial	Existing Airfield/ Mixed Use	No-Action
Airfield	13	27	25	2	3
Aviation Support	3	NI	NI	NI	NI
Industrial	16	9	13	32	N/A
Institutional (Medical)	N/A	1	1	N/A	N/A
Institutional (Educational)	1	N/A	N/A	5	N/A
Commercial	5	1	1	1	N/A
Residential	NI	NI	NI	NI	N/A
Public Facilities & Recreation	11	13	14	13	N/A
Caretaker Status	N/A	N/A	N/A	N/A	46
Total	49	51	54	53	49

N/A = Not Applicable.
NI = No Impact.
Identified IRP sites as of 1992. The number of sites over the 1994-2013 period would change as remediation measures are implemented for individual sites.
Several IRP sites overlap land use boundaries but are counted in only one category.

TABLE O-13

Soils and Geology Impacts by Land Use Category, Myrtle Beach AFB Reuse
(acres of soils disturbance)

Land Use Category	1998					2003					2013				
	P.A.	R.R.	Res./ Comm. /Ind.	M.U.	No-Act.	P.A.	R.R.	Res./ Comm. /Ind.	M.U.	No-Act.	P.A.	R.R.	Res./ Comm. /Ind.	M.U.	No-Act.
Airfield	0	0	0	0	0	0	0	0	0	0	461	498	602	0 (13)	0
Aviation Support	169	0	0	0	0	0	0	0	0	0	48	0	0	0	0
Industrial	390	85	234	872	N/A	0	0	0	0	N/A	0	0	0	0	N/A
Institutional (Medical)	N/A	0	0	N/A	N/A	N/A	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Institutional (Educational)	0	N/A	N/A	0	N/A	0	N/A	N/A	0	N/A	0	N/A	N/A	0	N/A
Commercial	91	260	244	86	N/A	0	0	0	0	N/A	0	0	0	0	N/A
Residential	0	0	0	0	N/A	0	0	0	0	N/A	N/A	N/A	N/A	0	N/A
Public Facilities & Recreation	800	870	915	485	N/A	0	0	0	0	N/A	0	0	0	0	N/A
Caretaker Status	N/A	N/A	N/A	N/A	0	N/A	N/A	N/A	N/A	0	N/A	N/A	N/A	N/A	0
Total	1,450	1,215	1,393	1,443	0	0	0	0	0	0	509	498	602	0 (13)	0

P.A. = Proposed Action; R.R. = Expanded Airfield/Resort-Recreation; Res./Comm./Ind. = Expanded Airfield/Resort-Commercial-Industrial; M.U. = Existing Airfield/Mixed Use; No-Act. = No-Action.
N/A = Not Applicable.
(#) = Effects of optional runway.

TABLE O-14

Air Quality Impacts by Land Use Category, Myrtle Beach AFB Reuse
(total emissions in tons/day)

Land Use Category	1998					2003					2013				
	P.A.	R.R.	Res./ Comm. /Ind.	M.U.	No-Act.	P.A.	R.R.	Res./ Comm. /Ind.	M.U.	No-Act.	P.A.	R.R.	Res./ Comm. /Ind.	M.U.	No-Act.
Airfield[1]	1.85	1.62	1.71	1.09	0.51	2.05	1.84	1.93	1.30	0.62	2.46	2.33	2.43	1.62 (2.51)	0.74
Aviation Support	1.36	1.00	1.16	1.16	0.02	1.45	1.09	1.24	1.28	0.02	1.64	1.37	1.54	1.33 (1.33)	0.02
Industrial	1.49	1.05	1.16	1.19	N/A	1.77	1.20	1.24	1.57	N/A	2.27	1.74	1.69	2.17 (2.17)	N/A
Institutional (Medical)	N/A	0.79	0.89	N/A	N/A	N/A	0.69	0.82	N/A	N/A	N/A	N/A	N/A	N/A (N/A)	N/A
Institutional (Educational)	0.95	N/A	N/A	0.82	N/A	0.97	N/A	N/A	0.91	N/A	1.19	N/A	N/A	1.00 (1.00)	N/A
Commercial	1.95	1.37	2.52	1.90	N/A	2.41	1.43	2.65	2.47	N/A	3.17	1.92	3.22	3.24 (3.24)	N/A
Residential	0.82	0.52	0.62	0.76	N/A	0.81	0.52	0.61	0.75	N/A	N/A	N/A	N/A	0.72 (0.72)	N/A
Public Facilities & Recreation	4.54	3.50	3.87	1.19	N/A	4.82	3.63	3.91	1.12	N/A	4.88	2.88	4.10	1.11 (1.11)	N/A
Caretaker Status	N/A	N/A	N/A	N/A	0.01	N/A	N/A	N/A	N/A	NI	N/A	N/A	N/A	N/A	NI
Total	12.96	9.85	11.93	8.11	0.54	14.28	10.40	12.40	9.40	0.64	15.61	11.24	12.98	11.19 (12.08)	0.76

P.A. = Proposed Action; R.R. = Expanded Airfield/Resort-Recreation; Res./Comm./Ind. = Expanded Airfield/Resort-Commercial-Industrial; M.U. = Existing Airfield/Mixed Use; No-Act. = No-Action.
N/A = Not Applicable.
NI = No Impact.
(#) = Effects of optional runway.
[1]For Airfield land use category, emissions are based on the aircraft flying operations; for all other categories, emissions are based on average daily traffic generated by each land use category.

TABLE O-15

Expected Noise Levels by Land Use Category, Myrtle Beach AFB Reuse*, 1998-2013
(typical DNL in dBA)

Land Use Category	1998-2013				
	Proposed Action	Expanded Airfield/Resort-Recreation	Expanded Airfield/Resort-Commercial-Industria	Existing Airfield/ Mixed Use	No-Action
Airfield	50-75	50-75	50-75	50-75	50-75
Aviation Support	60-65	60-65	60-65	60-65	60-64
Industrial	55-65	55-65	55-65	55-65	N/A
Institutional (Medical)	N/A	50-63	50-63	N/A	N/A
Institutional (Educational)	50-63	N/A	N/A	50-63	N/A
Commercial	55-65	55-65	55-65	55-65	N/A
Residential	45-75	45-75	45-75	45-75	N/A
Public Facilities & Recreation	45-75	45-75	45-75	45-75	N/A
Caretaker Status	N/A	N/A	N/A	N/A	45-50

N/A = Not Applicable.
*Noise levels generated by aircraft and/or vehicular traffic. Land uses are both on-base and off-base.

TABLE O-16

Biological Resource Impacts by Land Use Category, Myrtle Beach AFB Reuse
(acres of habitat disturbed)[1]

Land Use Category	Proposed Action	Expanded Airfield/Resort-Recreation	Expanded Airfield/Resort-Commercial-Industrial	Existing Airfield/Mixed Use	No-Action
Airfield	161	55	258	55	55
Aviation Support	142	10	10	NI	NI
Industrial	101	50	96	519	N/A
Institutional (Medical)	N/A	NI	NI	N/A	N/A
Institutional (Educational)	12	N/A	N/A	61	N/A
Commercial	40	34	155	50	N/A
Residential	NI	NI	NI	NI	N/A
Public Facilities & Recreation	1,753	1,072	924	749	N/A
Caretaker Status	N/A	N/A	N/A	N/A	NI
Total	2,209	1,221	1,443	1,434	55

N/A = Not Applicable.
NI = No Impact.
[1]Disturbance over the 1998-2013 period, includes soil and wildlife habitat disturbance.

TABLE O-17

Cultural Resources by Land Use Category, Myrtle Beach AFB Reuse

Land Use Category	Proposed Action	Expanded Airfield/Resort-Recreation	Expanded Airfield/Resort-Commercial-Industria	Existing Airfield/ Mixed Use	No-Action
Airfield	1 NRHP eligible archaeological sites; 1 structure with undetermined NRHP eligibility may be affected.	1 NRHP eligible archaeological sites; 1 structure with undetermined NRHP eligibility may be affected.	1 NRHP eligible archaeological site; 1 structure with undetermined NRHP eligibility may be affected.	NI	NI
Aviation Support	The FOLTA may be affected. 1 structure with undetermined NRHP eligibility may be affected.	NI	NI	NI	NI
Industrial	The FOLTA may be affected.	The FOLTA may be affected.	The FOLTA may be affected.	5 structures with undetermined NRHP eligibility may be affected.	N/A
Institutional (Medical)	N/A	NI	NI	N/A	N/A
Institutional (Educational)	NI	N/A	N/A	NI	N/A
Commercial	NI	NI	1 structure with undetermined NRHP eligibility may be affected.	1 NRHP eligible archeological site may be affected; the FOLTA may be affected.	N/A
Residential	NI	NI	NI	NI	N/A
Public Facilities & Recreation	10 structures with undetermined NRHP eligibility; 1 NRHP eligible archeological site; the FOLTA may be affected.	11 structures with undetermined NRHP eligibility; 1 NRHP eligible archeological site; the FOLTA may be affected.	10 structures with undetermined NRHP eligibility; 1 NRHP eligible archeological site; the FOLTA may be affected.	7 structures with undetermined NRHP eligibility may be affected. 1 NRHP eligible archeological site may be affected; the FOLTA may be affected.	N/A
Caretaker Status	N/A	N/A	N/A	N/A	NI
Total	12 structures with undetermined NRHP eligibility; 2 NRHP eligible archeological sites; the FOLTA may be affected.	12 structures with undetermined NRHP eligibility; 2 NRHP eligible archeological sites; the FOLTA may be affected.	12 structures with undetermined NRHP eligibility; 2 NRHP eligible archeological sites; the FOLTA may be affected.	12 structures with undetermined NRHP eligibility; 2 NRHP eligible archeological site; the FOLTA may be affected.	NI

N/A = Not Applicable.
NI = No impact to NRHP eligible sites and structures.

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