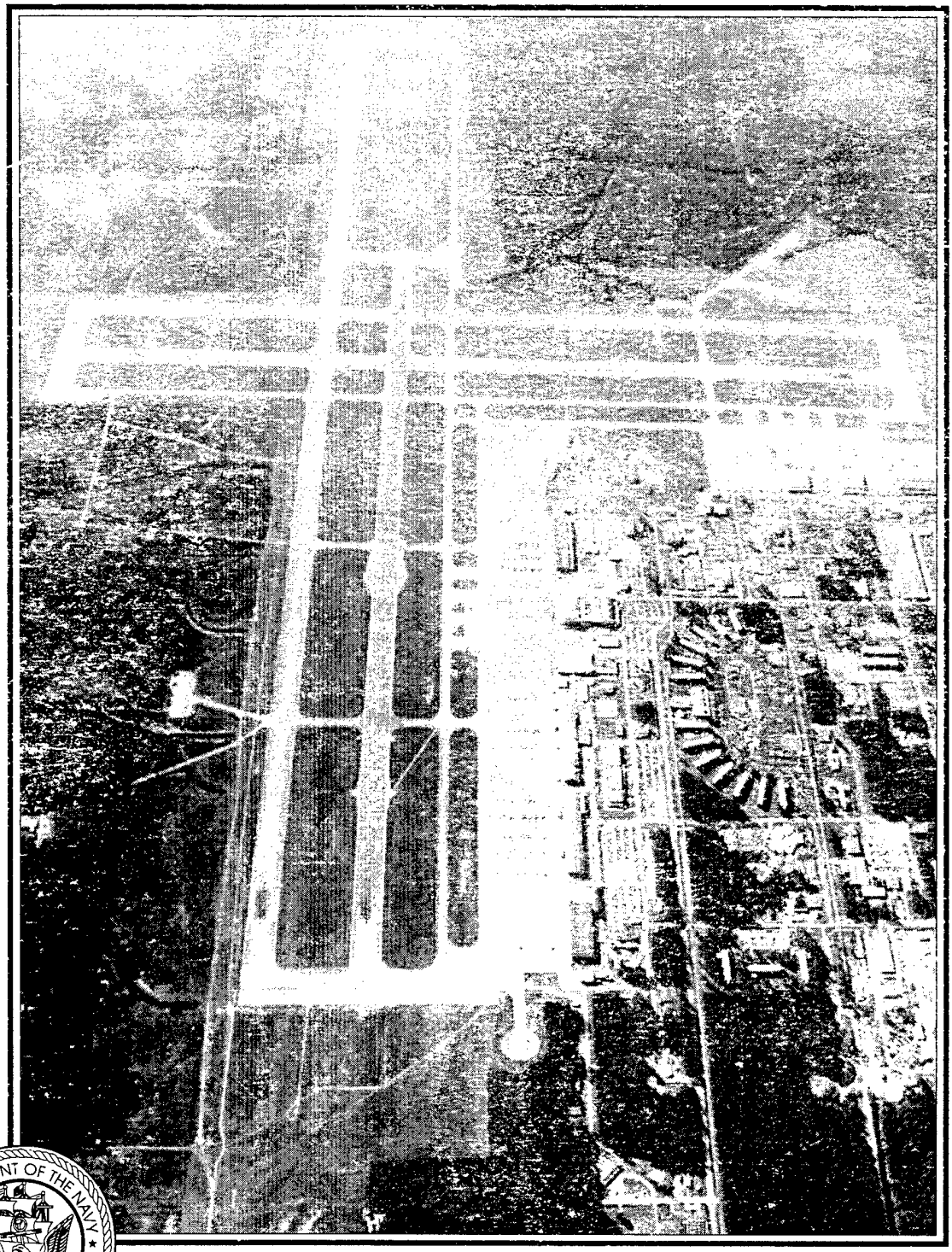
Final Environmental Impact Statement
Disposal and Reuse of Naval Air Station Cecil Field
Jacksonville, Florida



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U.S. Department of the Navy

October 1998

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DEPARTMENT OF THE NAVY
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
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October 21, 1998

For Public Distribution:

Pursuant the National Environmental Policy Act (NEPA), the Department of the Navy has filed a Final Environmental Impact Statement (FEIS) with the U.S. Environmental Protection Agency that evaluates the proposed disposal and reuse of Naval Air Station (NAS) Cecil Field, Jacksonville, Florida, which will be closed pursuant to the mandates of the Base Closure and Realignment Act. A Notice of Availability for the FEIS was published in the *Federal Register* on October 16, 1998. This notice initiates the public comment period on the FEIS. Enclosed is a copy of the FEIS for your review.

Interested parties and agencies are invited to comment on the FEIS. Written comments may be mailed, sent by facsimile, or Internet to the address listed below. Comments must be received no later than **November 23, 1998** to be considered part of the public record.

All written comments should be forwarded to the following address:

Commanding Officer
Southern Division, Naval Facilities Engineering Command
Attn: Mr. Robert Teague, P.E. (Code 064RT)
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Final Environmental Impact Statement
Disposal and Reuse of the Naval Air Station
Cecil Field
Jacksonville, Florida

October 1998

Lead Agency:	U.S. Department of the Navy
Title of Proposed Action:	Disposal of Surplus Property and Subsequent Reuse/of Naval Air Station Cecil Field
Affected Jurisdiction:	City of Jacksonville, Duval County, and Clay County

In accordance with the 1993 Base Closure and Realignment Commission recommendations, Naval Air Station (NAS) Cecil Field will be closed. The proposed action, as addressed by this Final Environmental Impact Statement (FEIS), is the disposal of surplus property and subsequent reuse of NAS Cecil Field. This FEIS includes an analysis of the potential impacts of the proposed alternative reuse scenarios may have on the local community, including land use and aesthetics, terrestrial and aquatic environments, water quality, wetlands, transportation, air quality, noise, socioeconomics, infrastructure, community services, cultural resources, and environmental contamination.

Beneficial impacts associated with implementation of the Preferred Alternative would include the creation/retention of employment and increased availability of recreational facilities. Potential adverse environmental impacts would include impacts to wetlands, threatened and endangered species, storm water runoff, water quality, municipal services, traffic, and air quality. Mitigation measures can be employed to reduce potential impacts to acceptable levels.

For further information, contact:

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Executive Summary

As a result of the 1993 recommendations of the Defense Base Closure and Realignment Commission (Commission), as approved by Congress pursuant to the Defense Base Closure and Realignment Act of 1990 (BRAC), 10 U.S.C. § 2687 (1994), Naval Air Station (NAS) Cecil Field, located in Duval and Clay counties, Florida, will be closed.

The United States Department of the Navy (Navy) has prepared this Final Environmental Impact Statement (FEIS) to evaluate the potential environmental effects of disposal and reuse of the station by other entities pursuant to the *NAS Cecil Field Final Base Reuse Plan* prepared by the Cecil Field Development Commission (CFDC) in 1996.

This FEIS has been prepared in accordance with the National Environmental Policy Act (NEPA), 42 U.S.C. §§ 4321-4370(d) (1994); OPNAVINST 5090.1B; and the Defense Base Closure and Realignment Act of 1990, 10 U.S.C. § 2687 note (see Sec. 2905, Applicability of National Environmental Policy Act of 1969) (1994).

ES.1 Purpose and Need

Closure of NAS Cecil Field was mandated by BRAC for the purpose of reducing the military infrastructure and saving operation and maintenance costs. Disposal of the property is necessary so that Navy does not continue to incur operation and maintenance costs for the facility after it has closed. Operational closure of NAS Cecil Field is scheduled to occur by August 1999.

NAS Cecil Field comprises approximately 31,366 acres (12,699 hectares) of owned or leased property and lands with easement controls within the following areas (Navy 1988; Nelson 1994):

- The Main Station, which is composed of approximately 9,516 acres (3,853 hectares) of Navy-owned or leased land and easement land,

generally located south of Normandy Boulevard (Duval County Route 228);

- The Yellow Water Area, which is composed of approximately 8,091 acres (3,276 hectares) of Navy-owned land, generally located north of Normandy Boulevard;

- The station's Outlying Landing Field (OLF) Whitehouse, which is composed of approximately 2,565 acres (1,038 hectares) of Navy-owned and easement land, located 7 miles (11 kilometers [km]) north of the Main Station at the termination of Halsema Road;

- The Pinecastle Target Complex, located 90 miles (145 km) south of Jacksonville in Lake, Marion, Putnam, and Clay counties, encompassing approximately 11,142 acres (4,511 hectares) of Navy-owned or leased land and easement land in four outlying target ranges; and

- Other outlying sites totaling approximately 52 acres (21 hectares), including the Tactical Aircrew Training System area and consisting of over-water areas and transmitting towers for simulated air-to-air combat training.

This FEIS addresses only the environmental effects of reuse of station properties to be disposed of by Navy, which include approximately 17,202 acres (6,964 hectares) of land at the Main Station and the Yellow Water Area. Properties at or operated by NAS Cecil Field that Navy will retain include OLF Whitehouse; the Yellow Water Family Housing Area (200 units located on 252 acres (102 hectares) in the southwestern portion of the Yellow Water Area); the Pinecastle Target Complex; and the Tactical Aircrew Training System.

ES.2 Alternatives

CFDC formally adopted the *NAS Cecil Field Final Base Reuse Plan* in March 1996 (CFDC 1996). In accordance with Department of Defense (DoD) regulations contained in 32 C.F.R. Part 175.7(d)(3) (1997), this plan is considered the preferred alternative for this FEIS. It should be noted that, subsequent to the adoption of the plan, CFDC was discharged in July 1997 and the Jacksonville Economic Development Commission (JEDC) assumed responsibility for plan implementation.

A major element of the Base Reuse Plan process was the development of a series of alternative reuse scenarios (ARSs) for the station. Following an analysis of the market potential for redevelopment of the station property, requests for land/facilities from various entities, and an assessment of existing development opportunities and physical development constraints (e.g.,

wetlands, significant habitat, contaminated sites), CFDC generated the Preferred Alternative and four ARSs that tested broad concepts for redevelopment.

Proposed Action (Preferred Alternative)

The Preferred Alternative corresponds to the "Aviation Mixed Use" concept discussed is the *NAS Cecil Field Final Base Reuse Plan* (CFDC 1996). Under this plan, portions of NAS Cecil Field not conveyed to other agencies would be aggressively marketed for redevelopment for aviation and other industrial and commercial uses. Job creation would be the primary goal, and significant infrastructure, road improvements, and wetland mitigation via protection of the Natural and Recreation Corridor would be implemented to foster development and protect significant natural resources.

The future land use plan under the Preferred Alternative would include reuse of all aviation facilities (e.g., hangars, runways, maintenance buildings) as a general aviation facility for joint civilian and military use. It is anticipated that some facilities would be used to accommodate Florida National Guard helicopter units. Land on the east side of the Main Station would be retained for future airport expansion and managed as forestry resources in the interim. The NAS Cecil Field golf course and other recreational lands at the Main Station (e.g., Lake Fretwell) and portions of the Yellow Water Area would be reused for passive conservation areas, active parks, recreational facilities, and equestrian uses.

The Preferred Alternative also supports the preservation of a Natural and Recreation Corridor through the western portion of the station. The corridor would include lands that are suitable for long-term conservation, such as stream corridors, wetlands, floodplains, and habitat for species of concern. This concept would support creation of a 20-mile-long (32-km-long) corridor between Cary State Forest and Jennings State Forest. The balance of the property, with the exception of the Natural and Recreation Corridor, would be developed for a variety of industrial and commercial uses. Within the developed area of the Main Station, a significant amount of demolition could occur to clear large areas for redevelopment of heavy-industrial uses such as assembly shops for automotive and aviation parts (CFDC 1996). A full description of the Preferred Alternative is provided in Section 2.2.3 of this FEIS.

Alternative Reuse Scenario 1

ARS 1 corresponds to the "Continued Public Ownership" concept discussed in the *NAS Cecil Field Final Base Reuse Plan* (CFDC 1996). Under this plan, the local community would have land use and regulatory control over the site but would not be directly involved with

redevelopment of the NAS Cecil Field property. The majority of the property would be reused for recreation/forestry, Florida National Guard helicopter operations, and parks and recreation. The remainder of the property would be used by private interests for market-driven development.

The future land use plan under ARS 1 would involve reuse of existing buildings in the developed area of the Main Station by other entities. Selected aviation facilities and office/personnel space at the Main Station would likely be used to support Florida National Guard helicopter operations. The NAS Cecil Field golf course and other recreational lands at the Main Station would be reused for parks and recreation areas open to the general public. All other lands and buildings in the developed portion of the Main Station would be used by private interests for market-driven development, primarily office and industrial uses that could capitalize on the reuse of existing facilities. The balance of the property, consisting of all of the station's several thousand acres of planted pine forest, would be managed as a resource-based recreational facility. A full description of ARS 1 is provided in Section 2.2.4 of this FEIS.

Alternative Reuse Scenario 2

ARS 2 corresponds to the "Local Asset Management" concept discussed in the *NAS Cecil Field Final Base Reuse Plan* (CFDC 1996). Under this plan, only moderate actions would be taken to stimulate new development at the site. Redevelopment efforts would focus on the developed area of the Main Station to identify new users of existing facilities. The Yellow Water Area would not realize new development other than market-driven development around previously disturbed ordnance storage areas.

The future land use plan under ARS 2 would include reuse of all aviation facilities (e.g., hangars, runways, maintenance buildings) as a general aviation facility for joint civilian and military use. ARS 2 includes reuse of recreational facilities by the general public.

The balance of the property would be used by private land interests for market-driven development. This property would be controlled by local zoning. New development would be focused only on lands south of 103rd Street at the Main Station and lands in former ordnance storage areas in the Yellow Water Area to take advantage of existing infrastructure (e.g., roads, sewers, electric). Other lands in the Main Station and the Yellow Water Area would be zoned to be consistent with land west of the site (i.e., forestry). A full description of ARS 2 is provided in Section 2.2.5 of this FEIS.

Alternative Reuse Scenario 3

ARS 3 corresponds to the "Non-Aviation Mixed Use" discussed in the *NAS Cecil Field Final Base Reuse Plan* (CFDC 1996). Under this plan, the ultimate receiving entity would aggressively market and guide redevelopment of the station property for non-aviation use. All aviation facilities would be either renovated for non-aviation use or razed.

The future land use plan for ARS 3 would include the development of a variety of residential, commercial, and industrial uses. Land in the eastern portion of the Main Station would be utilized for a new planned residential community. Land south of Normandy Boulevard and north of 103rd Street would be developed for commercial uses to support this residential community. Land in the eastern and northern portions of the Yellow Water Area would be developed for light-industrial facilities. Land in the western portion of both the Main Station and the Yellow Water Area would be developed for manufacturing uses. The southern portion of the Main Station would be reserved for conservation and mitigation areas to compensate for proposed development in other areas of the station.

The developed area of the Main Station would be developed into a large-scale business park or business incubator development, and existing buildings and roads would be reused to the greatest extent practicable. A full description of ARS 3 is provided in Section 2.2.6 of this FEIS.

Alternative Reuse Scenario 4

ARS 4 corresponds to an earlier version of the CFDC's Final Reuse Plan for the station that was subsequently amended in March 1996 (CFDC 1996). Similar to the Preferred Alternative, ARS 4 would involve aggressively marketing redevelopment of the station property for aviation and other industrial uses. The major difference between ARS 4 and the Preferred Alternative would be the inclusion of two major new institutional facilities under ARS 4.

The future land use plan under ARS 4 would include reuse of all aviation facilities (e.g., hangars, runways, maintenance buildings) as a general aviation facility for joint civilian and military use. Anticipated aircraft operations would be similar to those under the Preferred Alternative.

As under the other scenarios, the NAS Cecil Field golf course and other recreational lands at the Main Station and Yellow Water Area would be open for public use.

The two major institutional uses would include:

- Land in the existing ordnance storage areas of the Yellow Water Area, as well as a buffer area surrounding this compound, would be used for development of a new 5,000-bed state corrections facility; and

- Land and buildings in the southern portion of the Yellow Water Area would be used for development of a juvenile justice facility.

The balance of the property would be developed for a variety of industrial and commercial uses. Within the developed area of the Main Station, a significant amount of demolition would occur to clear large areas for development of heavy-industrial uses such as assembly shops for automotive and aviation parts. A full description of ARS 4 is provided in Section 2.2.7 of this FEIS.

No-Action Alternative

Under the No-Action Alternative, Navy would retain ownership of the NAS Cecil Field Property and maintain the property in caretaker status. All operations at the facility would cease, and activities and personnel would be realigned as recommended by the BRAC Commission. All personnel property would be removed from buildings, which would be boarded up to minimize structural deterioration. The perimeter of the base would be secured, and public access would be prohibited.

Development of this alternative would be contrary to the intent of the President's five-part-plan to revitalize base closure communities, which encourages economic redevelopment of former military bases to offset the effects to host communities. Holding NAS Cecil Field in caretaker status would not benefit the community.

ES.3 Summary of Environmental Impacts

Redevelopment and reuse of the property will be the responsibility of the ultimate receiving entity and individual project sponsors, not Navy. As such, these entities, along with local, state, and other federal agencies, will ultimately be responsible for ensuring that redevelopment occurs, appropriate permits and approvals are obtained, and suggested mitigation measures are implemented.

ES.3.1 Land Use and Aesthetics

Preferred Alternative. Although significant areas of the station are constrained by features such as wetlands and habitats of species of concern, the station contains large parcels that could reasonably support new development. The station's development potential, which would be used if development occurred only on areas without documented constraints, was

estimated using the floor area ratio (FAR) standards contained in CFDC's Base Reuse Plan. While the CFDC projects approximately 3.9 million square feet (362,322 square meters) of additional development under the 2010 Preferred Alternative at buildout, the constraint analysis showed that over 29 million square feet (2,694,187 square meters) of development could be supported without directly affecting environmentally sensitive features. Therefore, projected development under the Preferred Alternative could be implemented without significantly affecting constrained areas. Also, with the establishment of the Natural and Recreation Corridor, approximately 6,306 acres (2,552 ha) of the station would be set aside for the protection and enhancement of environmental features.

The proposed internal land use pattern represents a mixture of land uses that are generally compatible. Although proposed parks and recreation land use at the Main Station would be ideal given the existing facilities, this activity would not be entirely consistent with the proposed adjacent heavy-industrial areas to the east and aviation-related uses to the south. Other land uses would be considered compatible with each other.

The Preferred Alternative would generally be compatible with the uses adjacent to NAS Cecil Field. The light-industrial area that extends from the northern boundary of the Yellow Water Area south to Normandy Boulevard would be near mixed land uses including low-density residential and commercial activities. Although light-industrial uses adjacent to low-density residential areas may be considered incompatible, the low FAR proposed in the plan and the preservation of natural surroundings would minimize this incompatibility. Other land uses would be considered compatible with land uses external to NAS Cecil Field.

Internal and external land use compatibility would be maintained as the conceptual land uses are reconfigured depending on market demand. Land use compatibility would be maintained through review by the Jacksonville Planning and Development Department, the Florida Department of Community Affairs, and the Northeast Florida Regional Planning Council.

Overall, the redevelopment of NAS Field would influence the growth pattern in the southwest district of Jacksonville's urban service area by providing for a variety of commercial and industrial employment activities, rather than the singular use of the property as a military airfield.

Development of the Preferred Alternative would change the aesthetic features of the property, but the overall character of the station would not change significantly. At the Main Station, implementation of the plan would result in improvements to the aesthetic resources. As part of the plan, the less desirable and unusable structures and utilities would be removed. Many

of the existing positive visual features, such as the tall pine trees that are dominant in the undeveloped areas, would remain.

The Yellow Water Area consists primarily of forested areas and wetlands. Development of the site with heavy- and light-industrial activities would result in a slight degradation of the visual components of the natural setting. The aesthetic impacts to the Yellow Water Area would be offset through FAR controls, creation of the Natural and Recreation Corridor, establishment of buffers, landscaping, and sensitive design consideration in the siting of new industrial establishments.

Alternative Reuse Scenario 1. Because development would be limited to currently developed areas of the Main Station, environmental features would not be significantly affected by this scenario. No significant internal land use inconsistencies would result from implementing this ARS. Although ARS 1 capitalizes on the forestry assets at the station, it would not take advantage of the valuable aviation assets. However, there would be a greater possibility for incompatible market-driven development at the Main Station. No significant external land use inconsistencies would result from implementing this ARS.

Implementation of this ARS would result in short- and long-term aesthetic impacts in previously developed areas of the station. It is expected that existing buildings would deteriorate and only necessary maintenance of structures would occur, as consistent with a caretaker approach (i.e., buildings awaiting reuse).

Alternative Reuse Scenario 2. Environmental features would not significantly affect the implementation of ARS 2. Approximately 500,000 square feet of new development could be realized under ARS 2 (CFDC 1996). However, development that would be allowed using FAR standards would total over 24 million square feet. Therefore, projected development could reasonably be implemented without affecting constrained land areas. Because new development would be very limited and center around already disturbed areas, it is unlikely that internal land use conflicts would result. No significant external land use inconsistencies would result from implementing ARS 2. However, based on the limited amount of proactive planning and development under ARS 2, there would be a potential for existing facilities at the station to deteriorate after disposal.

Alternative Reuse Scenario 3. While industrial and commercial development under ARS 3 would not be significantly affected by development constraints, the planned residential

development would be impeded by environmental features at the station, if developed at the assumed density (i.e., one unit per 1 acre). Nevertheless, it is likely that the residential development could be "clustered" into smaller lots of 1 acre or less to avoid constrained areas, while maintaining the same overall net yield of residential units.

Development under ARS 3 would not likely result in significant internal land use conflicts. However, by introducing residential uses into the scenario, future conflicts with industrial and manufacturing uses may occur if these areas are not properly buffered from one another. Overall, ARS 3 takes the least advantage of aviation facilities and long-term development of all forestry resources. In turn, ARS 3 would involve the greatest amount of infrastructure investment to facilitate any development activities.

This ARS would result in limited conflicts with off-station land uses and is consistent with mixed-use development goals established in the Jacksonville Comprehensive Plan. However, based on the limited amount of development in this section of the city, extensive development outside the city's existing urban service area could contribute to urban sprawl, altering the anticipated growth patterns in this section and resulting in an unintended need for capital improvements and speculative land ventures. Aesthetic impacts would be similar to the impacts associated with the Preferred Alternative.

Alternative Reuse Scenario 4. Environmental features would not significantly affect the implementation of ARS 4. Internal land use consistency would be similar to that of the Preferred Alternative. The major differences would involve proposed uses of the Yellow Water Area and the absence of the Natural and Recreation Corridor. The corrections and juvenile justice facilities would be adjacent to light industrial activities. This could result in land use conflicts depending on the type and intensity of industrial uses ultimately developed. However, given the FAR standards assumed under ARS 4, new industrial development could be controlled so that it does not adversely affect populations in the corrections or juvenile justice facilities.

The external land use consistency would be similar to that of the Preferred Alternative. Aesthetic impacts would be similar to those of the Preferred Alternative.

No-Action Alternative

Implementation of this alternative would not result in internal or external land use conflicts. Because activities at the site would cease, adjacent land uses would not be negatively impacted.

ES.3.2 Topography, Geology, and Soils

Preferred Alternative. Implementation of the Preferred Alternative would not adversely impact soils on the base, but limited impacts associated with specific construction projects would result in soil compaction, rutting, and exposure to potential erosion. Impacts to soils would be restricted to the area of disturbance only, and would be minimized by the use of standard soil erosion and sedimentation control measures (e.g., hay bales, silt fences) during the construction phase of new projects. As this plan is implemented, site-specific analysis of soil conditions would be conducted in conjunction with the development of soil erosion and sedimentation control plans. Site-specific impacts to soils would be minimized by avoidance of areas where soils may present development constraints (i.e., where a high erosion potential exists).

No impact to local or regional geological resources or topography would result from this plan.

Alternative Reuse Scenario 1. Implementation of ARS 1 would result in impacts similar to those discussed for the Preferred Alternative.

Alternative Reuse Scenario 2. Implementation of ARS 2 would result in impacts similar to those discussed for the Preferred Alternative.

Alternative Reuse Scenario 3. Implementation of ARS 3 would result in impacts similar to those discussed for the Preferred Alternative.

Alternative Reuse Scenario 4. Implementation of ARS 4 would result in impacts similar to those discussed for the Preferred Alternative.

No-Action Alternative

Implementation of this alternative would not result in significant adverse impacts to topography, geology, or soils.

ES.3.3 Terrestrial Resources

Preferred Alternative. Implementation of the Preferred Alternative would result in minor impacts to terrestrial resources in the short-term and interim time frame, and moderate impacts in the long-term time frame. The proposed long-term construction of heavy- and light-industrial developments and additional public buildings and facilities would require land clearing and vegetation removal. In general, these developments would directly impact vegetation and associated wildlife by removing habitats and fragmenting the remaining habitats, which would restrict potential wildlife movements among areas. However, impacts would be minimized by enforcement of the proposed FAR standard by the Jacksonville Planning and Development Department and adoption of city requirements that surrounding native vegetation be retained and connections between habitats, including upland and wetland systems, be maintained.

Based on the large extent of nonwetland area that could be developed and the limited amount of proposed development in the interim, it is unlikely that encroachment into wetlands would be required to accommodate development. Proposed long-term development could impact wetlands, especially the light- and heavy-industrial development in the eastern side of the Yellow Water Area. However, the relatively small amount of land that would actually be developed compared with the total area set aside for development should allow projects to be located in upland areas. Any development plans proposed near known wetland areas would need to comply with the permitting requirements of Section 404 of the Clean Water Act, 33 U.S.C. § 1344(a-t) (1994), as implemented by the U.S. Army Corps of Engineers Regulations, 33 C.F.R. Parts 320-333 (1997); Fla. Stat. Ch. 373, Part IV; and Fla. Admin. Code Ann. Ch. 62.

Proposed long-term development could impact suitable habitats and individual federal- and state-listed species that have special protection status. However, the planned Natural and Recreation Corridor on the west side would assist in mitigating terrestrial impacts on the east side development area. Also, the most intensive development would require relatively small areas; proper project siting could avoid suitable habitats. In general, most of the suitable habitat for species of concern occurs at the Main Station, whereas much of the long-term new development is planned to occur in the Yellow Water Area. Policy 1.4.1 of the Conservation/Coastal Management Sub-Element of the NAS Cecil Field Transition Element, which has been adopted into the City of Jacksonville's 2010 Comprehensive Plan, specifies that the city will require a survey of listed species in areas proposed for new development and site clearing. If the survey indicates the presence of listed species, the city will require the preparation of a habitat management plan that specifies how the listed species will be protected from the impacts of the

proposed development. The plan is to be prepared by a qualified professional and reviewed by the Florida Game and Fresh Water Fish Commission and the U.S. Fish and Wildlife Service (USFWS). Under the requirements of the habitat management plan, the developer may be required to provide for avoidance as well as mitigative measures, such as relocation of listed species.

Alternative Reuse Scenario 1. Overall, ARS 1 would result in the fewest impacts to terrestrial resources (upland and wetland vegetation and wildlife) because of the minimal amount of redevelopment. Proposed development at the Main Station would occur within existing structures; aviation facilities, including runways; other developed areas; and maintained lawn. Reuse of the ordnance storage facilities in the Yellow Water Area would not result in the use or disturbance of additional lands. The remaining lands, consisting of virtually all of the Yellow Water Area and most of the Main Station, would be used for passive recreation and forestry purposes. The resultant extensive greenspace could serve as an important wildlife travel corridor between Cary State Forest, Jennings State Forest, and Camp Blanding. Implementation of ARS 1 would not affect wetland vegetation, wildlife, the current distribution of federal- and state-listed species at the station, or the suitability of habitats.

Alternative Reuse Scenario 2. Implementation of ARS 2 would result in minor impacts to existing biological resources. Most of the station would be maintained in its present state for forestry purposes, and existing facilities would continue to be used. Therefore, the species distribution and composition of upland vegetation and wildlife resources would be similar to current conditions. As such, the loss of vegetation would be minimal and would not impact wildlife habitats. Limited new development would occur in disturbed portions of the Main Station and the Yellow Water Area.

ARS 2 would not result in encroachment on wetlands. The small amount of acreage required for development, compared with the overall size of the general area, would allow for avoidance of wetland areas and prevent direct impacts to wetland resources.

Impacts to suitable habitats for federal- and state-listed species would be similar to those resulting from current operations. Market-driven development in the Yellow Water Area would result in the loss of suitable foraging habitat for the southeastern American kestrel. However, the actual area required for development compared with the areas that would remain undisturbed is minor.

Alternative Reuse Scenario 3. Compared with the other ARSs, ARS 3 would result in a greater disturbance of upland habitats, wetland habitats, and suitable habitats for species of concern. In particular, wetlands would be directly affected through possible hydrologic alterations, and wildlife could receive indirect impacts through restricted movement and habitat fragmentation.

ARS 3 would result in widespread impacts to upland vegetation and wildlife, particularly at the Main Station. Residential development in the eastern part of the Main Station would cause the removal of much of the forest, thereby minimizing the value of this area to wildlife. It would encroach upon numerous acres of hardwood, cypress, and scrub/shrub wetlands in the eastern section of the Main Station. Manufacturing facilities, commercial development, and light-industrial developments would constitute relatively intensive land uses and potentially cause the loss of more upland habitat than the other ARSs.

Most of the Yellow Water Area would be designated for industrial and manufacturing activities. Over half of this area is mapped as wetland, and encroachment on wetlands would occur despite the modest FARs. Creation of the conservation area at the Main Station would preserve some hardwood and pine wetlands.

ARS 3 would potentially result in the direct loss of much suitable habitat for several federal- and state-listed species including the gopher tortoise, Florida mouse, eastern indigo snake, Sherman's fox squirrel, Florida pine snake, Bachman's sparrow, and numerous plant species in drier habitats, and possibly the wood stork in wetland areas. Proposed development at the Main Station probably would directly affect individual gopher tortoises through mortality or significant alteration of occupied habitats. In addition, development throughout the station would fragment suitable habitats, thereby restricting movement of most listed species. Individuals that would not be directly impacted would be isolated from other individuals, potentially resulting in significant impacts to the local population through decreased reproduction. The proposed conservation area south of the Main Station and adjacent to the Brannan Field Mitigation Bank would create a sizeable conservation area, offsetting overall impacts to listed species.

Alternative Reuse Scenario 4. Impacts resulting from implementation of ARS 4 would be similar to those for the Preferred Alternative.

No-Action Alternative

Implementation of this alternative would not result in significant adverse impacts to upland vegetation and wildlife because no site disturbance would occur. It is assumed that, under caretaker status, Navy would continue its long-range forestry management plan to avoid fires or nuisance conditions.

Implementation of this alternative would not result in significant adverse impacts to wetland vegetation and wildlife because site disturbance or encroachment into wetland areas would not occur.

Implementation of this alternative would not result in significant adverse impacts to threatened and endangered species because no site disturbance would occur. Continued periodic harvesting and prescribed burning of selected pinelands would create habitats that would benefit species.

ES.3.4 Water Quality and Hydrology

Preferred Alternative. No significant impacts to surface water hydrology are anticipated from implementation of the Preferred Alternative. No new realignment of streams or physical alteration of wetland systems would be anticipated other than alterations that would provide restorative enhancement to the wetland system in the Natural and Recreation Corridor; therefore, no adverse impacts to surface water flow patterns or reduction of flood retention capacity are anticipated. As new areas of the station are open for development, primarily in the Yellow Water Area, additional stormwater collection, conveyance, and outfall systems will be required to be installed. Redevelopment would not result in a significant increase in off-site stormwater runoff because appropriate stormwater management practices would be implemented in accordance with the requirements of the city of Jacksonville and the environmental resource permitting authority of the St. Johns River Water Management District.

Deactivation of the station's wastewater treatment plant would improve water quality through elimination of effluent discharge and reduction of nutrient loads to Rowell Creek. Potential surface water quality impacts may result from industrial stormwater discharge, or from normal maintenance and use of developed areas (e.g., herbicide and insecticide use, stormwater runoff containing increased levels of oil and gas from roads and parking lots). Adverse impacts to surface water quality could result from the various types of industrial uses through accidental or unpermitted discharges. However, heavy-industrial uses are anticipated to be in the form of clean modern manufacturing operations.

The Preferred Alternative would not impact the availability of groundwater in the area or the quality of the water withdrawn. Little or no recharge of the Floridian aquifer system occurs near NAS Cecil Field. An increase in impervious surface area resulting from development would not significantly decrease the amount of water recharged into the Floridian aquifer system. Overall, implementation of the Preferred Alternative and fulfillment of its associated consumptive-use permits would not cause an exceedance of safe aquifer yields.

Overall, remediation of contaminated groundwater areas would result in improvements to groundwater quality.

Alternative Reuse Scenario 1. Implementation of ARS 1 would not result in any adverse impacts to surface water hydrology or flood retention capacity in the vicinity of the station because existing conditions would be maintained.

Implementation of ARS 1 would not result in any adverse impacts to water quality in the vicinity of the station. Deactivation of the station's wastewater treatment plant would improve water quality through elimination of effluent discharge and reduction of nutrient loads to Rowell Creek. Use of best management practices for forestry would continue, as would proper erosion control measures to prevent the possibility of agriculture runoff .

Implementation of ARS 1 would not result in any adverse impacts to the availability of groundwater in the area or the quality of water withdrawn because existing conditions would be essentially maintained. Remediation of identified contaminated groundwater areas would result in improvements to groundwater quality.

Alternative Reuse Scenario 2. Based on the limited amount of new development planned, implementation of ARS 2 would not result in any adverse impacts to surface water hydrology or flood retention capacity in the vicinity of the station.

Implementation of ARS 2 would not result in any adverse impacts to water quality. Deactivation of the station's wastewater treatment plant would improve water quality through elimination of effluent discharge and reduction of nutrient loads to Rowell Creek. Minor surface water quality impacts may result from normal maintenance and use of developed areas, including herbicide and insecticide use, and stormwater runoff of oil and gas from roads, parking lots, and aviation areas. However, these effects would be less significant than under pre-closure conditions.

Implementation of ARS 2 would not result in any adverse impacts to the availability of groundwater in the area or the quality of water withdrawn. Fulfillment of consumptive-use

permits will not cause an exceedance of safe aquifer yields. Remediation of contaminated groundwater areas would result in improvements to groundwater quality.

Alternative Reuse Scenario 3. Implementation of ARS 3 would potentially impact the surface water hydrology and flood retention capacity on the station property. Development of large tracts of land for manufacturing, light-industrial, and planned residential projects would potentially result in realignment of streams or physical alteration of wetland systems. The significance of impacts from construction and operation of this scenario would depend on the final design. Depending on the extent of development, this scenario would most likely alter natural sheet flow and flow characteristics of streams as a result of the increase in impervious surface area.

Development of large tracts of land for manufacturing, light-industrial, residential, and commercial projects may result in an increased use of pesticides, insecticides, or herbicides for lawn care, and increased levels of oil and gas in stormwater runoff from roads and parking lots. Furthermore, increased water flow intensity and sediment loads resulting from increased runoff velocity over impervious and newly cleared areas may occur from development of large tracts of land for industrial projects.

Deactivation of the station's wastewater treatment plant would improve water quality through elimination of effluent discharge and reduction of nutrient loads to Rowell Creek.

Implementation of ARS 3 would not affect the availability of groundwater in the area. The Floridian aquifer system would not be affected because little or no recharge of significant groundwater occurs near the station. Fulfillment of consumptive-use permits would not cause an exceedance of safe aquifer yields. Remediation of contaminated groundwater areas identified would result in improvements to groundwater quality.

Alternative Reuse Scenario 4. Implementation of ARS 4 would result in impacts similar to those discussed for the Preferred Alternative.

No-Action Alternative

Implementation of this alternative would not result in significant impacts to surface water hydrology. No realignment of streams or physical alteration of the wetland systems would occur.

Deactivation of the station's wastewater treatment plant would improve water quality through elimination of effluent discharge and reduction of nutrient loads to Rowell Creek.

Because no activities would occur at the site, no surface water quality impacts from industrial stormwater discharge or from normal maintenance and use of developed areas (e.g., herbicide and insecticide use, stormwater runoff containing levels of oil and gas from roads and parking lots) would occur.

Implementation of this alternative would not adversely impact groundwater availability or quality. Because impervious surface at the site would not increase, the amount of water recharge into the Floridian aquifer system would not be impacted. With minimal demand for water use at the site, the availability of groundwater would not be impacted. This alternative would not necessitate a change to the existing consumptive use permit.

ES.3.5 Climate and Air Quality

ES.3.5.1 Climate

Neither the Preferred Alternative nor any of the ARSs would have a significant impact on local or regional climate conditions.

ES.3.5.2 Air Quality

Preferred Alternative

The primary air emission sources are expected to be aircraft, mobile-source activity to and from the property, construction activities, and aircraft maintenance facilities.

Between pre-closure conditions and the completion of Phase 2 (2010), volatile organic compound (VOC) emissions would decrease by 422 tons (382 tonnes) per year. Emissions of nitrogen oxides (NO_x) during the same period would decrease by 250 tons (227 tonnes) per year.

Annual emissions of carbon monoxide (CO) would increase by 407 tons (369 tonnes) per year. Annual emissions of particulate matter (PM) would increase by 82 tons (74 tonnes) per year. The increase in CO emissions would be primarily a result of the increase in vehicle miles traveled by employees at the facility. The increase in PM emissions would be solely a result of the construction and demolition projects associated with the Preferred Alternative. Construction PM emissions would cease on completion of the proposed facilities.

After the transfer, the federal agency involved in the action would not retain authority to control air pollutant emissions associated with these lands, nor would it retain authority over any facilities developed or located on these lands. Thus, this action would be exempt from the General Conformity Rule, 40 C.F.R. Part 51.853(c)(2)(xiv) and (xix) (1998). Developers of future facilities would be responsible for obtaining the proper permits prior to development.

Applicable regulations include construction and operating permit procedures for stationary air-pollution-emitting sources, Florida Pre-Construction Review, Fla. Admin. Code Ann. Ch. 62-212 (1997) and Florida Operating Permits, Fla. Admin. Code Ann. Ch. 62-213 (1997); emission standards such as the New Source Performance Standards, 40 C.F.R. Part 60 (1998); and control technology standards.

Alternative Reuse Scenario 1. The primary air emission sources for ARS 1 are expected to be aircraft (Florida National Guard helicopter use only) and mobile source activity to and from the site. New stationary source emissions are anticipated to be minimal because no major facilities that emit air pollutants are planned for construction.

At the completion of Phase 2 (2010), a substantial decrease in emissions of all compounds is anticipated. As with the Preferred Alternative, this action would be exempt from the General Conformity Rule.

Alternative Reuse Scenario 2. The primary air emission sources for ARS 2 are expected to be aircraft, mobile source activity to and from the site, and construction and demolition activities. Aircraft emissions for ARS 2 would be identical to those in the Preferred Alternative because aircraft activity and type would be the same for both scenarios. Stationary source emissions are expected to be significantly lower compared with pre-closure levels.

Projected emissions would decrease significantly from pre-closure conditions to completion of Phase 2 (2010). VOC emissions would decrease by 491 tons (446 tonnes) per year; NO_x emissions would decrease by 374 tons (335 tonnes) per year; and PM emissions would decrease by 7 tons (7 tonnes) per year. CO emissions would decrease by 457 tons (414 tonnes) per year. As with the Preferred Alternative, this action would be exempt from the General Conformity Rule.

Alternative Reuse Scenario 3. The primary air emission sources from ARS 3 are expected to be mobile source activity to and from the station and construction and demolition activities. No aircraft activity is proposed. Stationary source emissions are expected to lower significantly compared with the existing condition.

Between pre-closure conditions and completion of Phase 2 (2010), annual emissions of VOCs would decrease 455 tons (412 tonnes). NO_x emissions would increase by 118 tons (107 tonnes) annually. Annual emissions of CO would increase by 1,871 tons (1,697 tonnes) from pre-closure conditions to the completion of Phase 2. Annual PM emissions would increase by

1,029 tons (933 tonnes) from pre-closure conditions to the completion of Phase 2. The increase in CO emissions would be primarily a result of the increase in vehicle miles traveled by facility employees. The increase in emissions of PM would be due solely to construction and demolition projects. As with the Preferred Alternative, this action would be exempt from the General Conformity Rule.

Alternative Reuse Scenario 4. The primary air emission sources are expected to be aircraft, mobile source activity to and from the site, construction activities, and the addition of a boiler plant for the proposed correctional facility. Aircraft emissions are projected to be the same under ARS 4 as in the Preferred Alternative.

Annual emissions of VOCs and NO_x would decrease from pre-closure conditions to the completion of Phase 2 (2010): VOC emissions would decrease by 384 tons (348 tonnes) and NO_x emissions would decrease by 201 tons (183 tonnes). Annual particulate emissions would increase by 82 tons (74 tonnes). CO emissions would increase by 706 tons (640 tonnes). As with the Preferred Alternative, this action would be exempt from the General Conformity Rule.

Developers of future facilities would be responsible for obtaining the proper permits prior to development. Major regulations that may apply are construction and operating permit procedures for stationary air-pollution-emitting sources and emission standards such as the New Source Performance Standards, 40 C.F.R. Part 60 (1998), and control technology standards, Fla. Admin. Code Ann. Ch. 62-212 (1997) and Fla. Admin. Code Ann. Ch. 62-213 (1997).

No-Action Alternative

Under this alternative, emission levels would be substantially lower than pre-closure levels. No land use activities would occur, and no employee commutes would take place.

ES.3.6 Noise

Preferred Alternative. The most significant sources of noise resulting from implementation of the Preferred Alternative are military and civilian aircraft operations. Other noise sources include traffic, industrial operations, and construction and demolition activities.

Projected DNL contours for Phase 1 (2004) and Phase 2 (2010) of the redevelopment under the Preferred Alternative are compared with pre-closure Air Installation Compatible Use Zone (AICUZ) noise contours. DNL contours represent average noise levels over a 24-hour period and include louder single events. DNL takes into account both the noise level of all

individual events (e.g., aircraft landing and take-offs and touch-and go operations) that occur during a 24-hour period and the number of times those events occur.

Projected noise exposure from aircraft operations at the station would be significantly less than under pre-closure conditions. This would be primarily the result of the significant decrease in overall operations that would occur after the station closes and because aircraft training activities between NAS Cecil Field and OLF Whitehouse would no longer occur. In addition, the types of aircraft that would be used to conduct activities at the airfield after closure would have engine types that emit lower noise levels compared with the turbo jet engines used by Navy F/A-18 aircraft currently based at the station.

The 75-dB DNL contour stays with the current station boundary and would not significantly affect on-station land uses proposed under the Preferred Alternative, compared with pre-closure AICUZ noise contours. The projected 65-dB DNL contour would extend beyond the current station boundaries; however, it would primarily affect lands devoted to forestry and conservation. No residential structures have been identified in the portion of the 65-dB DNL contour that lies outside the station's property boundary.

In addition to noise associated with aircraft operations, as implementation of the Preferred Alternative progresses it is anticipated that business establishments would begin to relocate to the station, resulting in long-term, gradual increases in ambient noise levels from other sources. These increases would be associated with both industrial operations and local traffic resulting from increased employment. In addition, future infrastructure and road improvements, as well as demolition of station structures during redevelopment, would require the use of heavy construction machinery, resulting in short-term increases in ambient sound levels. Nevertheless, the absence of any concentrations of sensitive noise receptors (e.g., residential areas, hospitals, churches) near the station indicates that these effects would not be significant.

Alternative Reuse Scenario 1. Under ARS 1, ambient noise levels in the vicinity of NAS Cecil Field would decrease from pre-closure conditions because of the cessation of fixed-wing aircraft operations. Other noise sources would also be significantly limited as the majority of the station would be reused for forestry and recreation.

Noise from aircraft sources would be limited to that associated with helicopter operations. Projected noise contours under this alternative would be significantly smaller than those under pre-closure conditions and the Preferred Alternative.

The limited market-driven development and recreational facilities planned for the remainder of the site under ARS 1 are not expected to generate significant levels of ambient noise.

Alternative Reuse Scenario 2. Noise impacts under ARS 2 would be similar to those under the Preferred Alternative for aircraft sources and less significant for other noise sources.

Noise impacts resulting from aircraft operations would be similar to those under the Preferred Alternative because the projected level of aircraft operations would be the same. Long-term noise levels resulting from other sources under ARS 2 would be slightly less than under the Preferred Alternative because the alternative involves low levels of infrastructure and industrial development at the site.

Alternative Reuse Scenario 3. Besides the No-Action Alternative, ARS 3 would result in the greatest decrease in ambient noise levels from pre-closure levels because all aircraft operations at NAS Cecil Field would cease after closure.

Construction of residential, commercial, and industrial areas would result in short-term and minor increases in noise levels above background levels. Local traffic noise would also increase. However, long-term development under ARS 3 would present a greater potential of creating future noise conflicts with sensitive receptors by locating a large residential development in proximity of light-industrial and manufacturing uses.

Alternative Reuse Scenario 4. Noise impacts under ARS 4 would be similar to those under the Preferred Alternative because the development patterns and aircraft operations are the same, with the exception of planned correctional and juvenile justice facilities under this alternative. Neither of these facilities would be a significant noise source.

No-Action Alternative

The No-Action Alternative would result in the greatest decrease in ambient noise levels from pre-closure levels because all aircraft operations at NAS Cecil Field would cease after closure and no site redevelopment would occur. No short-term or long-term increase in noise levels would occur.

ES.3.7 Socioeconomics and Community Resources

Preferred Alternative. The Preferred Alternative is projected to have only a minor impact on the population and demographics of Duval and Clay counties and on the Jacksonville Metropolitan Statistical Area (MSA) as a whole. Development under the Preferred Alternative would recruit employees locally. Because the need for new employees would be gradual, recruitment of employees from outside the metropolitan area would not be anticipated. Therefore, population would not be expected to increase as a result of the proposed action.

Approximately 3,199 direct jobs and 3,528 indirect jobs are expected to be created by implementation of this plan (The Arthur Andersen Group et al., n.d.). Additionally, it is anticipated that this plan would generate approximately $78 million in direct payroll and $67 million in indirect earnings. Implementation of the Preferred Alternative is predicted to generate an estimated $2,164,758 annually in property tax revenues, with the total assessed value of taxable property on the station reaching nearly $100 million (The Arthur Andersen Group et al., n.d.).

To implement the Preferred Alternative, it is expected that $1.8 million to $4.1 million would be spent annually on operation and maintenance costs, and approximately $71.2 million on one-time capital costs. In addition, this plan would require that more than $173 million be spent on capital improvements by other government and private entities.

Implementation of the Preferred Alternative would have no impact on the housing market in the city of Jacksonville or its surrounding communities compared with existing conditions, and only a minor impact on the provision of educational services in Clay and Duval counties. When the impacts of both closure and reuse are considered, the Preferred Alternative may have a slight positive impact on the school systems in Duval County. The total number of school-age children is expected to decline as a net result of closure and reuse. At the same time, property tax revenues in Duval County are expected to increase as the land previously owned by Navy would become taxable.

The Preferred Alternative is anticipated to have minor adverse impacts on provision of fire, police, and ambulance services in the city of Jacksonville. The transfer of NAS Cecil Field from Navy ownership to private or local government ownership would increase the area that would need to be serviced by local police, fire, and ambulance corps, and increase their manpower and equipment needs. The negative effects caused by the increase in the area served by local emergency services would be slightly offset by the transfer of all Naval public safety buildings and equipment (e.g., firehouses, police stations, vehicles) to the city of Jacksonville

(CFDC 1996). In addition, implementation of the Preferred Alternative would expand local government revenues through an increase in property tax collections. The additional property tax revenues, in conjunction with the transfer of buildings and equipment, should more than offset any financial burdens placed on the providers of emergency services.

Implementation of the Preferred Alternative would positively impact the provision of recreational facilities in the Jacksonville area. Under this alternative, most of NAS Cecil Field's existing golf course, athletic fields, and other recreational facilities would continue to be used for these purposes and remain open to the public, thereby increasing the recreational facilities available to local residents.

Alternative Reuse Scenario 1. Similar to the Preferred Alternative, ARS 1 is anticipated to have very little impact on the population or demographic characteristics of Duval and Clay counties or the Jacksonville MSA as a whole. Based on the limited economic activity that is projected to occur as a result of the implementation of this alternative, ARS 1 is not expected to attract many new residents to the region. Approximately 666 direct and 640 indirect jobs are expected to be created by business park users. Total direct payroll generated by reuse of the site is expected to reach nearly $20 million, which would create an additional $13 million in indirect earnings in the regional economy. Annual property tax receipts are projected to reach $520,292, and the total assessed value of taxable property at the site is expected to reach $24 million under this alternative (The Arthur Andersen Group et al., n.d.).

The total capital costs expected to be incurred for redevelopment of NAS Cecil Field is estimated to be approximately $13.1 million, and the annual operating and maintenance costs are expected to range between $1.8 million and $4.1 million under ARS 1 (The Arthur Andersen Group et al., n.d.).

ARS 1 is not anticipated to have a significant impact on the regional housing market in the Jacksonville MSA. Because this alternative would create only a small number of jobs and would not induce any changes in the size of the regional population, the demand for housing would not be affected. Educational service impacts associated with the implementation of ARS 1 would be similar to those caused by the Preferred Alternative, although the change in population and the increase in property tax revenues would be lower under this alternative than under the Preferred Alternative.

The impacts to emergency and medical services associated with ARS 1 would be similar to those described for the Preferred Alternative. Of all of the alternatives considered, ARS 1

would have the most positive impact on the provision of recreational facilities. This alternative would increase the amount of active and passive recreational land available in Jacksonville.

Alternative Reuse Scenario 2. ARS 2 is projected to have only a minor impact on the demographic and population characteristics of Duval and Clay counties and on the Jacksonville MSA as a whole. A total of 1,266 direct jobs and 1,534 indirect jobs are expected to be created by implementing this alternative (The Arthur Andersen Group et al., n.d.).

Implementation of ARS 2 is expected to generate approximately $41 million in direct payroll and $32 million in indirect income throughout the regional economy. Following implementation of ARS 2, annual property tax revenues generated at the site are projected to reach $639,958, and the total assessed value of taxable property is anticipated to reach approximately $29.5 million (The Arthur Andersen Group et al., n.d.). Annual operations and maintenance costs associated with this alternative are expected to range from $1.8 million to $4.1 million, while total capital costs are predicted to be approximately $13.4 million. An additional $3.3 million for capital improvements is also predicted to be incurred by other entities associated with the development of specific projects (The Arthur Andersen Group et al., n.d.).

Implementation of ARS 2 is not expected to have a significant impact on the housing market in the Jacksonville MSA. Educational service impacts associated with the implementation of ARS 2 would be similar to those caused by the Preferred Alternative, although the change in population and the increase in property tax would be less than for the Preferred Alternative. ARS 2 is expected to affect the provision of emergency and medical services in a manner similar to that described for the Preferred Alternative. However, the area dedicated to recreational facilities under this alternative would be slightly smaller than the area utilized for ARS 1.

Alternative Reuse Scenario 3. Implementation of ARS 3 is expected to have a moderate impact on the population and demographic characteristics of the area immediately adjacent to NAS Cecil Field, but only a minor impact on the Jacksonville MSA as a whole. As a result of the residential development, the population on the site would increase by 3,250 households, or an estimated 8,255 persons. These additional residents would have a moderate impact on the demographic characteristics of the communities in the surrounding area. This localized impact would be lessened to some extent because construction and occupation of these housing units would be dispersed over a 12-year period.

Regionally, ARS 3 would have only a minor impact on the population and demographic characteristics of the Jacksonville MSA. Implementation of this scenario is projected to create

approximately 2,550 direct jobs and 2,190 indirect jobs in the Jacksonville area (The Arthur Andersen Group et al., n.d.).

As a direct result of ARS 3, approximately $53 million in payroll is predicted to be generated by industries/employers located at the site. The indirect income that would be generated by this alternative is expected to reach slightly more than $41 million. ARS 3 would generate approximately $7,520,376 in property tax revenues annually after its implementation. The proposed residential community is expected to supply approximately $5.7 million in annual property tax revenues or more than 75% of the total property taxes generated annually under this alternative. Total assessed value of taxable property is predicted to reach more than $430 million. The costs to implement this alternative include annual operating and maintenance costs ranging from $1.8 million to $4.1 million, and one-time capital costs of approximately $57 million. Costs that would be incurred by other agencies are expected to reach $170.8 million under this alternative. ARS 3 is expected to have a moderate impact on the regional housing market in the Jacksonville MSA. If implemented, ARS 3 would include the development of approximately 3,250 housing units at the station, which would have an impact on the regional housing supply. The change in demand for housing is not expected to be as great as the change in supply of housing; therefore, implementation of ARS 3 may actually cause a decrease in the price of housing in the region. ARS 3 would significantly affect the schools located in the immediate vicinity of the. The residential development would result in a significant increase in enrollment in schools located in the immediate vicinity of the site. Although specific schools in the district would be affected and redistricting of school children could be required, the overall enrollment impact to the Duval County School District would not be expected to be significant.

The impacts to emergency and medical services associated with implementing ARS 3 would be similar to those described for the Preferred Alternative. The impacts to recreation associated with implementing ARS 3 would be similar to those described for the Preferred Alternative.

Alternative Reuse Scenario 4. ARS 4 is projected to have only a minor impact on the population and demographics of Duval and Clay counties and on the Jacksonville MSA as a whole. Approximately 5,249 direct jobs and 4,758 indirect jobs are expected to be created by the implementation of this scenario (The Arthur Andersen Group et al., n.d.). The creation of these jobs would spur economic activity in the region and potentially create an incentive for people to relocate to the area. However, a large portion of the jobs created under this plan are predicted to

be filled by the Jacksonville area labor market, thus decreasing the need to recruit workers to the area.

Additionally, it is anticipated that ARS 4 would generate approximately $118 million in direct payroll and $92 million in indirect earnings. Implementation of ARS 4 is predicted to generate an estimated $2,164,758 annually in property tax revenues, with the total assessed value of taxable property on the station reaching nearly $100 million (The Arthur Andersen Group et al., n.d.).

To implement ARS 4, it is expected that $1.8 million to $4.1 million would be spent annually on operation and maintenance costs and approximately $71.2 million on one-time capital costs. In addition, this plan would require that more than $173 million be spent on capital improvements by other government and private entities.

ARS 4 is expected to have only a minor impact on the housing market in the city of Jacksonville and its surrounding communities. Implementation of ARS 4 is expected to have only a minor impact on the provision of educational services in Clay and Duval counties.

When the impacts of both closure and reuse are considered, ARS 4 may have a slight positive impact on the school systems in Duval County. As described above, the total number of school-aged children is expected to decrease as a net result of closure and reuse. At the same time, property tax revenues in Duval County are expected to increase as the land previously owned by Navy will become taxable.

ARS 4 is anticipated to have minor adverse impacts on the provision of fire, police, and ambulance services in the city of Jacksonville. The transfer of NAS Cecil Field from Navy ownership to private or local government ownership would increase the area to be serviced by local police, fire, and ambulance corps, and thereby increase their manpower and equipment needs. The negative effects caused by the increase in the area served by local emergency services would be slightly offset by the transfer of all public safety buildings and equipment (e.g., firehouses, police stations, vehicles) currently used by Navy at NAS Cecil Field to the city of Jacksonville (CFDC 1996). In addition, implementation of ARS 4 would expand local government revenues through an increase in property tax collections. The additional property tax revenues in conjunction with the transfer of buildings and equipment should more than offset any financial burdens placed on the providers of emergency services.

Since no change in the supply of medical services is anticipated as a result of the preferred alternative, no change in the provision of medical services in the Jacksonville area is projected. Implementation of ARS 4 would positively affect the provision of recreational facilities in the Jacksonville area. Under this alternative, the majority of NAS Cecil Field's

existing golf course, athletic fields, and other recreational facilities would be managed by the city of Jacksonville, thereby increasing the recreational facilities available to local residents.

No-Action Alternative

Given the size of Duval and Clay counties and the MSA as a whole, the loss of approximately 7,435 direct full-time military and civilian jobs due to closure of NAS Cecil Field would not be expected to significantly impact the regional population. This alternative would not create an incentive for new residents to relocate to the area.

Implementation of this alternative would have the greatest negative economic impact on the city of Jacksonville and the surrounding area by directly and indirectly impacting employment and income. The 7,140 full-time and reserve military personnel, 813 civilians, and 342 contractors employed at NAS Cecil Field in Fiscal Year (FY) 95 had a total annual payroll of approximately $229.2 million. In addition, request for services at NAS Cecil Field contributed $26 million to the local economy. Under this alternative, there would be no substitute for the economic, employment, and income losses resulting from the closure of NAS Cecil Field.

Implementation of this alternative would result in the greatest loss of potential taxes and revenues that could be generated by the reuse of NAS Cecil Field. Because the land would continue to be federally owned, property tax revenues generated under this alternative would be the same as pre-closure revenues.

Annual operation and maintenance revenues generated from the provision of infrastructure and utility services would be minimal compared to the other alternatives.

Given the limited amount of housing that would be vacated by military and civilian personnel and their dependents, this alternative would not significantly impact the housing market in the city and surrounding community.

Implementation of this alternative would not have significant adverse impacts on schools in the city and surrounding region. Although the school districts would no longer receive financial assistance under the U.S. Department of Education Impact Aid Program, the total number of school-age children would be expected to decline as a result of closure and reuse.

Implementation of the No-Action Alternative would not have a significant adverse impact on emergency or medical services in the city or surrounding region. There would be no increase in the population requiring these services.

Compared to the other alternatives, the No-Action Alternative would have no positive impact on recreational resources in the city or surrounding region because public access to the station would not be granted.

ES.3.8 Transportation

Preferred Alternative. At completion of Phase 2, development is estimated to generate a total of 24,359 average daily trips and 2,663 peak-hour trips. The only roads that would experience significant level-of-service (LOS) changes would be portions of Chaffee Road, Normandy Boulevard, and 103rd Street. These deficiencies are projected to occur at the end of Phase 2 and would be addressed by already planned improvements to the regional road network.

Mass transit service to the southwestern extent of the Jacksonville service district may be canceled because of insufficient ridership; the relative seclusion of the property would potentially result in a lack of ridership to support service in the initial phases of redevelopment. No significant impact to rail facilities is anticipated.

The Preferred Alternative proposes reuse of existing airfield runways. This reuse would provide for general aviation and cargo activities to utilize existing aviation-related infrastructure. The station is being incorporated into the overall Florida Aviation System Plan. The Federal Aviation Administration (FAA) will have to develop an airport master plan coordinating airspace utilization, safety, and air traffic control requirements.

ARS 1. At completion of Phase 2, development is projected to generate a total of 6,482 average daily trips, and 665 peak-hour trips. Roadways in the area would not experience a significant increase in traffic volumes over those projections generated by the Metropolitan Planning Office (MPO). Deterioration of LOS would be experienced on portions of Normandy Boulevard and Chaffee Road at completion of Phase 2 development. Based on the limited amount of development proposed in ARS 1, it is unlikely that the necessary density could be achieved to justify continued transit service.

No rail facility connection is proposed with ARS 1. Use of airport facilities under this ARS would be limited to helicopter operations associated with the Florida National Guard. No significant impacts would occur.

Alternative Reuse Scenario 2. At completion of Phase 2, development is estimated to generate a total of 8,809 average daily trips and 969 peak-hour trips. Roadways within the

region influenced by ARS 2 would experience an increase in traffic volumes over the MPO's projected traffic levels. In most cases, however, this would not result in a significant modification of LOS. Although LOSs are projected to deteriorate on specific roadways, these would be addressed through already-planned roadway improvements in the area surrounding the station.

Mass transit service to this southwestern portion of Jacksonville would likely be canceled because ridership would be insufficient to support service during the initial phases of redevelopment.

No rail facilities are proposed for this reuse alternative. ARS 2 proposes reuse of the existing runways for general aviation and cargo activities to utilize existing aviation-related infrastructure. The station is presently being incorporated into the overall Florida Aviation System Plan. The FAA will have to develop an airport master plan to coordinate airspace utilization, safety, and air traffic control requirements.

Alternative Reuse Scenario 3. At completion of Phase 2 development is estimated to generate a total of 55,332 average daily trips and 6,574 peak-hour trips. Full buildout of Phase 2 development would result in significant traffic loadings associated with residential and commercial activities.

Mass transit service to the southwestern extent of the Jacksonville service area may initially be canceled because of insufficient ridership to support service during the initial phases of redevelopment. Due to the development of major trip destinations in the second phase of this alternative, transit service may eventually be determined to be feasible.

No rail service is currently planned for this alternative, but freight service may become feasible as development proceeds. Should the installation of rail facilities prove feasible, it would provide access to the CSX line to the north, and it would provide alternative options for raw material deliveries and shipment of finished products. No airport facilities are proposed for this reuse scenario.

Alternative Reuse Scenario 4. Implementation of Phase 2 development is estimated to generate a total of 28,054 average daily trips and 4,055 peak-hour trips. LOS is projected to deteriorate in a few instances, especially related to Phase 2 development, along portions of Normandy Boulevard, 103rd Street, and Chaffee Road.

Mass transit service to this area may be canceled because of insufficient ridership. The relative seclusion of the property would potentially result in a subsequent lack of ridership to

support service in the initial period of redevelopment. No rail service is currently planned for this alternative, but freight service may become feasible as development occurs. Should installation of rail facilities prove feasible, it would provide businesses on the property with access to the CSX line to the north, and would provide alternative options for raw material deliveries and shipment of finished products.

ARS 4 proposes reuse of one existing runway and construction of two additional runways. This reuse would provide for general aviation, cargo, and military activities to utilize existing aviation-related infrastructure. The station is being incorporated into the overall Florida Aviation System Plan. The FAA will need to develop an airport management plan coordinating airspace utilization, safety and air traffic control requirements. Therefore, no significant impacts to air facilities would occur.

No-Action Alternative

Implementation of this alternative would not result in significant adverse impacts to roadways. No traffic would be generated; therefore, roadway LOS would not deteriorate.

With no redevelopment at the site, mass transit ridership in the area would decrease from pre-closure levels.

ES.3.9 Infrastructure and Utilities

Preferred Alternative. The long-term implementation of the Preferred Alternative would necessitate significant changes to the existing water and sewer systems. The most notable improvements would be required in the Yellow Water Area to serve new industrial uses.

Although the potable water production wells have sufficient capacity to serve the redevelopment of NAS Cecil Field, the long-term objective is connection to the city's water distribution system, and development of a new on-site water treatment facility and well field, while utilizing NAS Cecil Field's existing distribution system. The water lines are approximately 40 years old and of unknown condition. Fuel tanks that serve the pumps at the well need to be replaced. The water system has inadequate flows and pressures for fire fighting, primarily because of undersized 6-inch mains. According to the construction drawings, the water main in the Yellow Water Area is asbestos cement.

Although the sewer infrastructure is in good condition and functions adequately, and the wastewater treatment plant is projected to have surplus capacity, the long-term objectives of the Preferred Alternative would require significant improvements and ultimate connection to the

city's system. Improvements would include extensions and expansions to new service areas, general upgrades and modifications for regulatory compliance and consideration of alternative wastewater reuse programs for future water and wastewater customers.

In the short term, the stormwater drainage system would not be significantly affected; however, over the long term, sitewide and site-specific conveyance systems and retention/detention facilities would have to be designed and installed. Following station closure, stormwater management would be subject to federal, state, and local laws and regulations (Fla. Admin. Code Ann. Ch. 62-25, designed for compliance with the Clean Water Act, 33 U.S.C. § 1342 (a-p) (1994), and Chapter 654 of the city of Jacksonville Ordinance Code). The ultimate receiving entity or individual developers would be responsible for installation of adequate drainage facilities. With few exceptions, the treatment of stormwater runoff is required for all development, redevelopment, and existing developed areas when expansion occurs, pursuant to local land development regulations of the city of Jacksonville.

Long-term natural gas demand would require expansion of the existing natural gas distribution system to serve newly developed areas. It is expected that the 16-inch gas transmission line located at the station entrance would be able to provide unlimited supply to potential new users. Long-term demand would require the ultimate receiving entity to make significant improvements to the existing electrical infrastructure, such as upgrading and expanding the existing distribution system and remetering the base to the Jacksonville Electric Authority's (JEA's) standards. The extent of the upgrades made to the existing service distribution would depend on the specific needs of future development activities.

Under the Preferred Alternative, the steam-generating plant would be removed along with the aboveground steam lines, requiring a new method for heat production. As a replacement to a centralized steam-producing plant, less-expensive auxiliary boilers fed by gas lines may be used (a practice currently being implemented), or electric or gas heating systems could be installed.

Under the Preferred Alternative, no short-term or long-term effects on compressed air systems are expected to occur. However, the aviation fuel facilities at the station (the 103rd Street pipeline and the North Fuel Farm) will be closed and not transferred for reuse. Therefore, under the Preferred Alternative, the ultimate receiving entity or individual users would need to make capital improvements and establish systems for the receipt and storage of aviation fuel to support reuse of the airfield facilities.

Based on projections of the Jacksonville Department of Public Utilities, Solid Waste Division (Perkins 1996), the Preferred Alternative would generate approximately 150,000 tons of

waste. This would constitute a reduction of approximately 150,000 tons from existing generation rates.

Alternative Reuse Scenario 1. This alternative involves limited new development. All existing infrastructure assets would remain as under existing conditions. This alternative would create the least demand on utility services such as water, sewer, stormwater, and solid waste. However, under this alternative, underused infrastructure assets would likely deteriorate. As a result, some areas would need improvements to serve long-term reuse.

Alternative Reuse Scenario 2. ARS 2 involves a low-intensity approach to redevelopment and emphasizes reuse of existing buildings within the developed area of the Main Station. Existing infrastructure assets would be removed and/or replaced to support redevelopment. Infrastructure improvements to the Yellow Water Area are not expected; however, maintenance of existing infrastructure systems would be required to support light-industrial or other market-driven development at the former ordnance storage areas. Impacts to the existing utility system at the Main Station would be similar to those under ARS 1, although there is a potential for more immediate reuse of the systems because of local interest and control of the redevelopment process.

Alternative Reuse Scenario 3. Redevelopment would be more extensive because it would not be limited by aircraft operation activities. Significantly more infrastructure extensions and improvements would be required under ARS 3 than under the Preferred Alternative. As in the Preferred Plan, the long-term objectives of this scenario necessitate connection to the JEA's water and sewer systems and development of site-specific and sitewide stormwater management plans and facilities.

Alternative Reuse Scenario 4. ARS 4 involves redevelopment of NAS Cecil Field as described under the Preferred Alternative, but includes correctional and juvenile justice facilities in the Yellow Water Area and light-industrial development at the Main Station. Infrastructure system improvements to the Yellow Water Area would be more extensive than in the Preferred Alternative at buildout, and similar to the requirements under ARS 3. Impacts to the existing infrastructure system at the Main Station would be less extensive than under ARS 3 at buildout, and similar to the requirements under the Preferred Alternative. It is expected that the JEA's

plan for the provision of water and sewer facilities would be similar to those proposed in the Preferred Alternative.

No-Action Alternative. Under the No-Action Alternative, use of the infrastructure and utility systems at NAS Cecil Field would be infrequent, and demand would be minimal. Therefore, no impacts would occur.

ES.3.10 Cultural Resources

Preferred Alternative. The Main Station and the Yellow Water Area of NAS Cecil Field do not contain any buildings and equipment eligible for listing on the National Register of Historic Places (NRHP). The proposed Preferred Alternative will not affect significant historic structures protected by federal statutes.

No known archaeological sites exist at NAS Cecil Field. However, a basewide cultural resources assessment has identified 15 archaeologically sensitive areas within the portion of NAS Cecil Field that is slated for disposal and reuse. A Programmatic Agreement among Navy, the Advisory Council on Historic Preservation, and the Florida Division of Historical Resources requires recipients of the disposed property to obtain the written permission of the Florida Division of Historical Resources prior to undertaking any ground-disturbing activities at these 15 locations. The Florida Division of Historical Resources may require archaeological investigations at any of these 15 sensitive areas as a condition of such permission.

Under the Preferred Alternative, one archaeologically sensitive area is designated for conservation and would not be affected. Twelve archaeologically sensitive areas are slated for forestry management, forestry/airport reserve, and parks and recreation. Given that no development would occur in these areas in the foreseeable future, no impacts would occur. However, tree harvesting and planting, construction of recreational facilities, and expansion of the airport will impact archaeologically sensitive areas and activate the provisions of the Programmatic Agreement.

Two archaeologically sensitive areas are located in a portion of the Yellow Water Area designated for future light-industrial uses. Depending on the site-specific location and design of individual developments, potential resources in these areas could be affected by construction activities.

Alternative Reuse Scenario 1. Fifteen archaeologically sensitive areas correspond to zones slated for recreation/forestry or parks/recreation. If ground-disturbing activities (i.e., tree harvesting or planting, construction of recreational facilities) occur at these areas, cultural resources may be affected.

Implementation of ARS 1 would not impact any significant architectural resources.

Alternative Reuse Scenario 2. Fifteen archaeologically sensitive areas correspond to zones slated for recreation/forestry or parks/recreation. If ground-disturbing activities (i.e., tree harvesting or planting, construction of recreational facilities) occur at these areas, cultural resources may be affected.

Implementation of ARS 2 would not impact any significant architectural resources.

Alternative Reuse Scenario 3. Of the alternatives, ARS 3 is the least likely to affect archaeologically sensitive areas. Under this alternative, six sensitive areas are slated for conservation. Because of the lack of development, these areas will not be impacted. Nine archaeologically sensitive areas are designated for parks and recreation, residential areas, and light-industrial use. Depending on the location and design of individual developments, existing cultural resources may be affected by construction.

Implementation of ARS 3 would not impact any significant architectural resources.

Alternative Reuse Scenario 4. Implementation of ARS 4 would result in the same impacts as the Preferred Alternative.

Implementation of ARS 4 would not impact any significant architectural resources.

No-Action Alternative. Implementation of this alternative would not significantly impact archaeological or architectural resources.

ES.3.11 Hazardous Materials Management and Environmental Contamination

None of the proposed reuses would impact completion of the remedial actions. While a remedial action may not preclude transfer of the property under CERCLA, 42 U.S.C. §§ 9601-9675 (1994), the transfer agreement or deed would include any necessary restrictions on use of the property to ensure protection of human health and environment and to ensure that use of the property by Navy personnel and contractors for required remedial investigations, actions, or

oversight activities would not be disrupted. None of the proposed reuses would impact necessary deed restrictions and controls.

The Navy would provide all property transferees with information on the existence, extent, and condition of asbestos-containing material at NAS Cecil Field. Such information would include types and locations of asbestos-containing material; results of any testing; description of asbestos control measures, any cost estimates; and any inventory updates. The Navy would also provide information on the presence of lead-based paint in target housing and community facilities in compliance with Navy policy and the Residential Lead-Based Paint Hazard Reduction Act of 1992, 42 U.S.C. § 4851 et seq. (1994).

Management of asbestos-containing material and lead-based paint would be the responsibility of the new landowners. These potential hazards would need to be managed or properly disposed of so that the conditions do not deteriorate and present a risk to human health.

Preferred Alternative. Uses proposed for development at NAS Cecil Field under the Preferred Alternative would involve the use of hazardous materials and generation of hazardous wastes. The quantity of hazardous material used or generated cannot be quantified at this time. Storage, transportation, and disposal of hazardous waste would require compliance with the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. §§ 6901-6992k (1994), as implemented through Florida hazardous waste management regulations contained in Fla. Stat. Ch. 403, Part IV (1997). Therefore, no significant impacts are anticipated from hazardous materials and waste management.

Alternative Reuse Scenario 1. Uses proposed for development at NAS Cecil Field under ARS 1 would involve hazardous materials and generation of hazardous wastes. As stated under the Preferred Alternative discussion, existing hazardous materials and hazardous waste management regulations in Florida will be followed to ensure that no release of hazardous substances occurs that will impact human health or the environment.

Alternative Reuse Scenario 2. Uses proposed for development at NAS Cecil Field under ARS 2 would involve hazardous materials and the generation of hazardous wastes. As stated under the Preferred Alternative discussion, existing hazardous materials and hazardous waste management regulations in Florida will be followed to ensure that no release of hazardous substance occurs that will impact human health or the environment.

Alternative Reuse Scenario 3. Under ARS 3, various hazardous materials would be stored and used, and various types of hazardous wastes would likely be generated. As stated under the Preferred Alternative discussion, existing hazardous materials and hazardous waste management regulations in Florida will be followed to ensure that no release of hazardous substances occurs that will adversely affect human health or the environment.

Alternative Reuse Scenario 4. Under ARS 4, various hazardous materials would be stored and used, and various types of hazardous wastes would likely be generated. As stated under the Preferred Alternative discussion, existing hazardous materials and hazardous waste management regulations in Florida will be followed to ensure that no release of hazardous substances occurs that will adversely affect human health or the environment.

No-Action Alternative. In caretaker status, the base would not store or use hazardous materials or generate any hazardous waste. Therefore, no impacts to hazardous materials and waste management would be expected.

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Acronyms

ACM	asbestos-containing materials
ADA	average daily school attendance
ADTs	average daily traffic
AICUZ	Air Installation Compatible Use Zone
AIMD	Aircraft Intermediate Maintenance Department
AOI	areas of interest
ARS	Alternative Reuse Scenario
AST	aboveground storage tank
AVORD	Aviation Ordnance
BEQ	bachelor enlisted quarters
BGS	below ground surface
BOQ	bachelor officers quarters
BSA	base student allocation
C&D	construction and demolition
CA	contamination assessment
CAR	contamination assessment report
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CERFA	Comprehensive Environmental Response Facilitation Act
CFDC	Cecil Field Development Commission
cfm	cubic feet per minute
CFR	Code of Federal Regulations
CIP	Capital Improvements Program
CMS	Concurrency Management System
CO	carbon monoxide
CRPP	Comprehensive Regional Policy Plan
CZMA	Coastal Zone Management Act
dB	decibel
dB(A)	A-weighted decibel
DBRAC	Defense Base Closure and Realignment Act
DCA	Florida Department of Community Affairs
DCTA	Florida Defense Conversion and Transition Act
DDT	dichlorodiphenyltrichloroethene
DEIS	draft environmental impact statement
DoD	U.S. Department of Defense
DRI	development of regional impact
EBS	environmental baseline survey
EIS	environmental impact statement
EMT	earth-mounded tank

Acronyms (Cont.)

EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ESQD	explosive safety quantity distance
FAA	Federal Aviation Administration
FAC	Florida Administrative Code
FAR	floor-area ratio
FCMP	Florida Coastal Management Program
FDEP	Florida Department of Environmental Protection
FEMA	Federal Emergency Management Agency
FDHR	Florida Division of Historical Resources
FDOT	Florida Department of Transportation
FEC	Florida East Coast Railway
FEIS	final environmental impact statement
FFA	Federal Facilities Agreement
FGFWFC	Florida Game and Fresh Water Fish Commission
FGS	Florida Geological Survey
FLU	future land use
FNAI	Florida Natural Areas Inventory
FOSL	finding of suitability to lease
FOST	finding of suitability to transfer
FS	Florida Statute
ft^2	square feet
FY	fiscal year
GIS	geographic information system
gpm	gallons per minute
ha	hectares
HAP	hazardous air pollutant
HAZMAT	hazardous materials
HHS	United States Department of Health and Human Services
HNM	Heliport Noise Model
HRS	Hazardous Ranking System
HUD	United States Department of Housing and Urban Development
IAS	initial assessment study
INM	Integrated Noise Model
IRA	interim remedial action
IRP	Installation Restoration Program
ITE	Institute of Transportation Engineers
JDPU	Jacksonville Department of Public Utilities
JEA	Jacksonville Electric Authority
JETC	jet engine testing cells
JIA	Jacksonville International Airport
JMPO	Jacksonville Metropolitan Planning Office
JTA	Jacksonville Transportation Authority
kg	kilograms
kV	kilovolt
LBP	lead-based paint
Ldn	day-night average sound level

Acronyms (Cont.)

LDR	land development regulation
LOS	level of service
LTO	landing/takeoff
m^2	square meters
MCAS	Marine Corps Air Station
mg/L	milligrams per liter
mgd	million gallons per day
MOU	memorandum of understanding
MPO	Metropolitan Planning Organization
MSA	metropolitan statistical area
MSL	mean sea level
MWR	Morale, Welfare, and Recreation
NAAQS	National Ambient Air Quality Standards
NAS	Naval Air Station
NAVRAMP	Navy Radon Assessment and Mitigation Program
NEPA	National Environmental Policy Act
NFF	North Fuel Farm
NHPA	National Historical Preservation Act
NOAA	National Oceanic and Atmospheric Administration
NOI	notice of intent
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge and Elimination System
NPL	National Priorities List
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
OEW	ordnance explosive wastes
OLF	outlying landing field
PCB	polychlorinated biphenyl
pCi/L	picocuries per liter
PEM	Palustrine emergent
PFO	Palustrine forested
POV	personally owned vehicle
pph	pounds per hour
ppm	parts per million
psi	pounds per square inch
PSS	Palustrine scrub shrub
PVC	polyvinyl chloride
PWC	Public Works Center
RA	remedial action
RAP	Remedial Action Plan
RASO	Radiological Affairs and Support Office
RCRA	Resource Conservation and Recovery Act
RESD	Regulatory and Environmental Services Department
RFA	RCRA facility assessment
RFI	RCRA facility investigation
RI/FS	remedial investigation/feasibility study

Acronyms (Cont.)

ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act
SCS	soil conservation service
SIP	State Implementation Plan
SJRWMD	St. Johns River Water Management District
SO_2	sulfur dioxide
T&G	touch-and-go
TSCA	Toxic Substances Control Act
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	underground storage tank
UXO	unexploded ordnance
VMT	vehicle miles traveled
VOCs	volatile organic compounds
WWTP	wastewater treatment plant
YWWC	Yellow Water Weapons Compound

1 Purpose and Need

1.1 Introduction

As a result of the 1993 mandates of the Defense Base Closure and Realignment Commission (Commission), as approved by Congress pursuant to the Defense Base Closure and Realignment Act of 1990 (DBCRA), 10 U.S.C. § 2687, Naval Air Station (NAS) Cecil Field, located in Duval and Clay counties, Florida, will be closed. The United States Department of the Navy has prepared this Final Environmental Impact Statement (FEIS) to evaluate the potential environmental effects of disposal and reuse of the station by other entities.

This FEIS has been prepared in accordance with the National Environmental Policy Act (NEPA), 42 U.S.C. §§ 4321-4370(d) (1994); OPNAVINST 5090.1B; and the DBCRA, 10 U.S.C. § 2687 note (see Sec. 2905, Applicability of National Environmental Policy Act of 1969) (1994).

1.2 Purpose and Need

The purpose of the proposed action is to comply with BRAC and President Clinton's five-part plan, "A Program to Revitalize Base Closure Communities," President's Press Conference, July 2, 1993 (press release by President Clinton on his five-point plan to speed economic recovery in communities where military bases are slated to close). DBRAC exempts Navy from considering under NEPA the need for closing or realigning military installations that have been recommended for closure or realignment by the Commission. Closure of NAS Cecil Field was recommended by the Commission for the purpose of reducing the military infrastructure and saving operation and maintenance costs over the long term. Disposal of the property is necessary so that Navy does not continue to incur operation and maintenance costs for the facility after it has closed. Operational closure of NAS Cecil Field is scheduled to occur by August 1999.

The primary purpose of this FEIS is to assist the Secretary of the Navy in a series of interrelated decisions concerning the future disposition of the station. In accordance with federal regulations, the local community established the Cecil Field Development Commission (CFDC), a recognized local redevelopment authority, to formulate a reuse plan for the station to guide its redevelopment following disposal by Navy. In July 1997, the CFDC was discharged and the Jacksonville Economic Development Commission (JEDC) was tasked with implementation of the Base Reuse Plan. While Navy will be responsible for disposal of the station, oversight of the station's subsequent redevelopment after its disposal will be the responsibility of the ultimate receiving entity for the station property, to be determined prior to the final disposal of the station. This FEIS provides decision makers and the public with the information required to understand the future environmental consequences of the potential reuse of the NAS Cecil Field property.

Another purpose of this FEIS is to assist the local community in implementing a preferred plan and supplementing future planning and redevelopment decisions. This FEIS identifies potential environmental impacts that would result from redevelopment of the property pursuant to the CFDC's reuse plan and reasonable alternatives to this plan. It is not the intent of Navy to endorse or authorize a particular reuse scenario, but only to project potential impacts and identify reasonable mitigation measures.

1.3 Proposed Action

In accordance with 32 C.F.R. Part 175(d)(3) (1997), the proposed action in this FEIS is the disposal of surplus Navy property and reuse and redevelopment of the property pursuant to the *NAS Cecil Field Final Base Reuse Plan* (CFDC 1996). The entire reuse plan is not included in the FEIS, but rather is summarized in Section 2 of this document to provide an understanding of the plan for impact analysis purposes. The reuse plan, in its entirety, is available through the JEDC. It should be noted that the reuse plan and alternatives to this plan are conceptual and are intended to focus on proposed future land uses and not on site-specific developments. Detailed engineering studies and design plans will need to be conducted by the receiving entity or specific project sponsors prior to implementation of redevelopment activities.

The redevelopment and reuse of the property will be the responsibility of the ultimate receiving entity and individual project sponsors, not Navy. As such, these entities, along with local, state, and other federal agencies, will ultimately be responsible for ensuring that redevelopment occurs, that appropriate permits and approvals are obtained, and that suggested mitigation measures are implemented.

1.4 Location of the Proposed Action

NAS Cecil Field is located primarily within southwestern Duval County and within the corporate limits of the city of Jacksonville, 14 mi west of downtown Jacksonville (the city of Jacksonville and Duval County have a consolidated government). A relatively small portion of the station is located within north-central Clay County (see Figures 1-1 and 1-2). The station is a master jet base, designed to support training of naval aviators and deployment of naval jet aircraft. The station is currently home port to approximately 350 aircraft, primarily consisting of F/A-18 Hornet and S-3 Viking aircraft (Navy 1994a).

NAS Cecil Field land holdings encompass approximately 31,366 ac of owned or leased property and lands with easement controls within the following areas (see Table 1-1) (Navy 1988; Nelson 1994):

- The Main Station, which is composed of approximately 9,516 ac of Navy-owned or leased land and easement land, generally located south of Normandy Boulevard (Duval County Route 228);
- The Yellow Water Area, which is composed of approximately 8,091 ac of Navy-owned land, generally located north of Normandy Boulevard;
- The station's Outlying Landing Field (OLF) Whitehouse, which is composed of approximately 2,565 ac of Navy-owned and easement land, located 7 mi north of the Main Station at the termination of Halsema Road;
- The Pinecastle Target Complex, located 90 mi south of Jacksonville in Lake, Marion, Putnam, and Clay counties, encompassing a total of approximately 11,142 ac of Navy-owned or leased land and easement land in four outlying target ranges (see Figure 1-3); and
- Other outlying sites totaling approximately 52 ac., including the Tactical Aircrew Training System (TACTS) area, consisting of over-water areas and transmitting towers for simulated air-to-air combat training.

This FEIS addresses only the environmental effects of reuse of station properties to be disposed by Navy, which comprise approximately 17,202 ac of land at the Main Station and the Yellow Water Area. Properties at or operated by NAS Cecil Field that Navy will retain include OLF Whitehouse; the Yellow Water Family Housing Area (200 units located on 252 ac in the southwestern portion of the Yellow Water Area); the Pinecastle Target Complex; and the TACTS area.

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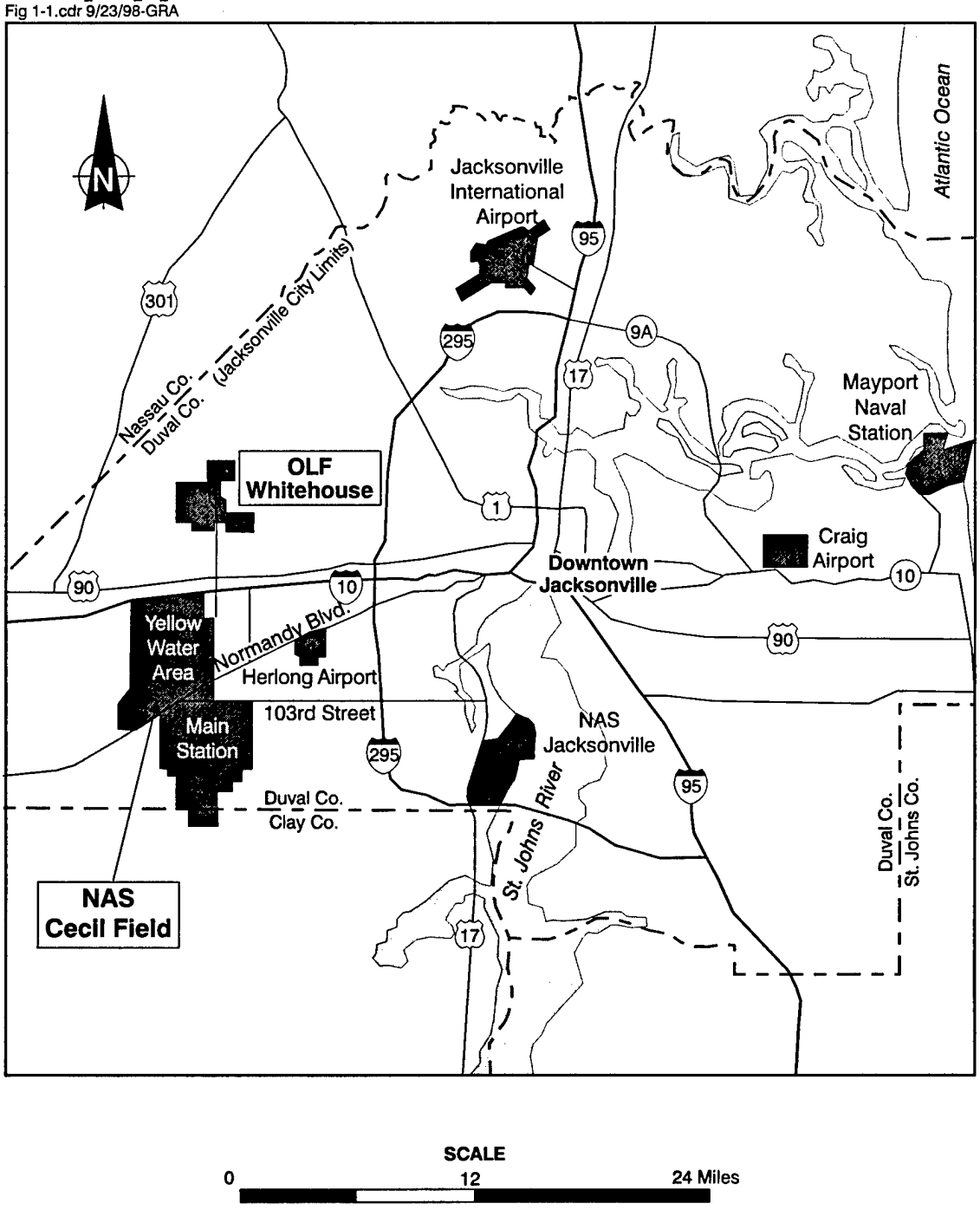
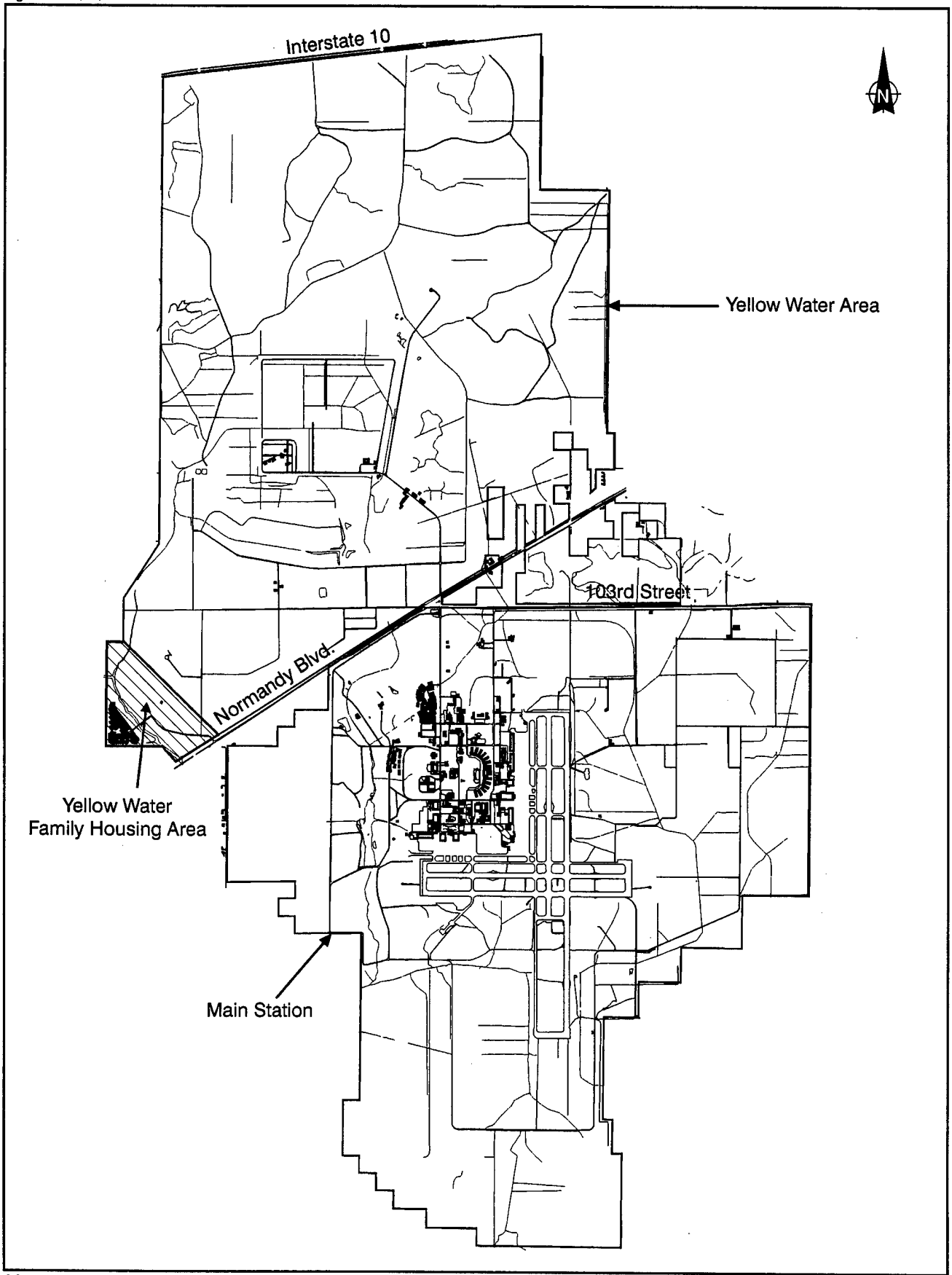


Figure 1-1 REGIONAL LOCATION, NAS CECIL FIELD



SOURCE: U.S. Navy 1994c

SCALE
0 ½ 1 Mile

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Figure 1-2 MAIN STATION AND YELLOW WATER AREA NAS CECIL FIELD

Table 1-1

SUMMARY OF NAS CECIL FIELD LAND HOLDINGS

Area	Acres (Hectares) Owned	Acres (Hectares) with Easements	Acres (Hectares) Leased	Total Acres (Hectares)
Holdings in the City of Jacksonville/Duval County and Clay County, Florida				
Cecil Field Main Station	9,336.02 (3,780)	179.69 (73)	.18 (0.07)	9,515.89 (3,852.58)
Yellow Water Weapons Annex	8,091.10 (3,275.74)	—	—	8,091.10 (3,275.74)
OLF Whitehouse	1,906.95 (772)	657.69 (266.27)	—	2,564.64 (1,038.31)
Holdings Associated with Pinecastle Target Complex				
Pinecastle Range	—	—	5,894.81 (2,386.56)	5,894.81 (2,386.56)
Rodman Range	2,690.00 (1,089.06)	2.51 (1.01)	—	2,692.51 (1,090.08)
Lake George Range	0.78 (0.31)	0.22 (0.08)	—	1.00 (0.40)
Stevens Lake Target	—	—	2,554.00 (1,034.0)	2,554.00 (1,034.0)
Other Holdings				
TACTS Area	51.42 (20.81)	—	—	51.42 (20.81)
Palatka Radar Site	—	—	.92 (0.37)	.92 (0.37)
TOTAL	22,076.27 (8,937.76)	840.11 (340.12)	8,449.91 (3,421.01)	31,366.29 (12,698.90)

Sources: U.S. Navy 1994a; Nelson 1994.

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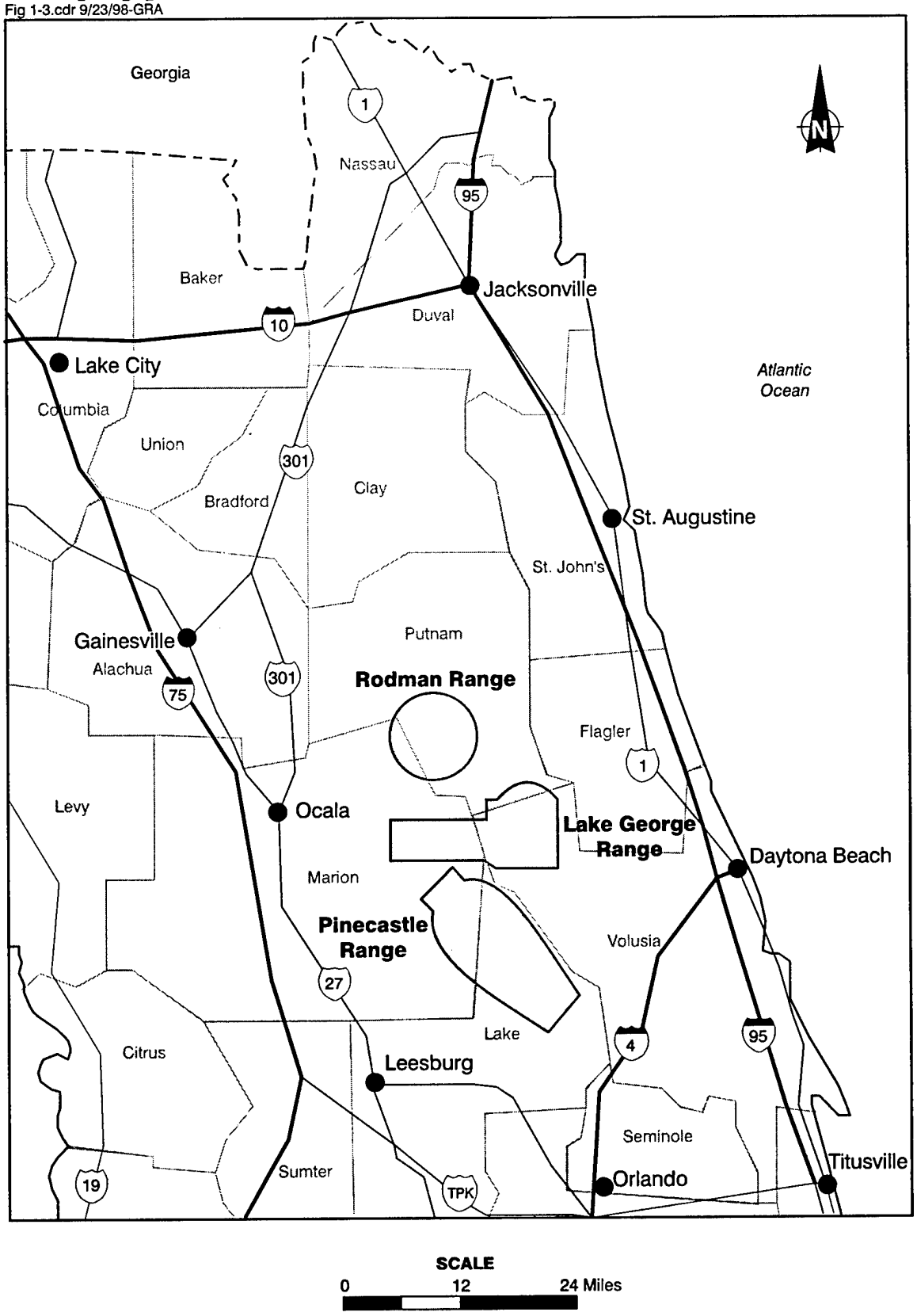


Figure 1-3 PINECASTLE TARGET COMPLEX NAS CECIL FIELD

1.5 Public Involvement

A notice of intent (NOI) to prepare a DEIS was published in the *Federal Register* on January 25, 1995 (see Appendix A). In addition, a scoping notification letter and fact sheet were distributed to federal, state, and local elected officials, agency representatives, and other interested parties. Notices of Navy's intent to prepare a DEIS and an invitation to public scoping meetings were published in the *Florida Times-Union* on February 4, 1995, and February 5, 1995 (see Appendix A).

A public scoping meeting was held on February 9, 1995, at the Post of Snyder, Army National Guard Center, located on Normandy Boulevard near the station. This meeting provided the public with an opportunity to comment on the scope of the DEIS. Thirty-eight people attended the scoping meeting. Eight written responses were received prior to the end of the comment period on March 11, 1995.

In addition, as part of the Florida state review process for the approval of military base reuse plans, the CFDC conducted a two-day preapplication conference at NAS Cecil Field in July 1995. Various Florida regulatory agencies attended the conference to discuss issues of concern related to the reuse of the station. As part of this conference, Navy discussed the anticipated scope of the DEIS and planned approaches to assessing impacts to various environmental resources and invited the agencies to submit written comments.

Issues and concerns derived from comments received during the scoping period, the CFDC's preapplication conference, and conversations with representatives of government agencies and agency correspondence in connection with the data collection efforts for the FEIS are presented in Table 1-2. In addition, this table notes the section of the FEIS in which each issue is addressed.

The Navy distributed the DEIS to all interested persons for review and comment (see Section 12). A public hearing on the DEIS was held on May 27, 1997, at the Post of Snyder, Army National Guard Center, located on Normandy Boulevard near the station. Twenty-nine people attended the public hearing. Notice of the public hearing was published in the Florida Times-Union on May 11, 1997 (see Appendix A). All comments received on the DEIS, as well as written responses, are included in Appendix F of this FEIS. Oral comments received at the public hearing and written responses are also provided in Appendix F. All oral and written comments received were considered in this FEIS, which was prepared at the end of the 45-day comment period.

Table 1-2

ISSUES IDENTIFIED AT THE SCOPING MEETING AND IN WRITTEN COMMENTS NAS CECIL FIELD

Issue	DEIS Section
Agency Coordination (EPA)	1.5
Evaluation of Alternatives (EPA)	2
Mitigation Measures (EPA)	4
Noise and Lighting Impacts (EPA)	4.6
Air and Ground Traffic Impacts (EPA)	4.8
Air Quality Impacts (EPA)	4.5
Air Quality Mitigation Measures (EPA)	4.5
Environmental Justice Considerations (EPA)	4.12
Pollution Prevention Programs (EPA)	4.11
Historic and Cultural Resources (NTHP)	4.10
Parks and Recreational Areas (DOI)	3.7 and 4.7
Fish and Wildlife Management (DOI)	3.3 and 4.3
Floodplain Impacts (FGFWFC)	4.4
Endangered Species (FGFWFC)	3.3 and 4.3
Water Management (FDEP)	3.4 and 4.4
Wildlife and Forest Management (FDEP)	3.3 and 4.3
Surrounding Land Use (FDEP)	3.1 and 4.1
Regional Mitigation Efforts (FDEP)	4
Ecosystem Management (FDEP)	3.3 and 4.3
Alternative Analysis (FDEP)	2
Consistency with Coastal Zone Management Act (FDEP)	3.1, 4.1, 4.12
Greenways/Conservation Areas (FDEP)	3.1 and 4.1
Conservation Issues (SJRWMD)	3.1 and 4.1
Wetlands (Florida Department of Corrections)	3.3.1
Endangered Species (Florida Department of Corrections)	3.3.2
Water and Wastewater Infrastructure (Florida Department of Corrections)	3.9 and 4.9
Road Improvements (Florida Department of Corrections)	3.8 and 4.8
Employment Impacts	4.7

Key at end of table.

Table 1-2 (Cont.)

Key:

DEIS = Draft Environmental Impact Statement.
FDEP = Florida Department of Environmental Protection.
DOI = United States Department of the Interior.
EPA = United States Environmental Protection Agency.
FGFWFC = Florida Game and Fresh Water Fish Commission.
NTHP = National Trust for Historic Properties.
SJRWMD = St. Johns River Water Management District.

Source: Ecology and Environment, Inc. 1998.

1.6 Future Actions

The Navy, with the approval of the U.S. Environmental Protection Agency (EPA) and the Florida Department of Environmental Protection (FDEP), is undertaking a comprehensive evaluation and investigation of site contamination at NAS Cecil Field. Although final conclusions are not available, the status and current findings of these studies are summarized in Section 3.11 of this FEIS. Future use of portions of the station may be affected and restrictions on the use of certain areas may be imposed, depending on the existence, extent, and type of contamination; the method of remediation (e.g., removal, capping, pump and treat); the nature of the specific reuse proposal; the potential for human exposure to contamination; and the impacts of reuse on long-term monitoring of contaminated areas.

Any Jacksonville Port Authority (JAXPORT) revisions to the airport master plan that include the NAS Cecil Field airfield property and facilities gained through transfer from Navy would be subject to compliance with NEPA. NEPA documentation for airport master plan revisions would be prepared by the Federal Aviation Administration (FAA).

1.7 Disposal of Surplus Property

The DBCRA, 10 U.S.C. § 2687 note (see Sec. 2904, Closure and Realignment of Military Installations, and Sec. 2905, Applicability of the National Environmental Policy Act of 1969), defines the procedure to be followed for disposing of excess federal property. Possible methods for disposal of the NAS Cecil Field property include the following:

- Transfer to another federal agency;
- Public benefit or economic development conveyance to an eligible entity;
- Negotiated sale to a public body for a public purpose; and
- Competitive sale to private interest by a sealed bid or auction.

In accordance with these regulations, Navy notified the other military services of the intent to dispose of excess property at NAS Cecil Field. Certain assets/properties associated with the station have not been declared excess by Navy and will be transferred to NAS Jacksonville. These properties include OLF Whitehouse, the Yellow Water Family Housing Area, and the Pinecastle Target Complex. In addition, the United States Department of Interior National Parks Services, on behalf of the Florida Department of Agriculture and Consumer Services, Division of Forestry, requested conveyance of 11,000 acres of land at NAS Cecil Field under the Lands-to-

Parks Program. This request was later withdrawn (see response to comment USDOI-1 in Appendix F).

The Florida Department of Corrections, the Florida Department of Juvenile Justice, JAXPORT, and the FDEP also requested conveyances of station land and/or facilities. These requests were reviewed in conjunction with the CFDC to determine whether they were compatible with the Final Base Reuse Plan, as provided for under 32 C.F.R. Part 175(d)(3) (1997). Each of the land uses associated with these requests are included in the Final Base Reuse Plan and/or each of the alternatives (see Section 2.2).

After the DoD and federal agencies were provided an opportunity to declare the need for excess property, the property was reported available to the U.S. Department of Housing and Urban Development (HUD), as mandated by the Stewart B. McKinney Homeless Assistance Act, 10 U.S.C. § 2687 note (Sec. 2905, Applicability of the National Environmental Policy Act of 1969), subsection (b), Management and Disposal of Property). Under this act, Navy was required to report to HUD the potential availability of all underused, unused, and excess buildings and land. HUD then determined the suitability of the properties for use by homeless assistance providers. In accordance with the Stewart B. McKinney Homeless Assistance Act, as amended, HUD published a notice in the *Federal Register* to identify the federal buildings and other real property reviewed for suitability for use to assist the homeless. Homeless assistance providers were then required to respond to the U.S. Health and Human Services (HHS) with written expressions of interest in station property or portions of the property followed by a formal application. Expressions of interest were received to acquire portions of the station; however, no formal applications were made to HHS (CFDC 1996). Therefore, the Base Reuse Plan does not propose any use of the property for purposes of providing assistance to the homeless.

2 Alternatives Including the Proposed Action

Section 2 describes the proposed action and reasonable alternatives considered in this FEIS. Other alternatives were identified but eliminated from further consideration because they were determined to be unreasonable; they are also briefly described in this section. The potential environmental impacts of the proposed action and each alternative are summarized for comparative purposes, and the rationale for selection of the preferred alternative is presented. A full discussion of the environmental impacts of the proposed action and the alternatives is provided in Section 4.

2.1 Background

The disposal of NAS Cecil Field will be conducted in compliance with the Defense Base Closure and Realignment Act, 10 U.S.C. § 2687 note (see Sec. 2904, Closure and Realignment of Military Installations, and Sec. 2905, Applicability of the National Environmental Policy Act of 1969). This law identifies the process that must be followed when disposing of federal property, specifically property associated with closing military installations. This process includes solicitation of requests for transfer of land and facilities for reuse by other entities.

A series of entities, including the Florida Department of Corrections, the Florida Department of Juvenile Justice, JAXPORT, FDEP, and the Florida Department of Agriculture and Consumer Services, Division of Forestry, requested conveyances of land and/or facilities at the station. These entities' requests were reviewed in conjunction with the CFDC to determine whether they were compatible with the Final Base Reuse Plan, as provided for under 32 C.F.R. Part 175(d)(3) (1997). Each of the land uses associated with these requests is included in the Final Base Reuse Plan and/or each of the alternatives (see Section 2.2).

Possible reuse scenarios for NAS Cecil Field will also be influenced by laws and regulations unique to the state of Florida, which has a stringent regulatory system to oversee land development. The Local Government Comprehensive Planning and Land Development Act, Fla. Stat. Ch. 163.3161-163.3244 (1997), requires all of Florida's counties and municipalities to adopt a comprehensive plan that sets forth goals, objectives, and polices to guide land development. These plans must be approved by the Florida Department of Community Affairs (DCA) for consistency with adopted Regional Policy Plans and the Florida State Comprehensive Plan. Each government must then adopt land development regulations to implement the policies within the comprehensive plan. There are limits to the number of times per year a comprehensive plan or land development regulation may be amended by a local community.

Also, developments such as the reuse of NAS Cecil Field would typically require review in accordance with the state's developments of regional impact (DRIs) regulations, Fla. Stat. Ch. 380.06 (1997). These regulations require an extended review and documentation process for large-scale developments.

The state has enacted legislation (Fla. Stat. Ch. 288.03 and 288.971 et seq.) to streamline these processes in the case of military base reuse plans. This legislation created an optional military base reuse planning process that supersedes Florida's DRI regulations, provided that a community's base reuse plan meets the content requirements of the law and is adopted as an amendment to the comprehensive plan in accordance with the nonprocedural requirements of the Local Government Comprehensive Planning and Land Development Act, Fla. Stat. Ch. 163.3161-163.3244 (1997). The legislation waives the restrictions on the number of comprehensive plan amendments permitted in a specific period for military base reuse plans. It also encourages the use of federal NEPA documentation for disposal/reuse, in lieu of DRI analyses, to assess the impacts of such plans.

2.2 Reuse Alternatives

2.2.1 Reuse Plan Process

The reuse planning process for NAS Cecil Field was initiated on July 19, 1993, when Ed Austin, then mayor of Jacksonville, created the Mayor's Commission on Base Conversion and Redevelopment by Executive Order No. 93-167. The organization, whose name was later changed to the CFDC, is composed of 35 mayoral appointees from government and business in Jacksonville and the surrounding counties. The primary goal of the CFDC was to develop a consensus within the region and prepare a plan for the reuse of NAS Cecil Field. In July 1997,

the CFDC was discharged by the city of Jacksonville and the JEDC was tasked by the city with implementation of the Base Reuse Plan.

The planning process began in July 1993 and consisted of the following phases:

- Development of goals, visions, and objectives;
- Community outreach and public participation;
- Inventory, mapping, and analysis of on- and off-base conditions;
- Identification of current and long-term local, regional, and national business trends via an economic and market analysis;
- Development of reuse alternatives;
- Completion of a preliminary and Final Base Reuse Plan; and
- Completion of an implementation strategy for the Final Base Reuse Plan.

Throughout the development of the Base Reuse Plan, CFDC sought and obtained input from all affected constituencies. The community outreach program included six public forums, numerous commission meetings, several public presentations, and newsletters. Public opinions and comments were solicited and incorporated throughout the process. In addition to these formal meetings, the *Florida Times-Union*, *Jacksonville Business Journal*, and local television media presented several articles and reports regarding the reuse plan and the results of the public meetings.

Community participation ensured a responsive planning effort and helped set priorities for reuse. The goals identified by the CFDC for the Base Reuse Plan included diversifying the economy through focused redevelopment of NAS Cecil Field and replacing jobs lost by the station's closure (CFDC 1996).

The CFDC formally adopted the Final Base Reuse Plan for NAS Cecil Field in March 1996 (CFDC 1996). In accordance with federal regulations, this plan is considered the proposed action (i.e., Preferred Alternative) for this FEIS (see Section 2.2.3).

Because redevelopment of the NAS Cecil Field property will occur over an extended period, the Final Base Reuse Plan recommends establishment of a new public authority or use of an existing authority to receive the property and oversee redevelopment (CFDC 1996). This authority, now designated as the JEDC, has been empowered to oversee redevelopment and to act as a master developer for the property, responsible for coordinating infrastructure

improvements, financing, sales, leasing, and disposition of station properties for an extended period of time (Newton 1998). Subsequently, the JEDC authority will be referred to as the ultimate receiving entity.

2.2.2 Modification of CFDC's Alternative Reuse Scenarios

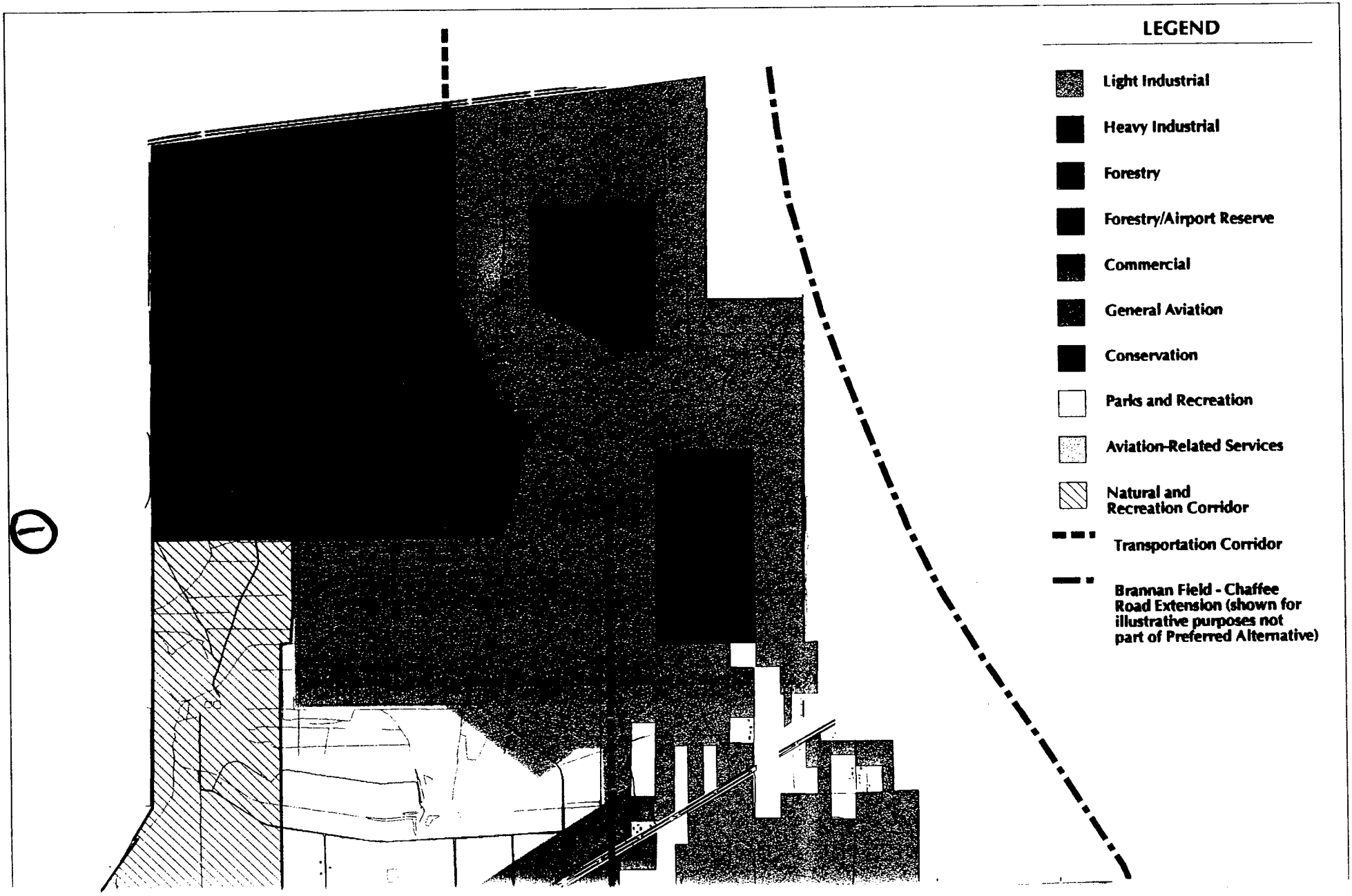
A major element of the Base Reuse Plan process was the development of a series of alternative reuse scenarios (ARSs) for the station. Following an analysis of the market potential for redevelopment of the station property, requests for land/facilities from various entities, and an assessment of existing development opportunities and physical development constraints (e.g., wetlands, significant habitat, contaminated sites), the CFDC generated the Preferred Alternative and a series of four ARSs that tested broad concepts for redevelopment.

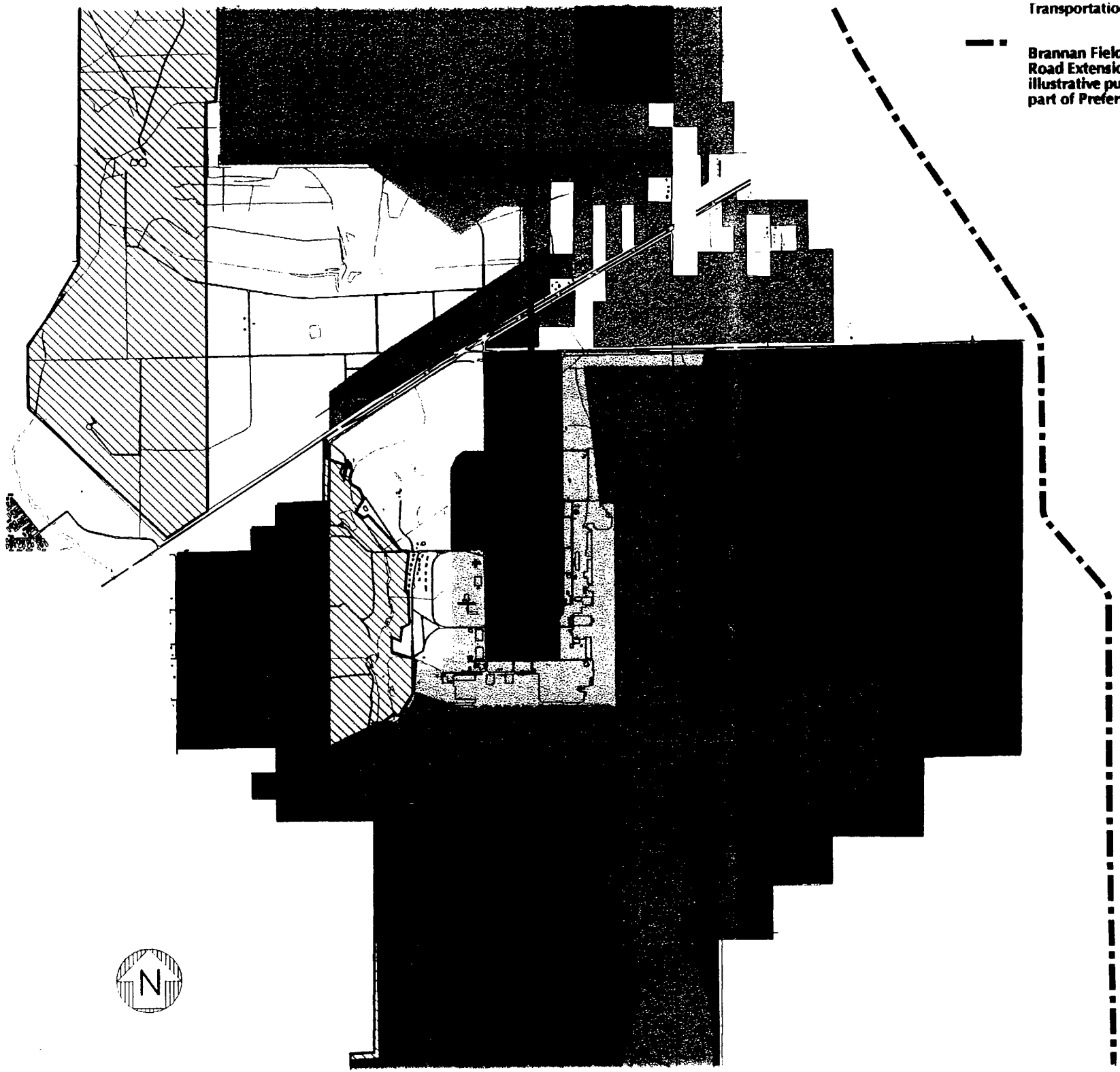
For purposes of this FEIS, Navy has modified each ARS developed by the CFDC to respond to changes in circumstances that have occurred since the time the alternatives were first developed. These included identification of future uses for specific parcels in the developed area of the Main Station that were not targeted for any future use. In such cases, it is assumed that these lands would be used for market-driven reuse/development by private interests.

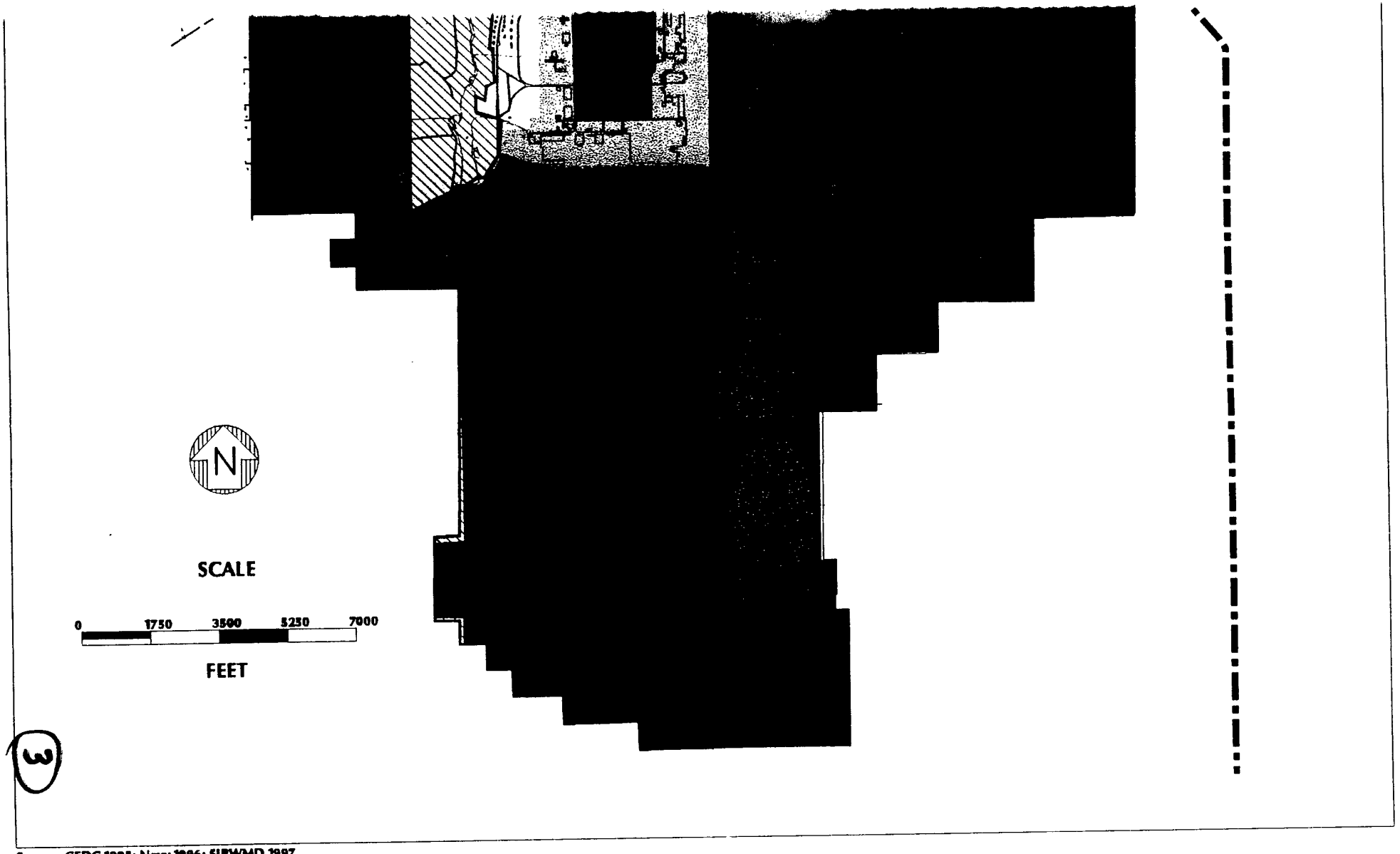
The discussions of the proposed action and each ARS include a general description of the land use plan, a breakdown of assumed land use acreages and maximum floor area ratios (FARs) in each land use category, and estimates of development that could possibly be realized over two phases of redevelopment (1998 to 2004 and 2005 to 2010) according to CFDC's market analyses. It should be noted that the assumed land use acreages and projected development are broad estimates only. They are presented to establish a reasonable basis for determining potential impacts that may result from reuse of the station property after disposal by Navy.

2.2.3 Preferred Alternative

The Preferred Alternative corresponds to the "Aviation Mixed Use" concept discussed in the *NAS Cecil Field Final Base Reuse Plan* (CFDC 1996). Under this plan, NAS Cecil Field lands would be aggressively marketed for redevelopment for aviation and other industrial and commercial uses. Job creation and natural resource protection through development of a Natural and Recreation Corridor would be the primary goals. Significant infrastructure and road improvements would be implemented to foster development. The Preferred Alternative is illustrated in Figure 2-1. The acreages (inside and outside the corridor) and assumed maximum FARs that would be used to determine the extent of future development in each land use category (e.g., aviation, industrial, commercial) under the plan are presented in Table 2-1. The


LEGEND
Light Industrial
Heavy Industrial
Forestry
Forestry/Airport Reserve
Commercial
General Aviation
Conservation
Parks and Recreation
Aviation-Related Services
Natural and Recreation Corridor
Transportation Corridor
Brannan Field - Chaffee Road Extension (shown for illustrative purposes not part of Preferred Alternative)


Transportation Corridor
Brannan Field - Chaffee Road Extension (shown for illustrative purposes not part of Preferred Alternative)
N



Source: CFDC 1995; Navy 1996; SJRWMD 1997

Figure 2-1 LAND USE PLAN - PREFERRED ALTERNATIVE

Table 2-1

PREFERRED ALTERNATIVE—
ASSUMED LAND USE ACREAGE/HECTARES

Land Use	Acres (Hectares)		Total Acreage (Hectares)	Assumed Maximum Permitted Floor Area Ratio (FAR)[a]
	Outside Natural and Recreation Corridor	Inside Natural and Recreation Corridor		
Conservation	6 (3)	634 (257)	640 (259)	NA
Forestry	207 (84)	2,629 (1,064)	2,836 (1,148)	NA
Forestry/Airport Reserve	2,699 (1,092)	1,381 (559)	4,080 (1,651)	NA
Parks and Recreation	1,464 (592)	1,480 (599)	2,944 (1,191)	NA
General Aviation	1,383 (560)	182 (74)	1,565 (633)	NA
Aviation-Related Services	448 (181)	<1 (<1)	448 (181)	0.50
Commercial	206 (83)	0 (0)	206 (83)	0.30
Light Industrial	3,458 (1,399)	<1 (<1)	3,453 (1,396)	0.15
Heavy Industrial	1,030 (417)	0 (0)	1,030 (417)	0.15
Total[b]	**10,901 (4,412)**	**6,306 (2,552)**	**17,202 (6,961)**	**NA**

[a] Floor area ratio (FAR) is a formula that determines the maximum allowable nonresidential building area. The FAR is multiplied by the land area to determine the maximum building area. For example, a 100,000-square-foot (9,290-square-meter) parcel with an FAR of 0.10 would permit the construction of a 10,000-square-foot (929-square-meter) building.

[b] Does not include 179 acres (72.4 hectares) of Navy easements on adjacent property or in the existing Yellow Water Area military housing development.

Key:

NA = Not applicable; no major development would occur in these areas.

Sources: CFDC 1996; Ecology and Environment, Inc. 1998.

projected number of reused facilities and the amount of new construction over two phases of redevelopment, based on CFDC's market analyses, are presented in Table 2-2. It is estimated that approximately 1.2 million ft^2 (111,484 m^2) of existing facilities would be reused and 3.9 million ft^2 (362,322 m^2) of new facilities would be developed by 2010 (CFDC 1996).

Future land use under the Preferred Alternative would include reuse of all aviation facilities (e.g., hangars, runways, maintenance buildings) as a general aviation facility for joint civilian and military use. It is anticipated that some facilities would be used to accommodate helicopter units. Additional land at the Main Station would also be retained for future airport expansion and managed as forestry resources in the interim.

Estimated aircraft operations by aircraft type associated with the Preferred Alternative are presented in Table 2-3. These estimates are based on interviews with potential future users of the airfield conducted by the CFDC. These aircraft operations could potentially include operations by helicopters and various types of fixed-wing aircraft, totaling 95,050 landing and takeoff (LTO) cycles and 9,250 touch-and-go operations by 2010. Actual operations may vary based on an airport master plan that would be developed in conjunction with the Federal Aviation Administration (FAA), prior to use of the airfield after its disposal by Navy. This plan is in the early stages of development and would be subject to separate NEPA documentation (Simpson 1996).

The NAS Cecil Field golf course and other recreational lands at the Main Station (e.g. Lake Fretwell), and portions of the Yellow Water Area, would be reused for passive recreation, conservation areas, and active parks and recreational facilities as well as equestrian uses.

The balance of the property would be developed for a variety of industrial and commercial uses. Areas in the eastern and central portions of the Yellow Water Area and areas in the northern portion of the Main Station would be developed for light- and heavy-industrial use. Commercial development would be focused on the northern and southern frontages of Normandy Boulevard.

Within the developed area of the Main Station, a significant amount of demolition would possibly occur to clear large areas for redevelopment of heavy-industrial uses such as assembly shops for automotive and aviation parts. A series of existing barracks and classroom/office facilities would be retained for use as a conference/training center for companies that locate on the property (CFDC 1996).

Table 2-2

PREFERRED ALTERNATIVE— ASSUMED PHASES OF DEVELOPMENT

Land Use	Land Use Activity[a]	Phase 1 (1998-2004)		Phase 2 (2005-2010)		Total-Phases 1 and 2 (1998-2010)	
		Reused Facilities (ft^2 [m^2])	New Facilities (ft^2 [m^2])	Reused Facilities (ft^2 [m^2])	New Facilities (ft^2 [m^2])	Reused Facilities (ft^2 [m^2])	New Facilities (ft^2 [m^2])
Aviation-General/Related Services	Aviation (Army National Guard)	300,000 (27,870)	0	300,000 (27,870)	0	600,000 (55,740)	0
Aviation-General/Related Services	Air Cargo	40,000 (3,716)	0	250,000 (23,225)	0	290,000 (26,941)	0
Aviation-General/Related Services	Aircraft Manufacturing and Repair	100,000 (9,290)	0	200,000 (18,580)	0	300,000 (27,870)	0
Light/Heavy Industrial	Business Park Users	0	250,000 (23,225)	0	250,000 (23,225)	0	500,000 (46,450)
Commercial	Retail/Commercial	0	0	0	100,000 (9,290)	0	100,000 (9,290)
Heavy Industrial	Manufacturing	0	250,000 (23,225)	0	500,000 (46,450)	0	750,000 (69,675)
Light Industrial	Warehouse and Distribution	0	1,000,000 (92,900)	0	1,500,000 (139,350)	0	2,500,000 (232,250)
TOTAL		440,000 (40,876)	1,500,000 (139,350)	750,000 (69,675)	2,350,000 (218,315)	1,190,000 (110,551)	3,850,000 (357,665)

[a] Anticipated types of land use activities for each land use category.

Key:
ft^2 = Square feet.
m^2 = Square meters.

Sources: CFDC 1996; Ecology and Environment, Inc. 1998.

Table 2-3

**PREFERRED ALTERNATIVE—
ESTIMATED AIRCRAFT OPERATIONS[a]**

Aircraft Type	Phase 1 Annual Operations (1998-2004)		Phase 2 Annual Operations (2005-2010)	
	Full LTOs	Touch-and-Go Operations	Full LTOs	Touch-and-Go Operations
AH-64	1,450	475	3,300	1,200
UH-60	425	175	875	300
OH-58	1,325	325	875	250
Single-Engine Piston	10,000	2,000	15,000	2,500
Twin-Engine Piston	10,000	2,000	20,000	2,500
Turbo Prop	15,000	2,000	25,000	2,500
Corporate Jet	15,000	0	20,000	0
Large Jet	5,000	0	10,000	0
TOTAL	58,200	6,975	95,050	9,250

[a] Estimated aircraft operations based on interviews with potential users of airfield after disposal. Updated estimates of projected operations would be conducted as part of the Airport Master Plan being prepared for the airfield in conjunction with the FAA.

Key:

LTOs = Landing and takeoff cycles.

Source: CFDC 1996.

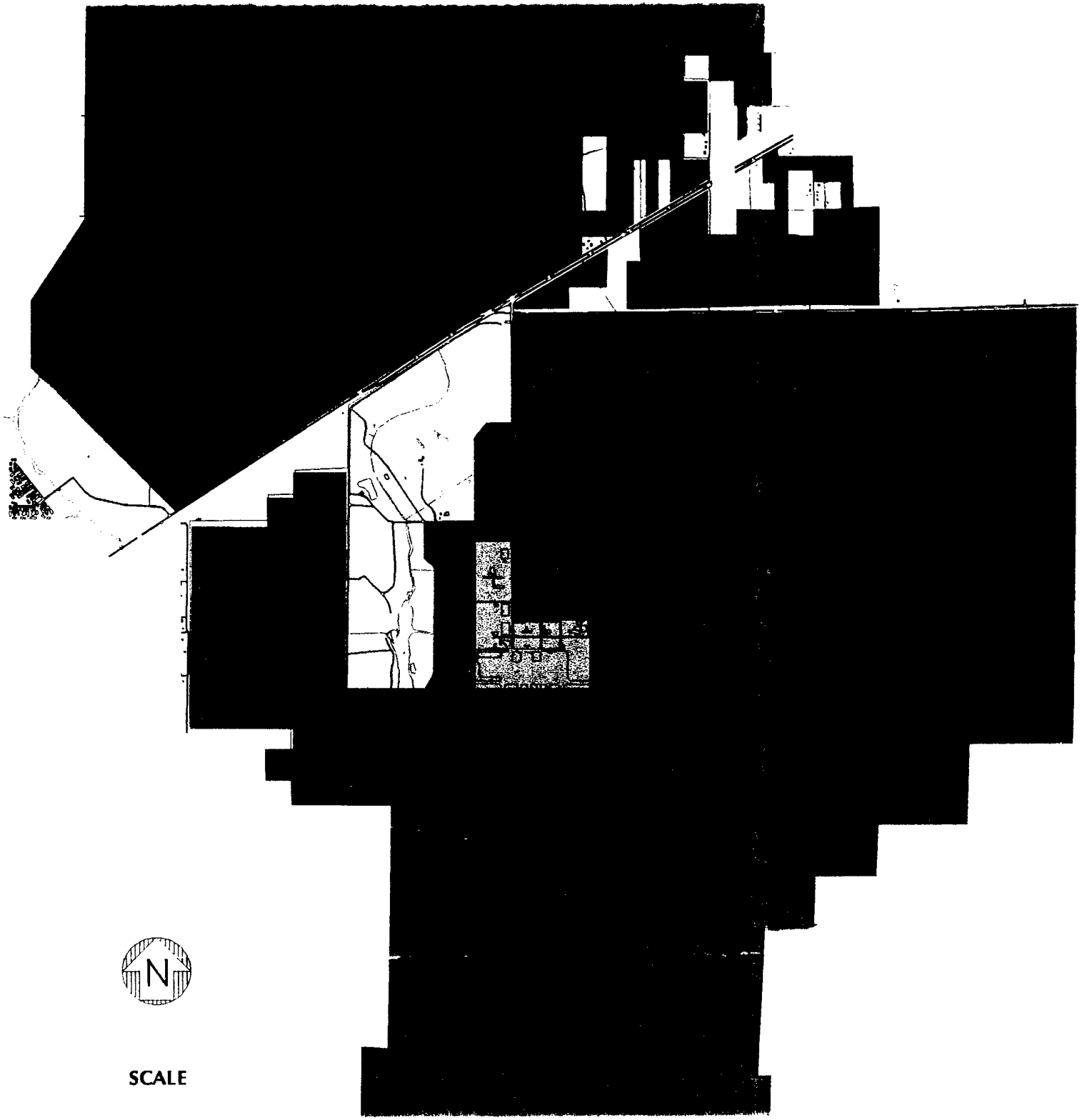
As mentioned, the Preferred Alternative supports preservation of a Natural and Recreation Corridor as a land use overlay zone through the western portion of the station. This corridor would include lands that are not best suited for new development but are better suited for long-term conservation, including stream corridors, wetlands, floodplains, and habitat of species of concern (see Table 2-1). This concept would support the creation of a 20-mi. long corridor between the Cary State Forest and the Jennings State Forest.

To ensure preservation of the Natural and Recreation Corridor, a Memorandum of Understanding (MOU) has been finalized between the city of Jacksonville, JAXPORT, Clay County, FDEP, and the St. Johns River Water Management District (SJWMD). The MOU acknowledges that the property has development potential and contains significant natural resources and that the corridor is more suitable for conservation and passive resource-based recreational activities, The MOU specifies that the corridor would be managed uniformly as an integrated wetland and upland system, and supports creation of a 20-mile-long (32-km-long) corridor between Cary State Forest and Jennings State Forest. The MOU, which was signed and finalized on March 13, 1998, will be adopted under the Jacksonville 2010 Comprehensive Plan as an attachment to the NAS Cecil Field Transition Element.

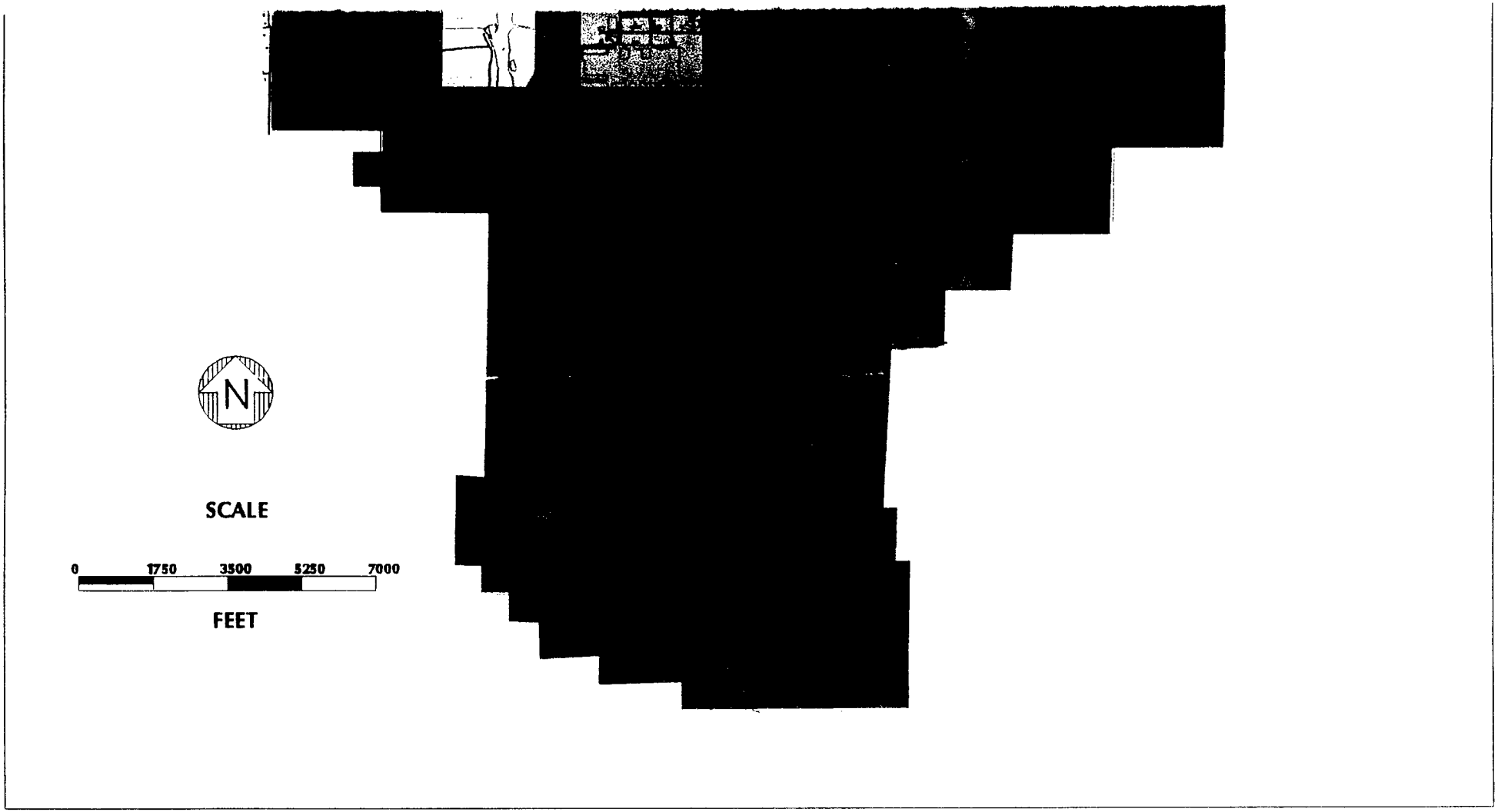
Finally, the land use plan depicts a proposed extension of Brannan Field-Chaffee Road, designed to facilitate traffic flow in the area. This project is not part of the Preferred Alternative, but is shown for illustrative purposes. This project is currently included in the Jacksonville Transportation Improvement Plan (TIP) (see Section 3.8.1).

JEDC, as the ultimate receiving entity for the station property, would be required to execute a series of future measures to implement the Preferred Alternative (CFDC 1996). These measures would include:

- Amendment of the Jacksonville and Clay County comprehensive plans and approval by DCA in accordance with Section 288.03, FS;
- Adoption of land development regulations, landscape standards, and urban design guidelines for the station property; and
- Preparation of detailed plans for resource management and site improvements, such as a forestry management plan (derived from existing Navy management practices), a master street plan, a master potable water supply system plan, a master sanitary sewer plan, and a master site drainage plan.



SCALE



Source: CFDC 1995; Navy 1996

Figure 2-2 LAND USE PLAN - ARS 1

Table 2-4

ARS 1—ASSUMED LAND USE ACREAGE/HECTARES

Land Use	Acres (Hectares)	Assumed Maximum Permitted Floor Area Ratio (FAR)[a]
Forestry	15,578 (6,304)	NA
Parks and Recreation	573 (232)	NA
Aviation Operations	158 (64)	NA
Market-Driven	893 (361)	0.50
TOTAL[b]	17,202 (6,961)	NA

[a] Floor area ratio (FAR) is a formula that determines the maximum allowable building area. The FAR is multiplied by the land area to determine the maximum building area. For example, a 100,000-square-foot (9,290-square-meter) parcel with an FAR of 0.10 would permit construction of a 10,000-square-foot (929-square-meter) building.

[b] Does not include 179 acres (72.4 hectares) of Navy easements on adjacent property or in the existing Yellow Water Area military housing development.

Key:

ARS = Alternative Reuse Scenario.
NA = Not applicable; no major development would occur in these areas.

Sources: CFDC 1996; Ecology and Environment, Inc. 1998.

Table 2-5

ARS 1—ASSUMED PHASES OF DEVELOPMENT

Land Use	Land Use Activity[a]	Phase 1 (1998-2004)		Phase 2 (2005-2010)		Total-Phases 1 and 2 (1998-2010)	
		Reused Facilities (ft^2 [m^2])	New Facilities (ft^2 [m^2])	Reused Facilities (ft^2 [m^2])	New Facilities (ft^2 [m^2])	Reused Facilities (ft^2 [m^2])	New Facilities (ft^2 [m^2])
Aviation	Helicopter Operations	300,000 (27,870)	0	0	0	300,000 (27,870)	0
Market-Driven	Business Park Users (Office and Industrial)	0	250,000 (23,225)	0	250,000 (23,225)	0	500,000 (46,450)
TOTAL		300,000 (27,870)	250,000 (23,225)	0	250,000 (23,225)	300,000 (27,870)	500,000 (46,450)

[a] Anticipated types of land use activities for each land use category.

Key:

ARS = Alternative Reuse Scenario.
ft^2 = Square feet.
m^2 = Square meters.

Sources: CFDC 1996; Ecology and Environment, Inc. 1998.

2.2.5 Alternative Reuse Scenario 2

ARS 2 corresponds to the "Local Asset Management" concept discussed in the *NAS Cecil Field Final Base Reuse Plan* (CFDC 1996). Under this plan, only moderate actions would be taken to stimulate reuse of the station. Redevelopment efforts would focus on the developed area of the Main Station to identify new users of existing facilities. The Yellow Water Area would not realize new development other than market-driven development around previously disturbed ordnance storage areas.

ARS 2 is illustrated on Figure 2-3. Acreages and assumed FARs controlling future development in each land use category under the plan are presented in Table 2-6. The anticipated number of reused facilities and the amount of new construction over two phases of redevelopment, based on the CFDC's market analyses, are presented in Table 2-7. It is estimated that roughly 600,000 ft^2 (55,742 m^2) of existing facilities would be reused and 500,000 ft^2 (46,452 m^2) of new facilities would be developed by 2010 (CFDC 1996).

The future land use plan under ARS 2 would include reuse of all aviation facilities (e.g., hangars, runways, maintenance buildings) as a general aviation facility for joint civilian and military use. Estimated aircraft operations would be similar to those under the Preferred Alternative. ARS 2 includes reuse of recreational facilities by the general public.

The balance of the property would be used by private land interests for market-driven development. This property would be controlled by local zoning. New development would be focused only on lands south of 103rd Street at the Main Station and former ordnance storage areas in the Yellow Water Area, to take advantage of existing infrastructure facilities (e.g., roads, sewer systems, utilities). Other lands at the Main Station and in the Yellow Water Area would be used for forestry, consistent with lands west of the site.

2.2.6 Alternative Reuse Scenario 3

ARS 3 corresponds to the "Non-Aviation Mixed Use" concept discussed in the *NAS Cecil Field Final Base Reuse Plan* (CFDC 1996). Under this plan, the ultimate receiving entity would aggressively market and guide redevelopment of the station property for non-aviation use. All aviation facilities would be either renovated for non-aviation use or razed. Job creation would be the primary goal, and significant infrastructure and road improvements would be implemented to foster aggressive development.

ARS 3 is illustrated on Figure 2-4. Acreages and assumed FARs controlling future development in each land use category under the plan are presented in Table 2-8. Anticipated phases of development under the plan, based on the CFDC's market analyses, are presented in

Table 2-9. This ARS is estimated to result in the greatest amount of development, including 3.5 million ft^2 (325,161 m^2) of new facilities and 3,250 new housing units by 2010 (CFDC 1996).

The future land use plan for ARS 3 would include development of a variety of residential, commercial, and industrial uses. Land in the eastern portion of the Main Station would be utilized for a new planned residential community. Land south of Normandy Boulevard and north of 103rd Street would be developed for commercial uses to support this residential community. Land in the eastern and northern portions of the Yellow Water Area would be developed for light-industrial facilities such as "big-box" distributors (e.g., Home Depot, Office Max), and complemented by reactivation of the existing railroad line. Land in the western portion of both the Main Station and the Yellow Water Area would be developed for manufacturing uses. Finally, the southern portion of the Main Station would be reserved for conservation and mitigation areas to compensate for proposed development in other areas of the station.

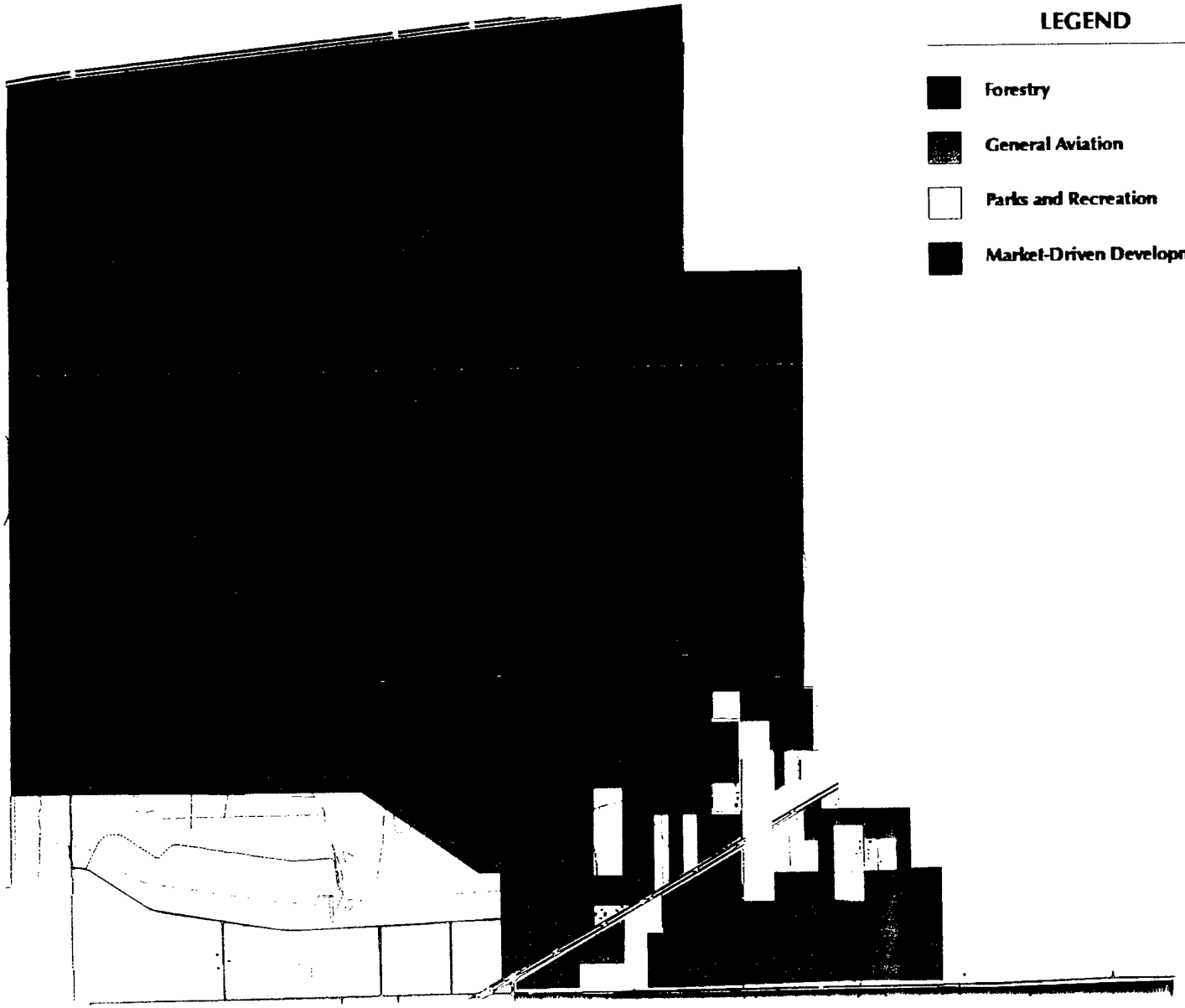
The developed area of the Main Station would be redeveloped into a large-scale business park or business incubator area, and existing buildings and roads would be reused to the greatest extent practicable.

2.2.7 Alternative Reuse Scenario 4

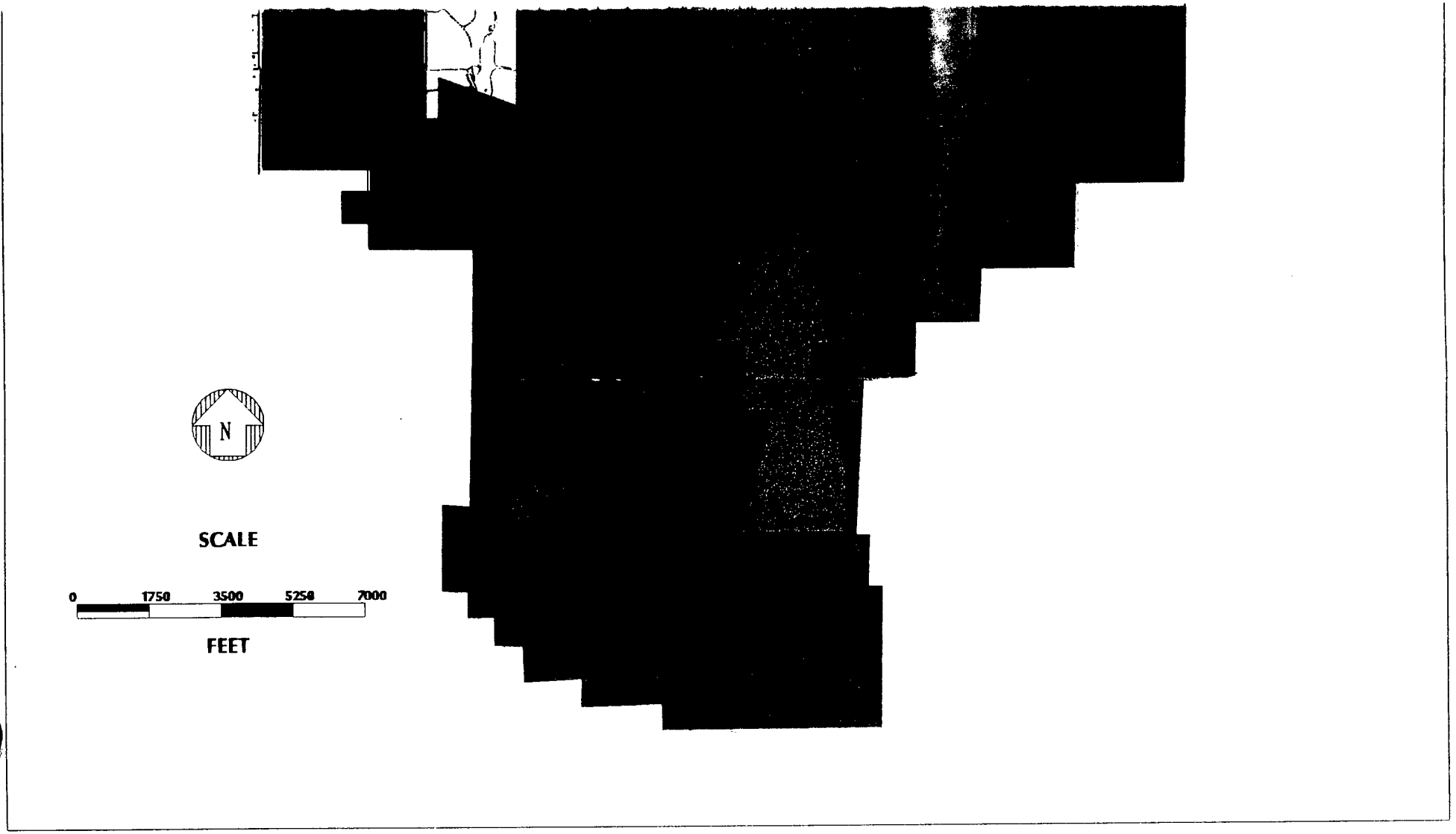
ARS 4 corresponds to an earlier version of the CFDC's Final Reuse Plan for the station that was subsequently amended by the commission in March of 1996 (CFDC 1996). Although no longer the community's Preferred Alternative, it represents a reasonable ARS that was considered by the community. Similar to the Preferred Alternative, ARS 4 would involve aggressively marketing redevelopment of the station property for aviation and other industrial uses. The major difference between ARS 4 and the Preferred Alternative would be the inclusion of two major new institutional facilities under ARS 4.

ARS 4 is illustrated on Figure 2-5. The acreages and assumed FARs controlling future development in each land use category under the plan are presented in Table 2-10. The estimated number of reused facilities and the amount of new construction over two phases of redevelopment, based on the CFDC's market analyses, are presented in Table 2-11. It is estimated that 1.2 million ft^2 (111,484 m^2) of existing facilities would be reused and almost 4.6 million ft^2 (427,354 m^2) of new facilities would be developed under this ARS.

The future land use plan under ARS 4 would include reuse of all aviation facilities (e.g., hangars, runways, maintenance buildings) as a general aviation facility for joint civilian and military use. Anticipated aircraft operations would be similar to those under the Preferred Alternative.


LEGEND
Forestry
General Aviation
Parks and Recreation
Market-Driven Development

N



Source: CFDC 1995; Navy 1996

Figure 2-3 LAND USE PLAN - ARS 2

Table 2-6

ARS 2—ASSUMED LAND USE ACREAGE/HECTARES

Land Use	Acres (Hectares)	Assumed Maximum Permitted Floor Area Ratio (FAR)[a]
Forestry	11,737 (4,750)	NA
Parks and Recreation	2,332 (944)	NA
General Aviation	1,833 (742)	0.50
Market-Driven	1,300 (526)	0.50
TOTAL[b]	17,202 (6,962)	NA

[a] Floor-area ratio (FAR) is a formula which determines the maximum allowable non-residential building area. The FAR is multiplied by the land area to determine the maximum building area. For example, a 100,000 square-foot (9,290-square-meter) parcel with an FAR of 0.10 would permit the construction of a 10,000 square-foot (929-square-meter) building.

[b] Does not include 179 acres (72.4 hectares) of Navy easements on adjacent property or existing Yellow Water military housing.

Key:

ARS = Alternative Reuse Scenario.
NA = Not applicable; no major development would occur in these areas.

Sources: CFDC 1996; Ecology and Environment, Inc. 1998.

Table 2-7

ARS 2—ASSUMED PHASES OF DEVELOPMENT

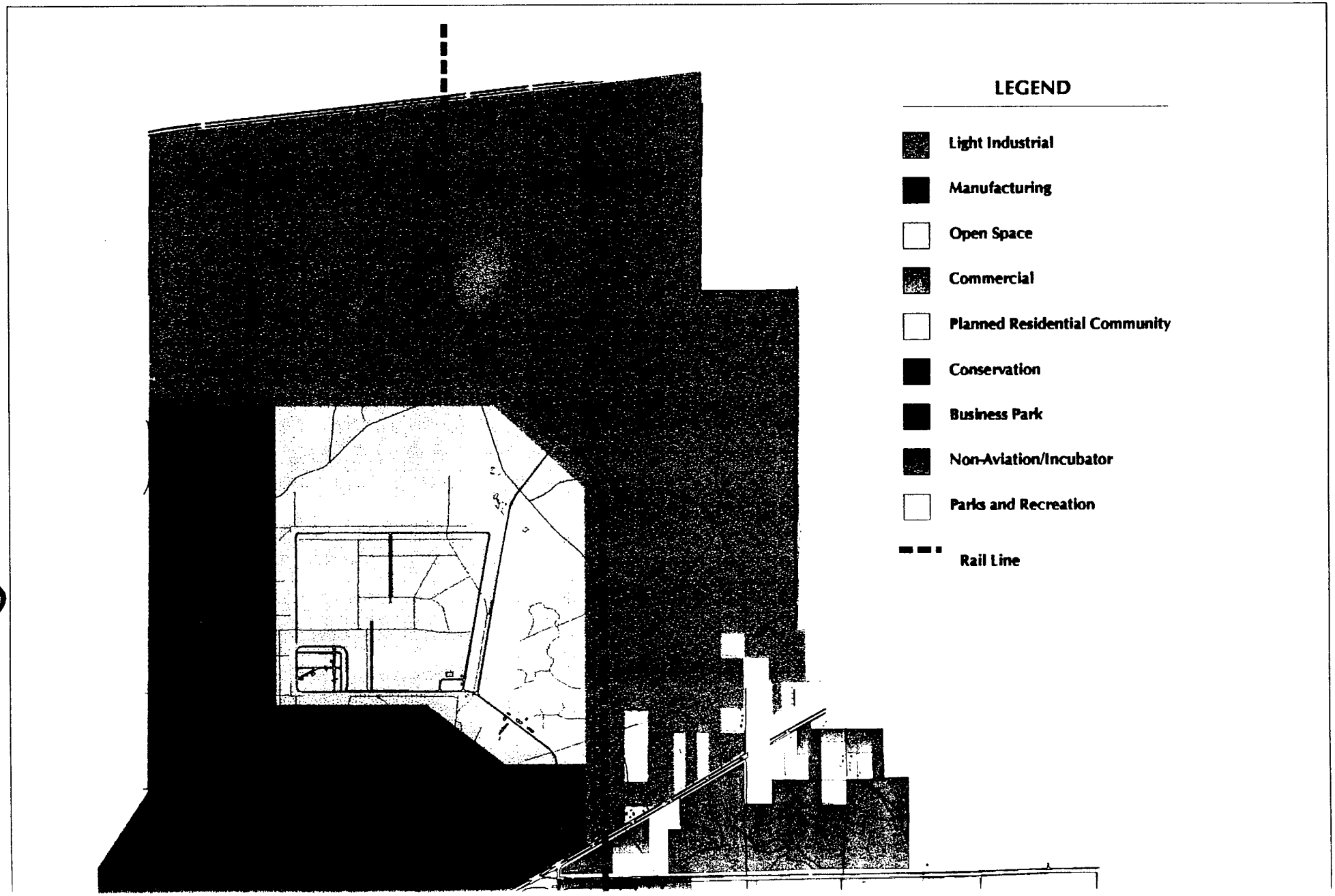
Land Use	Land Use Activity[a]	Phase 1 (1998-2004)		Phase 2 (2005-2010)		Total - Phases 1 and 2 (1998-2010)	
		Reused Facilities (ft^2 [m^2])	New Facilities (ft^2 [m^2])	Reused Facilities (ft^2 [m^2])	New Facilities (ft^2 [m^2])	Reused Facilities (ft^2 [m^2])	New Facilities (ft^2 [m^2])
General Aviation	Aviation (Army National Guard)	300,000 (27,870)	0	0	0	300,000 (27,870)	0
General Aviation	Aviation Manufacturing and Repair	100,000 (9,290)	0	200,000 (18,580)	0	300,000 (27,870)	0
Market-Driven	Business Park Users (Office and Industrial)	0	250,000 (23,225)	0	250,000 (23,225)	0	500,000 (46,450)
TOTAL		400,000 (37,160)	250,000 (23,225)	200,000 (18,580)	250,000 (23,225)	600,000 (55,740)	500,000 (46,450)

[a] Anticipated types of land use activities for each land use category.

Key:

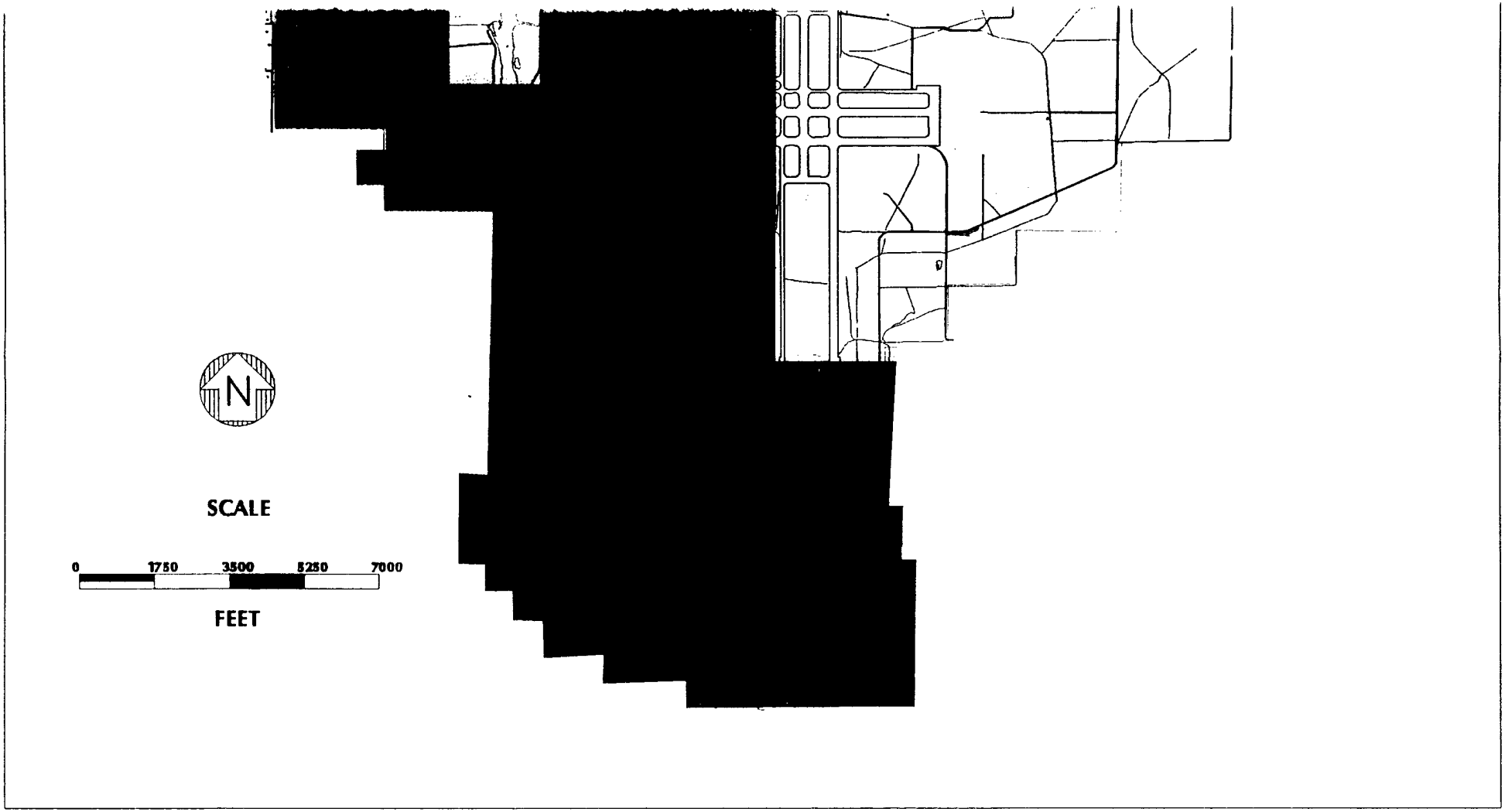
ARS = Alternative Reuse Scenario.
ft^2 = Square feet.
m^2 = Square meters.

Sources: CFDC 1996; Ecology and Environment, Inc. 1998.


LEGEND
Light Industrial
Manufacturing
Open Space
Commercial
Planned Residential Community
Conservation
Business Park
Non-Aviation/Incubator
Parks and Recreation
Rail Line



(2)



Source: CFDC 1995; Navy 1996

Figure 2-4 LAND USE PLAN - ARS 3

Table 2-8

ARS 3—ASSUMED LAND USE ACREAGE/HECTARES

Land Use	Acreage (Hectares)	Assumed Maximum Permitted Floor Area Ratio (FAR)[a]
Conservation	2,291 (927)	NA
Open Space	1,574 (637)	NA
Parks and Recreation	570 (231)	NA
Planned Residential	3,437 (1,391)	NA[b]
Commercial	410 (166)	0.30
Business Park Users	241 (98)	0.50
Non-Aviation/Incubator	786 (318)	0.50
Light Industrial	4,184 (1,693)	0.15
Manufacturing	3,709 (1,501)	0.15
TOTAL[c]	17,202 (6,962)	NA

[a] Floor area ratio (FAR) is a formula that determines the maximum allowable nonresidential building area. The FAR is multiplied by the land area to determine the maximum building area. For example, a 100,000-square-foot (9,290-square-meter) parcel with an FAR of 0.10 would permit a 10,000-square-foot (929-square-meter) building to be constructed.

[b] No FAR is listed because only residential development would occur in this area. Residential density would be approximately 1 unit/acre (1 unit/0.404 hectare).

[c] Does not include 179 acres (72.4 hectares) of Navy easements on adjacent property or in the existing Yellow Water Area military housing development.

Key:

ARS = Alternative Reuse Scenario.
NA = Not applicable; no major development would occur in these areas.

Sources: CFDC 1996; Ecology and Environment, Inc. 1998.

Table 2-9

ARS 3—ASSUMED PHASES OF DEVELOPMENT

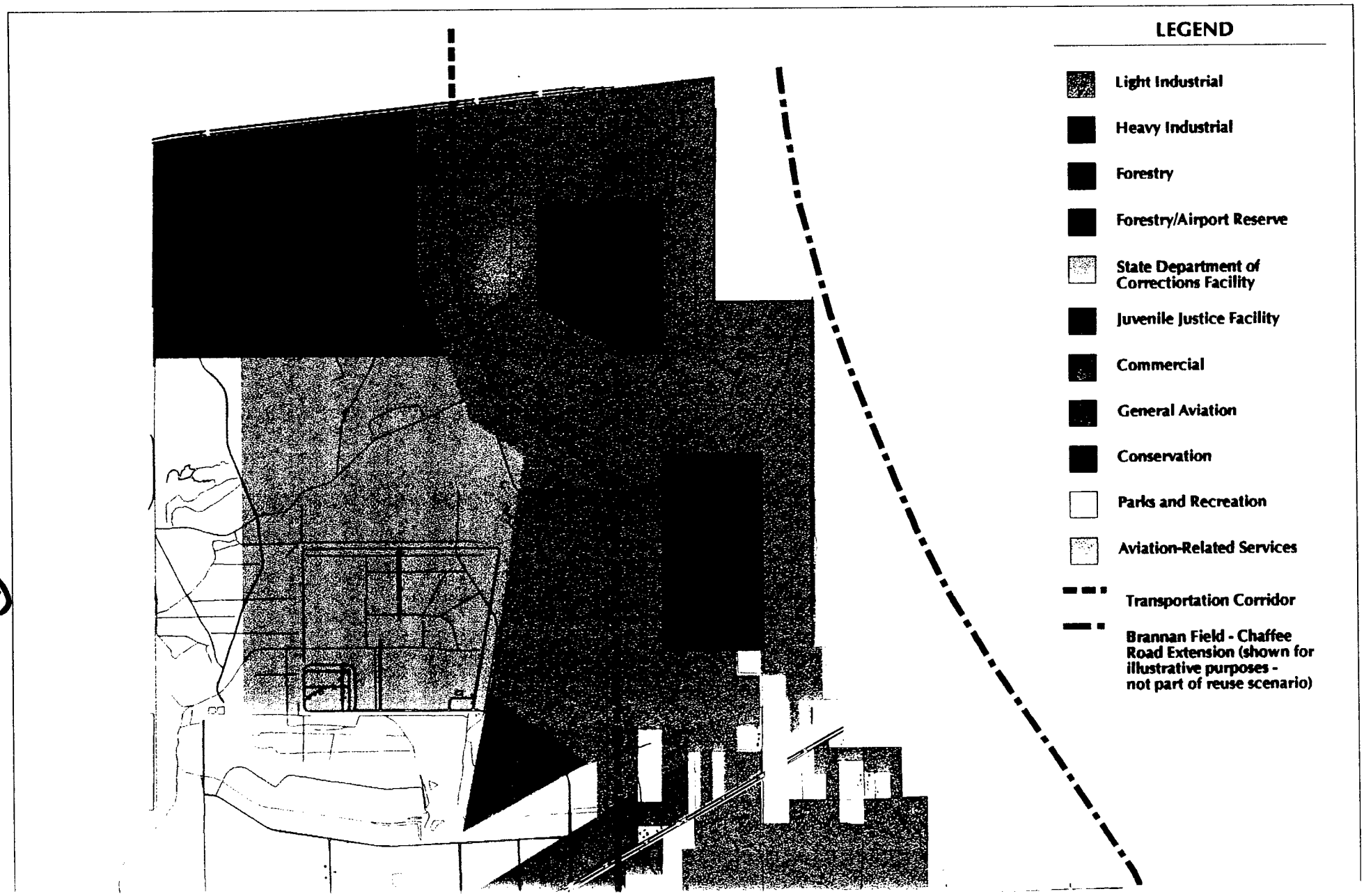
Land Use	Land Use Activity[a]	Phase 1 (1998-2004)		Phase 2 (2005-2010)		Total-Phases 1 and 2 (1998-2010)	
		Reused Facilities (ft^2 [m^2])	New Facilities (ft^2 [m^2])	Reused Facilities (ft^2 [m^2])	New Facilities (ft^2 [m^2])	Reused Facilities (ft^2 [m^2])	New Facilities (ft^2 [m^2])
Business Park Users/ Non-Aviation Incubator	Industrial/Office	0	250,000 (23,225)	0	300,000 (27,870)	0	550,000 (51,095)
Commercial	Neighborhood	0	0	0	200,000 (18,580)	0	200,000 (18,580)
Manufacturing	Light/Heavy Industrial	0	250,000 (23,225)	0	500,000 (46,450)	0	750,000 (69,675)
Light Industrial	Warehouse/Distribution	0	1,000,000 (92,900)	0	1,000,000 (92,900)	0	2,000,000 (185,800)
Planned Residential	Low-Density Residential	0	NA (750 units)	0	NA (2,500 units)	0	NA (3,250 units)
TOTAL		0	1,500,000 (139,350)	0	2,000,000 (185,800)	0	3,500,000 (32,515)

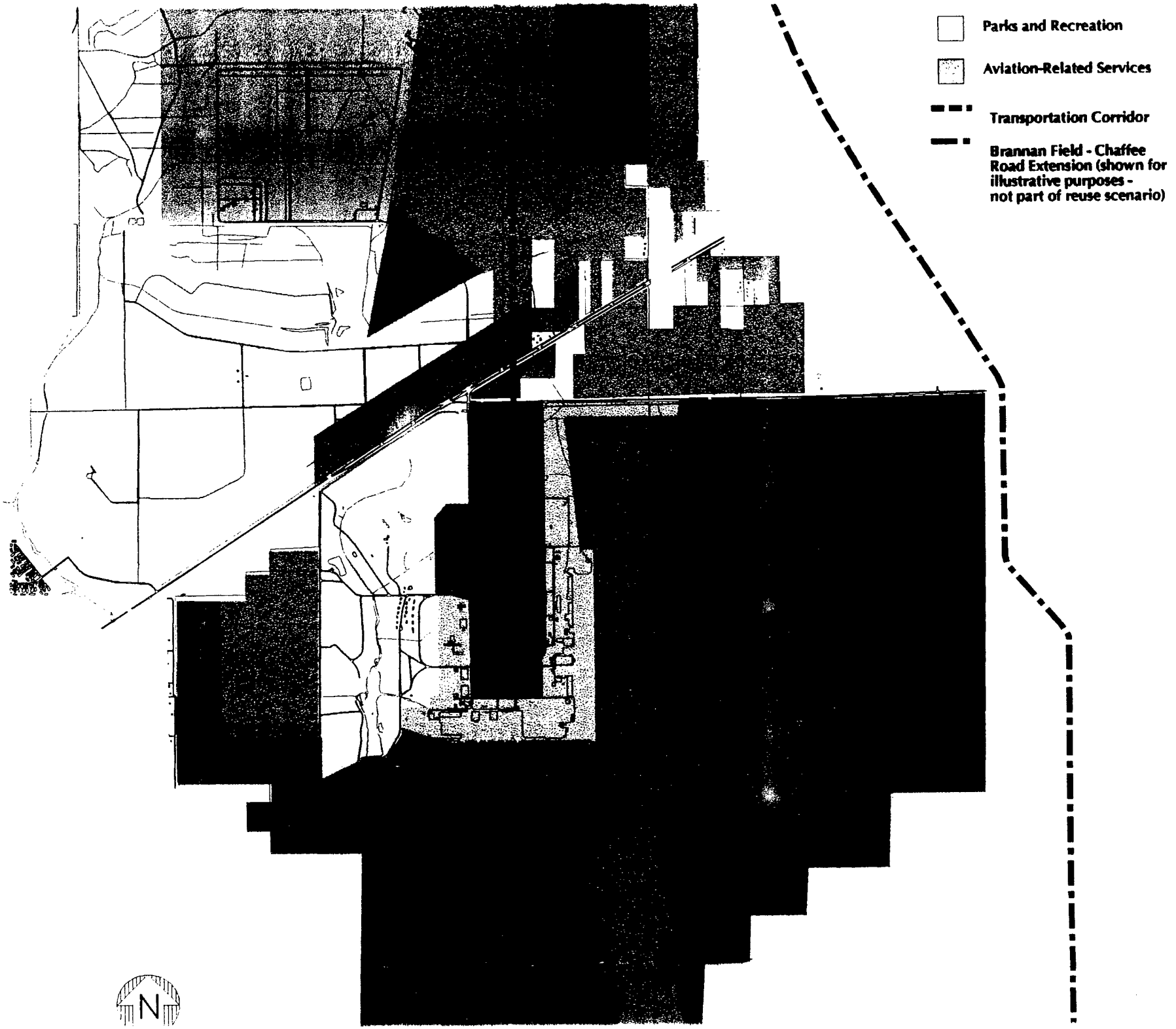
[a] Anticipated types of land use activities for each land use category.

Key:

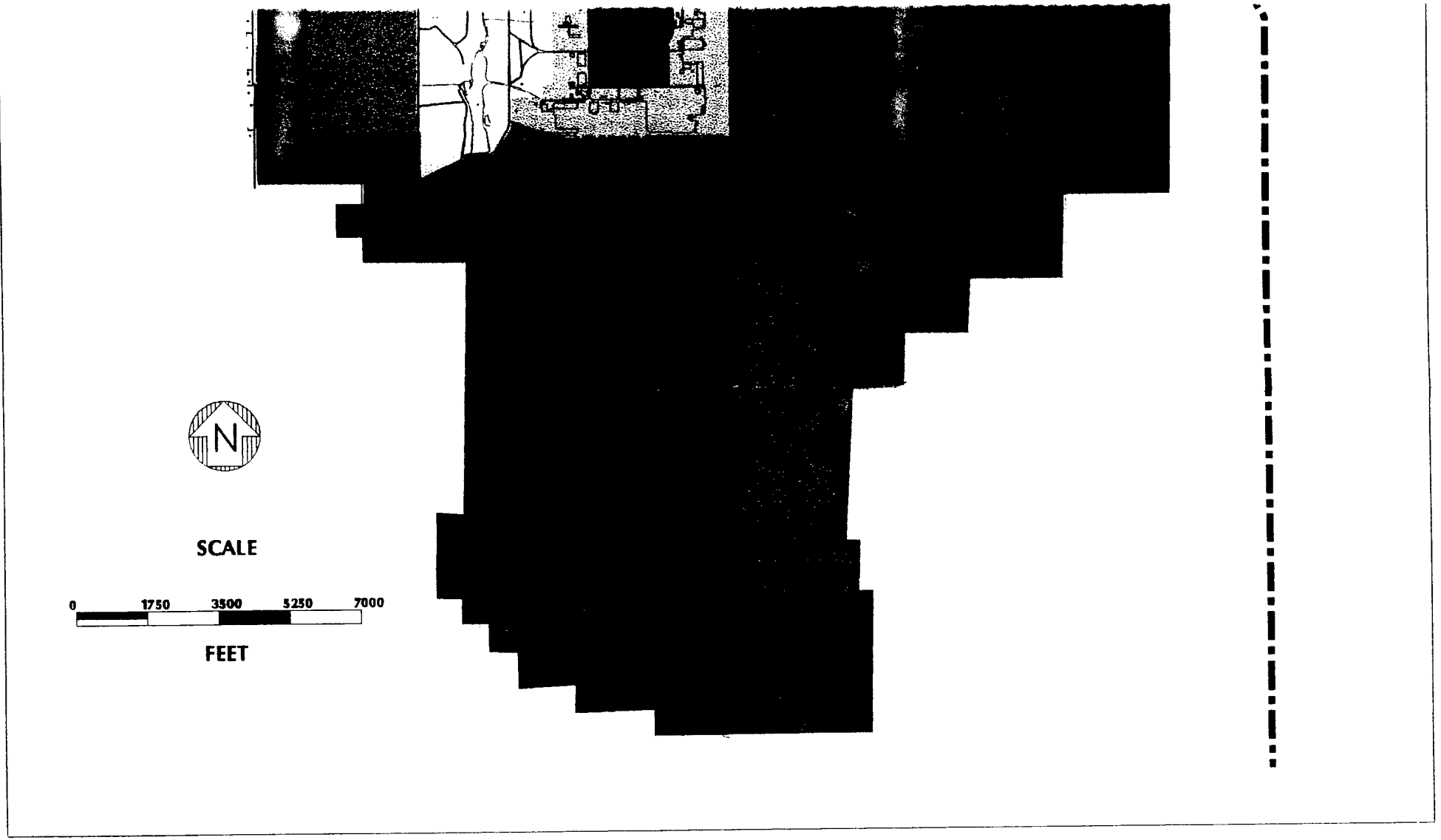
ARS = Alternative Reuse Scenario.
ft^2 = Square feet.
m^2 = Square meters.

Sources: CFDC 1996; Ecology and Environment, Inc. 1998.


LEGEND
Light Industrial
Heavy Industrial
Forestry
Forestry/Airport Reserve
State Department of Corrections Facility
Juvenile Justice Facility
Commercial
General Aviation
Conservation
Parks and Recreation
Aviation-Related Services
Transportation Corridor
Brannan Field - Chaffee Road Extension (shown for illustrative purposes - not part of reuse scenario)


Parks and Recreation
Aviation-Related Services
Transportation Corridor
Brannan Field - Chaffee Road Extension (shown for illustrative purposes - not part of reuse scenario)
N

(2)



Source: CFDC 1995; Navy 1996

Figure 2-5 LAND USE PLAN - ARS 4

Table 2-10

ARS 4—LAND USE ACREAGE/HECTARES

Land Use	Acres (Hectares)	Assumed Maximum Permitted Floor Area Ratio (FAR)[a]
Conservation	641 (259)	NA
Forestry	980 (397)	NA
Forestry/Airport Reserve	4,452 (1,802)	NA
Parks and Recreation	2,955 (1,196)	NA
State Corrections Facility	1,439 (582)	0.10
State Juvenile Justice Facility	126 (51)	0.15
General Aviation	1,566 (634)	NA
Aviation-Related Services	445 (180)	0.50
Commercial	207 (84)	0.30
Light Industrial	3,362 (1,361)	0.15
Heavy Industrial	1,029 (416)	0.15
TOTAL[b]	17,202 (6,962)	NA

[a] Floor-area ratio (FAR) is a formula that determines the maximum allowable nonresidential building area. The FAR is multiplied by the land area to determine the maximum building area. For example, a 100,000-square-foot (9,290-square-meter) parcel with an FAR of 0.10 would permit construction of a 10,000-square-foot (929-square-meter) building.

[b] Does not include 179 acres (72.4 hectares) of Navy easements on adjacent property or in the existing Yellow Water Area military housing development.

Key:

NA = Not applicable; no major development would occur in these areas.

Sources: CFDC 1996; Ecology and Environment, Inc. 1998.

Table 2-11

ARS 4—ASSUMED PHASES OF DEVELOPMENT

Land Use Category	Land Use Activity[a]	Phase 1 (1998-2004)		Phase 2 (2005-2010)		Total-Phases 1 and 2 (1998-2010)	
		Reused Facilities (ft^2 [m^2])	New Facilities (ft^2 [m^2])	Reused Facilities (ft^2 [m^2])	New Facilities (ft^2 [m^2])	Reused Facilities (ft^2 [m^2])	New Facilities (ft^2 [m^2])
State Corrections Facility	State Department of Corrections Facility	0	1,000,000 (92,900)	0	0	0	1,000,000 (92,900)
State Juvenile Justice Facility	Juvenile Justice Facility	50,000 (4,645)	0	0	0	50,000 (4,645)	0
Aviation-General/Related Services	Aviation	300,000 (27,870)	0	300,000 (27,870)	0	600,000 (55,740)	0
Aviation-General/Related Services	Air Cargo	40,000 (3,716)	0	250,000 (23,225)	0	290,000 (26,941)	0
Aviation-General/Related Services	Aircraft Manufacturing and Repair	100,000 (9,290)	0	200,000 (18,580)	0	300,000 (27,870)	0
Light/Heavy Industrial	Business Park Users	0	250,000 (23,225)	0	250,000 (23,225)	0	500,000 (46,450)
Commercial	Retail/Commercial	0	0	0	100,000 (9,290)	0	100,000 (9,290)
Heavy Industrial	Manufacturing	0	250,000 (23,225)	0	500,000 (46,450)	0	750,000 (69,675)
Light Industrial	Warehouse and Distribution	0	1,000,000 (92,900)	0	1,500,000 (139,350)	0	2,500,000 (232,250)
TOTAL		490,000 (45,521)	2,500,000 (232,250)	750,000 (69,675)	2,350,000 (218,315)	1,240,000 (115,196)	4,850,000 (450,565)

[a] Anticipated types of land use activities for each land use category.

Key:

ARS = Alternative Reuse Scenario.
ft^2 = Square feet.
m^2 = Square meters.

Sources: CFDC 1996; Ecology and Environment, Inc. 1998.

As under the other scenarios, the NAS Cecil Field golf course and other recreational lands at the Main Station and in the Yellow Water Area would be opened for public use.

The two major institution uses would include:

- Land in the existing ordnance storage areas of the Yellow Water Area, as well as a buffer area surrounding this compound that would be used for development of a new 5,000-bed state corrections facility; and
- Land and buildings in the southern portion of the Yellow Water Area that would be used for development of a juvenile justice facility.

The balance of the property would be developed for a variety of industrial and commercial uses. Areas in the eastern portion of the Yellow Water Area and in portions of the northwestern and northeastern sides of the Main Station would be developed for light- and heavy industrial uses. Commercial development would be focused on the northern and southern frontages of Normandy Boulevard. Finally, the northwestern portion of the Yellow Water Area would be used for forestry management.

Within the developed area of the Main Station, a significant amount of demolition would occur to clear large areas for development of heavy-industrial uses such as assembly shops for automotive and aviation parts. A series of existing barracks and classroom/office facilities would be retained for use as a conference/training center for companies that locate on the property.

2.2.8 No-Action Alternative

Under the No-Action Alternative, Navy would retain ownership of the NAS Cecil Field property and maintain the property in caretaker status. All operations at the facility would cease, and activities and personnel would be realigned as recommended by the BRAC Commission. All personnel property would be removed from buildings, which would be boarded up to minimize structural deterioration. The perimeter of the base would be secured, and public access would be prohibited.

Development of this alternative would be contrary to the intent of the President's five-part-plan to revitalize base closure communities, which encourages economic redevelopment of former military bases to offset the effects to host communities. Holding NAS Cecil Field in caretaker status would not benefit the community.

2.3 Other Alternatives Considered But Not Included

2.3.1 The Global Airport

Under this alternative, the Main Station and the Yellow Water Area would be ultimately developed into a global airport or world port, designed to accommodate future hypersonic aircraft for transoceanic travel (Arthur Andersen and Co. n.d.). This would require land-banking the majority of the station with limited interim uses until development of the airport facilities is feasible (i.e., 15 to 20 years after closure of Cecil Field, or approximately 2018). Phasing of this alternative would be largely dependent on development of new hypersonic aircraft technology and the suitability of Cecil Field as a site to handle such aircraft.

The plan would involve future use of the entire Main Station and the Yellow Water Area for the global airport. Significant improvements would include a high-speed rail connection between Jacksonville International Airport and Cecil Field; new cargo and passenger terminals; reuse or construction of new facilities for maintenance and support; and extension of one runway and construction of three new runways (requiring acquisition of lands adjoining Cecil Field to accommodate longer runway lengths for hypersonic aircraft).

Among many other regulatory issues, it should be noted that implementation of such a project would require approval/permitting from the FAA. Such approval would be a major federal action requiring subsequent NEPA documentation. Such efforts and the delayed implementation render this alternative unfeasible and eliminate it from further consideration in this FEIS.

From an environmental impact perspective, prior to development of the global airport uses under this alternative would be similar to uses specified under ARS 1 (e.g., forestry and recreational uses). The only difference would be ultimate relinquishment of such uses in the long term to allow for global airport development. Therefore, the effects of such a scenario would be covered sufficiently in this FEIS.

2.4 Comparison of Alternatives and Selection of Preferred Alternative

Table 2-12 summarizes the environmental effects of the proposed action and each ARS. These effects are discussed in greater detail in Section 4. Of the alternatives considered, ARS 1 would have the fewest impacts on the environment based on the limited amount of development and the predominant designation for passive recreational use and forestry. Consequently, ARS 1 would result in the least amount of beneficial socioeconomic impact in terms of new jobs and

revenues to offset the effects associated with closure of the station. ARS 3 would result in the greatest number of potential environmental impacts, most of which would be associated with increased traffic due to the relatively aggressive approach to development.

The Preferred Alternative would result in minor to moderate environmental impacts with reasonable job retention/creation and revenue generation. Therefore, the CFDC selected the aviation mixed-use concept as the Final Base Reuse Plan to guide redevelopment of the station. In turn, Navy has identified this as the Preferred Alternative for the purposes of this FEIS.

Table 2-12

COMPARISON OF ENVIRONMENTAL IMPACTS
NAS CECIL FIELD

Resource	Preferred Alternative	Alternative Reuse Scenario 1	Alternative Reuse Scenario 2	Alternative Reuse Scenario 3	Alternative Reuse Scenario 4	No-Action Alternative
Land Use and Aesthetics	Minimal adverse impacts. Land uses generally consistent and compatible. Specific impacts would be mitigated through local development review process.	Minimal adverse impacts. Little new development would occur. Specific impacts would be mitigated through local development review process.	Minimal adverse impacts. Land uses generally consistent and compatible. Specific impacts would be mitigated through local development review process.	Moderate adverse impacts. Greatest level of planned development among alternatives. Potential for minor internal land use conflicts between residential and industrial uses. Specific impacts would be mitigated through local development review process.	Minimal adverse impacts. Land uses generally consistent and compatible. Potential for minor land use conflicts between corrections facilities and industrial uses. Specific impacts would be mitigated through local development review process.	Minimal adverse impacts. Under caretaker status, aesthetic features of the station would deteriorate because maintenance at the station would be minimal. No land use conflicts or mitigation measures required.
Geology, Topography, and Soils	No significant impacts.	No significant impacts.	No significant impacts.	No significant impacts.	No significant impacts.	No significant impacts.
Terrestrial Resources	Minor impacts in the short term and potentially significant impacts in the long-term, depending on location and layout of specific development proposals. Sensitive areas can be avoided and impacts mitigated through actions such as the development of the Natural and Recreation Corridor and avoidance of floodplains.	No significant impacts.	No significant impacts.	Minor impacts in the short term and potentially significant impacts in the long-term, depending on location and layout of specific development proposals. Sensitive areas can be avoided and impacts mitigated.	Minor impacts in the short term and potentially moderate impacts in the long-term, depending on location and layout of specific development proposals. Sensitive areas can be avoided and impacts mitigated.	No significant impacts.

Table 2-12

COMPARISON OF ENVIRONMENTAL IMPACTS
NAS CECIL FIELD

Resource	Preferred Alternative	Alternative Reuse Scenario 1	Alternative Reuse Scenario 2	Alternative Reuse Scenario 3	Alternative Reuse Scenario 4	No-Action Alternative
Threatened and Endangered Species	Of 24 listed species that may occur at the station, long-term development could affect suitable habitat and individual species. Grading for construction could affect gopher tortoises; development in ordnance storage area could result in loss of suitable foraging habitat for the southeastern American kestrel; and fragmentation of suitable habitat could result in indirect impacts.	Long-term development would not affect the distribution of listed species or the suitable habitats. Currently developed areas or uses would not be significantly expanded or changed.	Impacts to suitable habitat similar to current conditions. Development of a relatively small portion of the Yellow Water Area would result in loss of suitable foraging habitat for the southeastern American kestrel.	Long-term development would result in the direct loss of much suitable habitat for several listed species. Species not directly impacted would be isolated from other individuals, potentially resulting in a significant impact to species population through decreased reproduction.	Long-term development could affect suitable habitat and individual species. Grading for construction could affect gopher tortoises; development in ordnance storage area could result in loss of suitable foraging habitat for the southeastern American kestrel; and fragmentation of suitable habitat could have indirect impacts.	Long-term development would not affect the distribution of listed species or the suitable habitats. With no development activities or land use actions, and with continued forest management practices, individual species would benefit.
Water Quality	No significant adverse impacts. Potential for beneficial impacts to surface water and groundwater quality, primarily through wetland enhancement in the Natural and Recreation Corridor and development of stormwater management facilities to address flooding and water quality problems for Black Creek.	No significant adverse impacts. Potential for beneficial impacts to surface water and groundwater quality, primarily through development of stormwater management facilities to address flooding and water quality problems for Black Creek.	No significant adverse impacts. Potential for beneficial impacts to surface water and groundwater quality, primarily through development of stormwater management facilities to address flooding and water quality problems for Black Creek.	No significant adverse impacts. Potential for beneficial impacts to surface water and groundwater quality, primarily through development of stormwater management facilities to address flooding and water quality problems for Black Creek.	No significant adverse impacts. Potential for beneficial impacts to surface water and groundwater quality, primarily through wetland enhancement in the Natural and Recreation Corridor and development of stormwater management facilities to address flooding and water quality problems for Black Creek.	No significant adverse impact. No potential for beneficial impact to surface water or groundwater through wetland enhancement or development of stormwater management facilities.

Table 2-12

COMPARISON OF ENVIRONMENTAL IMPACTS
NAS CECIL FIELD

Resource	Preferred Alternative	Alternative Reuse Scenario 1	Alternative Reuse Scenario 2	Alternative Reuse Scenario 3	Alternative Reuse Scenario 4	No-Action Alternative
Air Quality	Short-term dust emissions during construction. Moderate long-term increase in CO emission resulting from traffic.	No significant impacts.	No significant impacts.	Significant long-term CO emission increase resulting from new traffic generation. Short-term increases in fugitive dust emissions during construction.	Moderate long-term increases in CO emissions resulting from traffic generated. Short-term increases in fugitive dust emissions during construction.	No significant impacts. Emission levels would be substantially lower than pre-closure levels.
Noise	Continued effects of airport related noise but lower than pre-closure levels.	Minor noise impacts associated with helicopter operations only; however, lower than pre-closure levels and other alternatives.	Continued effects of airport-related noise, but much lower than current levels.	No significant impacts. No airport-related noise would occur, because all airport facilities would be dismantled.	Continued effects of airport-related noise, but much lower than pre-closure levels.	No significant impact. This alternative would result in the greatest decrease in ambient noise levels.
Socioeconomics/ Community Services	Moderate beneficial impacts. Approximately 6,700 jobs created, $145 million in direct/indirect income generated, and $2,164,758 in tax revenue generated. No significant impacts on housing market, schools, or emergency/medical services. Significant beneficial impacts on public Recreation services.	Minimal beneficial impacts. Approximately 1,300 jobs created, $33 million in direct/indirect income generated, and $520,292 in tax revenue generated. No significant impacts on local housing market, schools, or emergency/medical services. Significant beneficial impacts on publicly available Recreation activities	Minor beneficial impacts. Approximately 2,800 jobs created, $72 million in direct/indirect income generated, and $639,958 in tax revenue generated. No significant impacts on local housing market, schools, or emergency/ medical services. Significant beneficial impacts on publicly available recreation activities.	Moderate beneficial impacts. Approximately 4,746 jobs created, $94 million in direct/ indirect income generated, and $7,520,376 in tax revenue generated. Moderate impact on local housing market as a result of the development of 3,250 residential units. Minor impacts on schools and emergency/medical services. Significant beneficial impacts on publicly available Recreation activities.	Significant beneficial impacts. Approximately 10,000 jobs created, $210 million in direct/ indirect income generated, and $2,164,758 in tax revenue generated. Minor impact on local housing market, schools, and emergency/medical services. Significant beneficial impacts on publicly available Recreation activities.	Moderate adverse impacts. No substitute for economic, employment, and income losses associated with closure of NAS Cecil Field. The No-Action Alternative would result in the greatest loss of potential taxes and revenues. No significant adverse or beneficial impact on the housing market, schools, or emergency and medical service. No positive impact on public Recreation facilities.

Table 2-12

COMPARISON OF ENVIRONMENTAL IMPACTS
NAS CECIL FIELD

Resource	Preferred Alternative	Alternative Reuse Scenario 1	Alternative Reuse Scenario 2	Alternative Reuse Scenario 3	Alternative Reuse Scenario 4	No-Action Alternative
Transportation	Moderate adverse impacts would result from traffic volumes (24,359 ADT at 2,010 buildout), potential loss of mass transit service during initial phases of redevelopment, moderate long-term deterioration of LOS, or potential need for improved on- and off-station roadways. Air traffic significantly reduced from pre-closure levels.	Minor adverse impact would result from traffic volumes (6,482 ADT at 2,010 buildout) or potential loss of mass transit service. No significant impact on LOS on- or off--station. Air traffic significantly reduced from pre-closure levels; limited only to helicopter operations.	Minor adverse impact would result from traffic volumes (8,809 ADT at 2,010 buildout) or potential loss of mass transit service. Minor deterioration of LOS on certain off-station roads. Air traffic significantly reduced from pre-closure levels.	Significant adverse impacts would result from traffic volumes (55,332 ADT at 2,010 buildout), potential loss of mass transit service during initial phases of redevelopment or deterioration of on- and off-station LOS. No impacts on air traffic; all air facilities would be dismantled.	Moderate adverse impacts would result from traffic volumes (28,054 ADT at 2,010 buildout), potential loss of mass transit service during initial phases of redevelopment, moderate long-term deterioration of LOS, or potential need for improved on- and off-station roadways. Air traffic significantly reduced from pre-closure levels.	No significant adverse impact. No traffic would be generated; therefore, roadway LOS would not deteriorate as a result of this alternative.
Infrastructure and Utilities	No significant impacts to utility infrastructure and capacity in short term. Long-term redevelopment may require significant improvements in water and sewer infrastructure and storm water management systems. Usage lower than pre-closure levels.	No significant impacts.	No significant impacts to utility infrastructure and capacity in short term. Long-term redevelopment may require significant improvements in water and sewer infrastructure and storm water management systems. Usage lower than pre-closure levels.	No significant impacts to utility infrastructure and capacity in short term. Long-term redevelopment may require significant improvements in water and sewer infrastructure, and storm water management systems. Usage lower than pre-closure levels.	No significant impacts to utility infrastructure and capacity in short term. Long-term redevelopment may require significant improvements in water and sewer infrastructure and storm water management, systems. Usage lower than pre-closure levels.	No significant impact. System would be maintained to minimize irreversible physical deterioration. Long-term objective would not require system modifications or expansions.
Environmental Contamination	No significant impacts.	No significant impacts.	No significant impacts.	No significant impacts.	No significant impacts.	No significant impacts.

Table 2-12

COMPARISON OF ENVIRONMENTAL IMPACTS
NAS CECIL FIELD

Resource	Preferred Alternative	Alternative Reuse Scenario 1	Alternative Reuse Scenario 2	Alternative Reuse Scenario 3	Alternative Reuse Scenario 4	No-Action Alternative
Cultural Resources	Minor potential for affecting sensitive archaeological areas. Most sensitive areas are designated for no future development. The Navy has entered into a Programmatic Agreement with the Florida Division of Historical Resources (FDHR) and the Advisory Council on Historic Preservation. The agreement protects the 15 archaeologically sensitive areas at the station. According to the agreement, the JEDC, as the receiving entity, would not conduct ground-disturbing activities at any of the 15 archaeologically sensitive areas without prior written permission from the FDHR. The FDHR may require the JEDC to conduct archaeological surveys and archaeological data recovery projects.	No significant impacts. The Navy has entered into a Programmatic Agreement with the Florida Division of Historical Resources (FDHR) and the Advisory Council on Historic Preservation. The agreement protects the 15 archaeologically sensitive areas at the station. According to the agreement, the JEDC, as the receiving entity, would not conduct ground-disturbing activities at any of the 15 archaeologically sensitive areas without prior written permission from the FDHR. The FDHR may require the JEDC to conduct archaeological surveys and archaeological data recovery projects.	No significant impacts. The Navy has entered into a programmatic agreement with the Florida Division of Historical Resources (FDHR) and the Advisory Council on Historic Preservation. The agreement protects the 15 archaeologically sensitive areas at the station. According to the agreement, the JEDC, as the receiving entity, would not conduct ground-disturbing activities at any of the 15 archaeologically sensitive areas without prior written permission from the FDHR. The FDHR may require the JEDC to conduct archaeological surveys and archaeological data recovery projects.	Greatest potential for affecting sensitive archaeological areas through significant new construction. The Navy has entered into a Programmatic Agreement with the Florida Division of Historical Resources (FDHR) and the Advisory Council on Historic Preservation. The agreement protects the 15 archaeologically sensitive areas at the station. According to the agreement, the JEDC, as the receiving entity, would not conduct ground-disturbing activities at any of the 15 archaeologically sensitive areas without prior written permission from the FDHR. The FDHR may require the JEDC to conduct archaeological surveys and archaeological data recovery projects.	Minor potential for affecting sensitive archaeological areas. Most sensitive areas are designated for no future development. The Navy has entered into a Programmatic Agreement with the Florida Division of Historical Resources (FDHR) and the Advisory Council on Historic Preservation. The agreement protects the 15 archaeologically sensitive areas at the station. According to the agreement, the JEDC, as the receiving entity, would not conduct ground-disturbing activities at any of the 15 archaeologically sensitive areas without prior written permission from the FDHR. The FDHR may require the JEDC to conduct archaeological surveys and archaeological data recovery projects.	The Navy has entered into a Programmatic Agreement with FDHR and the Advisory Council on Historic Preservation. Under this alternative, Navy would undertake archaeological surveys for any of the 15 archaeologically sensitive areas that may be encroached upon by subsequent Navy actions.

Table 2-12

COMPARISON OF ENVIRONMENTAL IMPACTS
NAS CECIL FIELD

Resource	Preferred Alternative	Alternative Reuse Scenario 1	Alternative Reuse Scenario 2	Alternative Reuse Scenario 3	Alternative Reuse Scenario 4	No-Action Alternative
Environmental Justice	No significant impacts.	No significant impacts.	No significant impacts.	No significant impacts.	No significant impacts.	No significant impacts.

Key:

ADT = Average daily trips.
LOS = Level of service.
No_x = Oxides of nitrogen.

3 Description of Affected Environment

This section describes the existing environmental resources at NAS Cecil Field that would be influenced or affected by Navy's disposal of the station and its subsequent reuse. This information was compiled through:

- A review of existing documentation for the station such as the station master plan, integrated natural resource inventory, and wetlands inventory;
- Site reconnaissance visits;
- A review of local, regional, state, and federal inventories, plans, policies, and regulations influencing development at the station; and
- Discussions with local, regional, state, and federal governmental personnel and private entities having jurisdiction over or responsible for environmental, planning, and infrastructure regulation or services in the vicinity of the station.

Where appropriate, individual discussions are provided for the Main Station and the Yellow Water Area. No discussion is provided for OLF Whitehouse or the Pinecastle Target Complex (i.e., Pinecastle Range, Rodman Range, and Lake George Range) because they are not slated for disposal by Navy. Because of its proximity to lands to be disposed of, a cursory review of resources in the Yellow Water Family Housing Area is provided under discussions of the Yellow Water Area.

3.1 Land Use and Aesthetics

3.1.1 Existing Land Use

NAS Cecil Field contains approximately 487 buildings and structures, which total approximately 3,330,000 ft^2 (309,367 m^2) of space and accommodate a wide variety of military aviation and support uses. In addition, a large portion of the station is devoted to agricultural

uses, specifically forestry and grazing activities. Land use characteristics for each of these areas are described in the following sections.

3.1.1.1 Main Station

Existing land use patterns on the Main Station primarily result from the location and orientation of the station's two sets of bisecting, parallel runways (see Figure 3-1). The location of the runways requires that certain areas of the Main Station be used for air operations activities such as air support, aircraft-noise impact zones, and air safety zones (Navy 1988). Other land use factors that have influenced the development patterns at the Main Station include environmental constraints, capital investment and infrastructure constraints, and explosive safety quantity distance (ESQD) arcs, which are designated safety areas around magazine and ordnance-handling facilities.

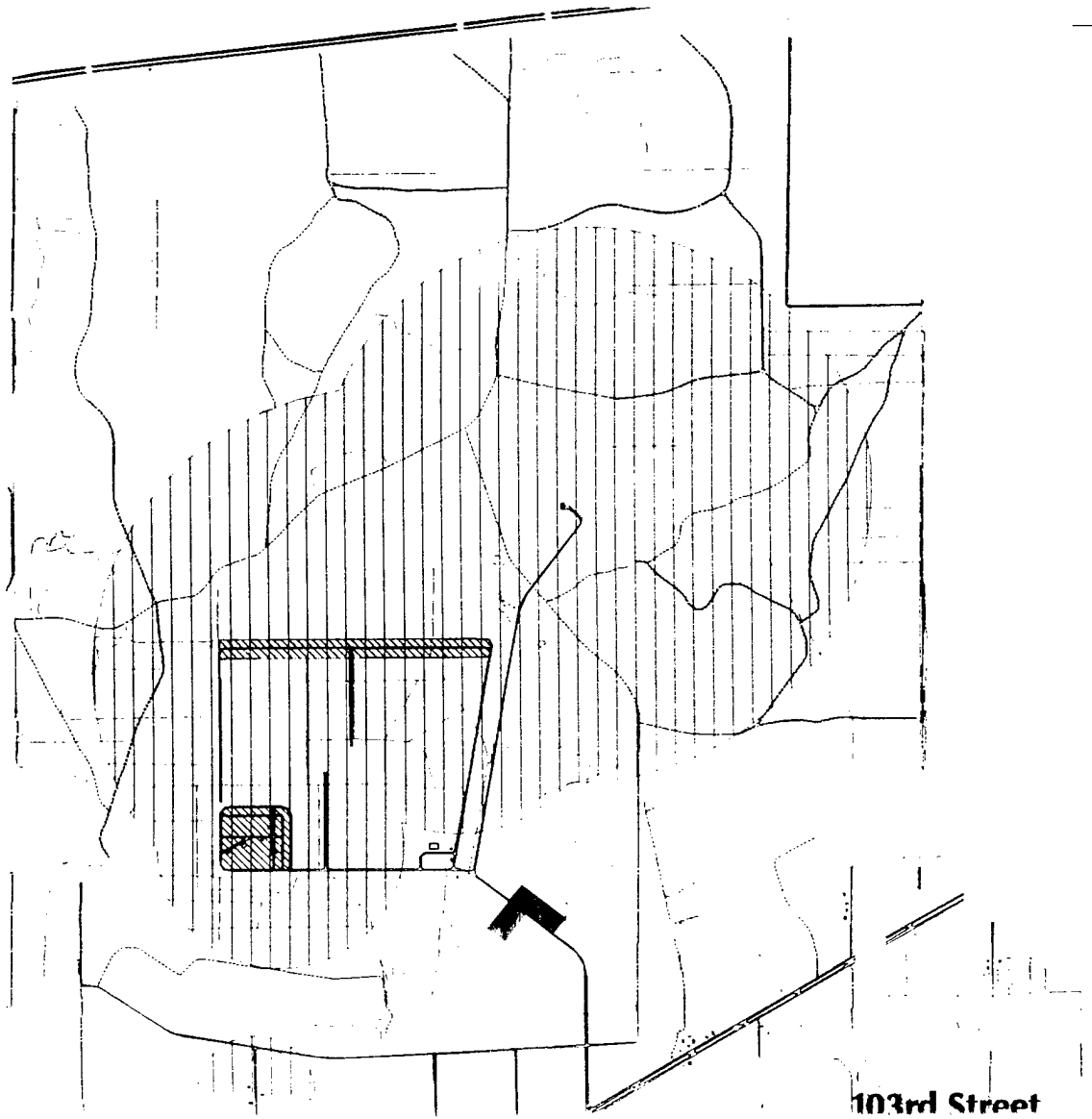
The majority of the Main Station is undeveloped and primarily used to support air-safety approach zones, ESQD arcs, and forestry activities (e.g., pine plantations) (Navy 1988). Developed areas of the Main Station are concentrated in its northwest section and comprise approximately 1,000 ac (404.7 ha). Land use in this area can be generally categorized as support facilities and official military mission facilities (see Figure 3-2).

Support Facilities

In general, support facilities such as family housing, medical, religious, recreation, and commercial/retail uses are located west of "A" Avenue and north of 4th Street. The area just south of 9th Street near the family enlisted housing is the core of personnel support and includes commercial uses such as the credit union, library, bowling alley, package store, and the ex-change. Medical/dental and religious facilities are situated south of 6th Street along "D" Avenue.

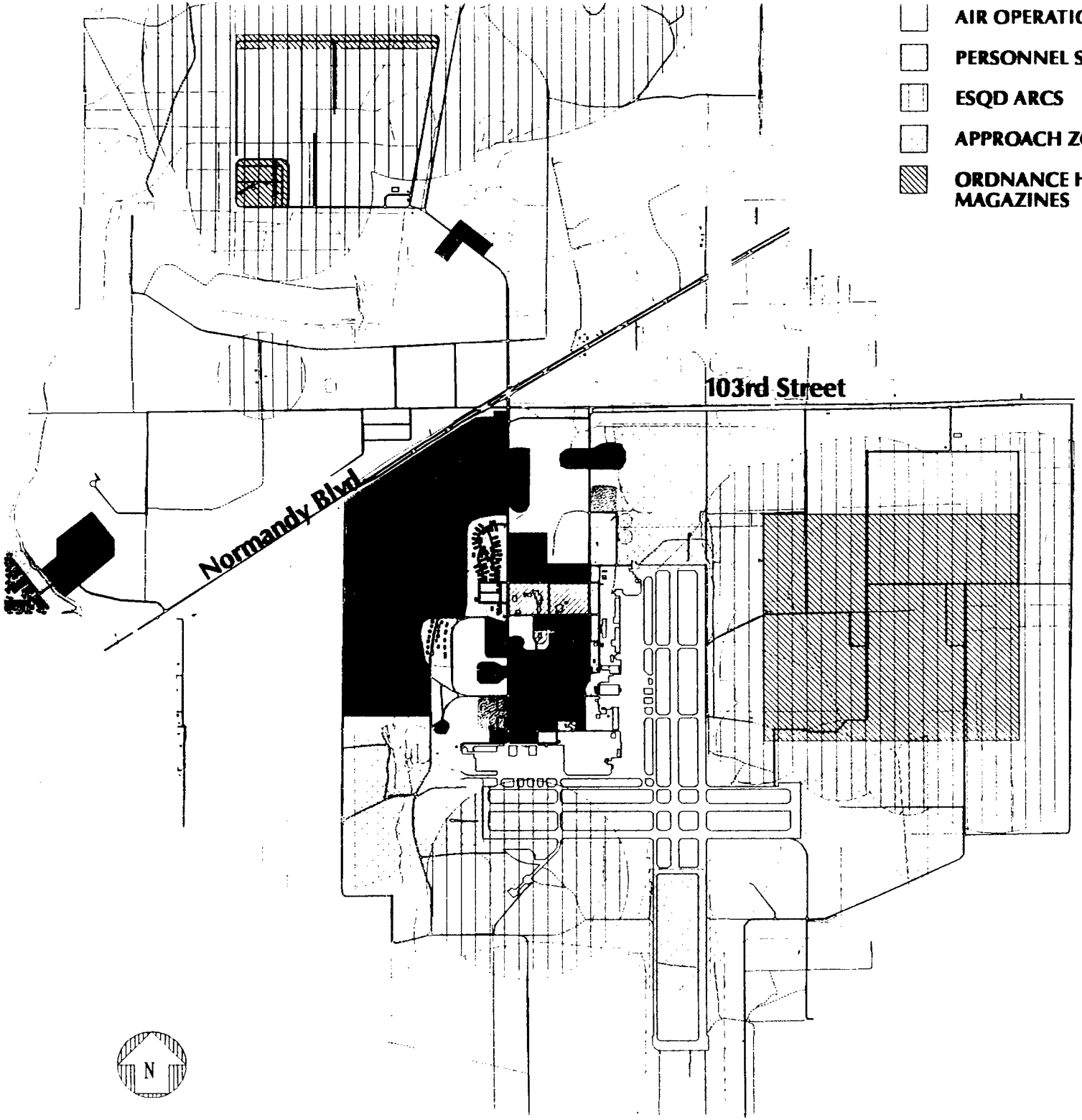
Residential uses in the developed area of the Main Station consist of family housing areas, Bachelor Officers Quarters (BOQ), and Bachelor Enlisted Quarters (BEQ). These facilities include:

- A 97-unit family housing area in the western portion of the developed area of the Main Station, consisting of 38 duplexes and 21 single-family units;
- A trailer area along "D" Avenue containing 48 trailer pads;
- A BOQ located along "D" Avenue containing 131 units; and

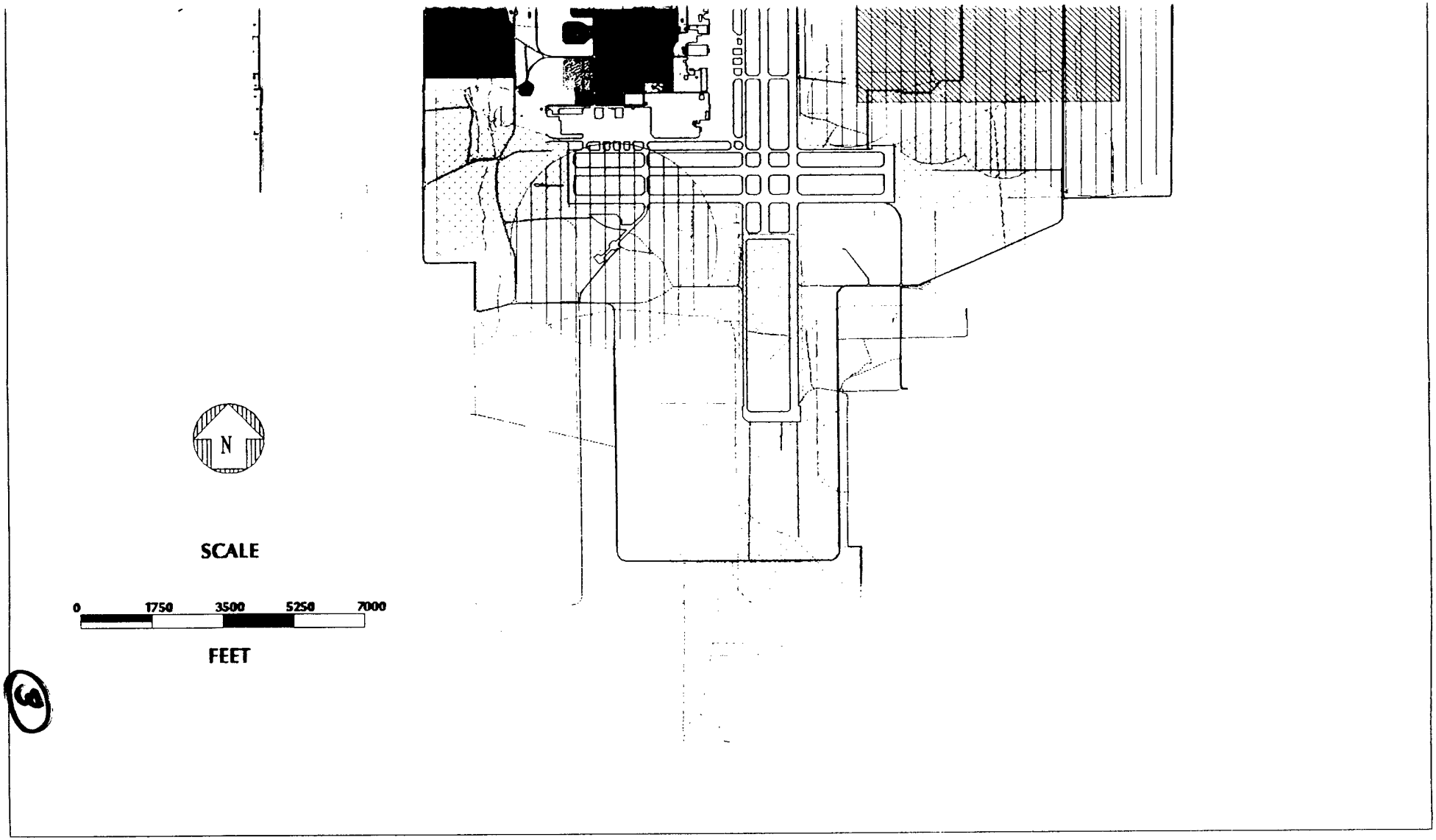


LEGEND

- BEQ/BOQ
- FAMILY HOUSING
- SUPPLY
- ADMINISTRATION
- OPEN SPACE /FORESTRY
- MEDICAL/RELIGIOUS
- TRAINING
- PUBLIC WORKS/UTILITIES
- RECREATION
- AIR OPERATIONS
- PERSONNEL SUPPORT
- ESQD ARCS
- APPROACH ZONES
- ORDNANCE HANDLING/ MAGAZINES

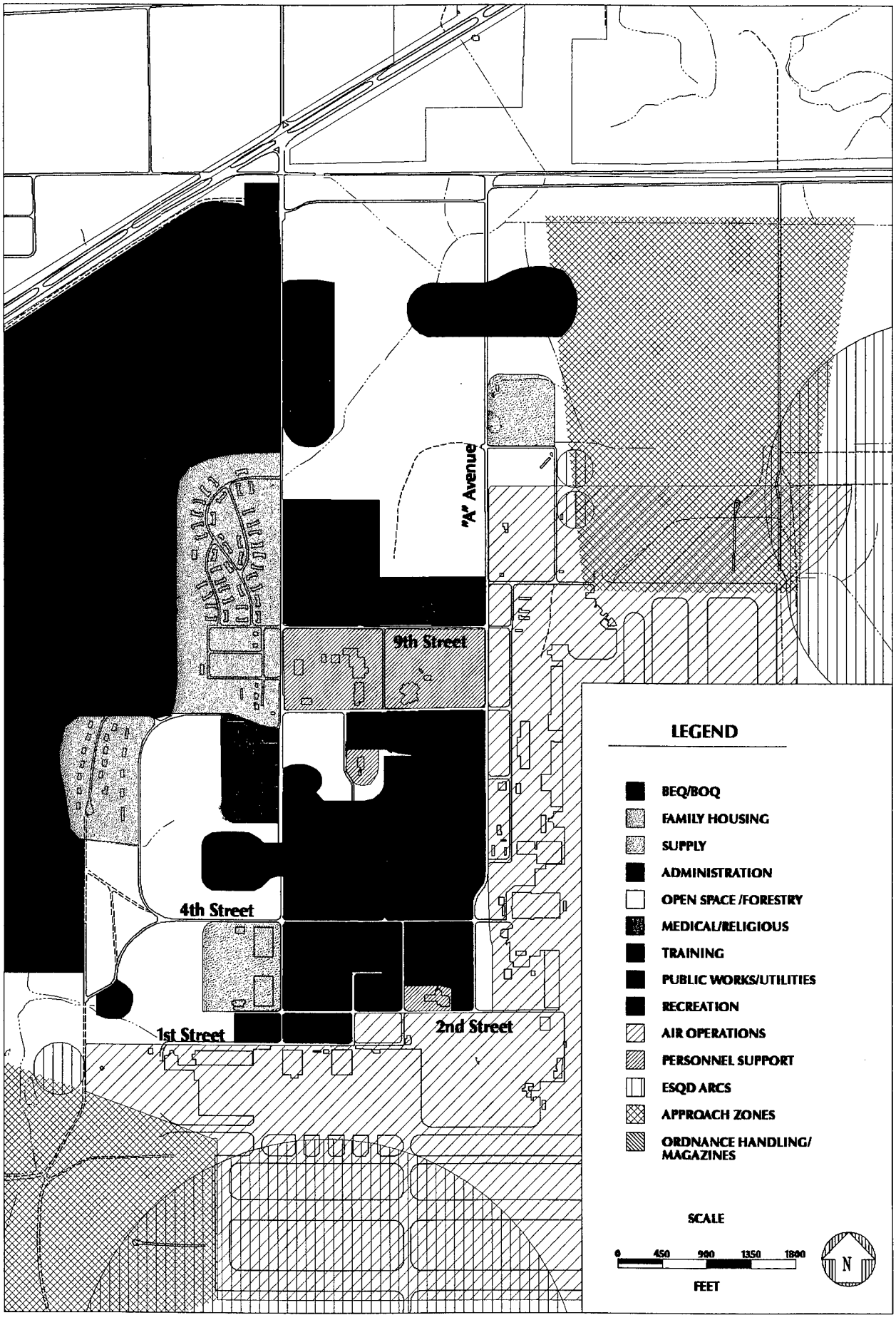

AIR OPERATIONS
PERSONNEL SUPPORT
ESQD ARCS
APPROACH ZONES
ORDNANCE HANDLING/ MAGAZINES
103rd Street
Normandy Blvd
N

(2)



Source: Navy 1994; U.S. Navy 1988; Houston,S.,1994

FIGURE 3-1 EXISTING LAND USE MAIN STATION/YELLOW WATER AREA



Source: U.S. Navy 1988

FIGURE 3-2 EXISTING LAND USE - DEVELOPED AREA OF MAIN STATION

- Twenty-one BEQ barracks located in three areas, along "D" Avenue, north of 9th Street, and between "B" Circle and "A" Avenue.

Recreational land uses are situated at various locations of the Main Station and consist of both active and passive facilities. These facilities include:

- Lake Newman, located west of the developed area of the Main Station, which supports activities such as recreational fishing, and has associated facilities such as a clubhouse, four camp sites with electricity and water facilities, a 25-m swimming pool (Building 342), and a skeet range;

- Lake Fretwell, located at the western end of 4th Street, which supports boating and has associated facilities such as a recreation area, boat rental facility, softball fields, picnic areas, and three pavilions;

- An 18-hole golf course near Lake Newman with clubhouse and snack bar facilities;

- Indoor facilities, such as a 25-m swimming pool (Building No. 281), a gymnasium with a weight room (Building No. 498), racquetball and basketball courts, and a 16-lane bowling alley; and

- Picnic areas and active recreational facilities such as baseball diamonds, basketball courts, tennis courts, and volleyball courts located in various areas in the developed portion of the Main Station.

Official Military Mission Facilities

Facilities associated with the official military mission (such as air operations, training, supply and administration) are located east of "A" Avenue and south of 4th Street (Navy 1988). These uses are primarily associated with air operations and are concentrated east of "A" Avenue and south of 1st Street. Facilities in this area include two sets of parallel aircraft runways, eight hangars, the Air Traffic Controller/Disaster Preparedness Center, fuel areas, vehicle parking areas, aircraft parking aprons, and the Aviation Intermediate Maintenance Detachment Facility (Building Nos. 824 and 313). Additional facilities in support of the official military mission are located between 1st and 4th Streets and include training, supply, administration, and utilities.

3.1.1.2 Yellow Water Area

The majority of land in the Yellow Water Area is categorized as open space and ordnance storage with associated ESQD arcs (see Figure 3-1). There are two magazine storage locations consisting of 21 magazines and 40 magazines, respectively. A paved area of approxi-

mately 12 ac (4.86 ha) separates the magazine storage sites. A small support area is located along the main road leading to the ordnance storage area. The support area includes an unoccupied BEQ with a mess hall and clubhouse, maintenance and operation facilities, and personnel support and recreation facilities. The occupied, 200-unit Yellow Water Family Housing Area and an adjacent recreational area are located in the southwest portion of the Yellow Water Area (Navy 1988).

3.1.2 Surrounding Land Use

Existing land use in the vicinity of NAS Cecil Field is depicted on Figure 3-3. In general, areas surrounding the station are sparsely developed and characterized predominantly by agricultural uses consisting of forestry activities, grazing, crop production, and open land activities.

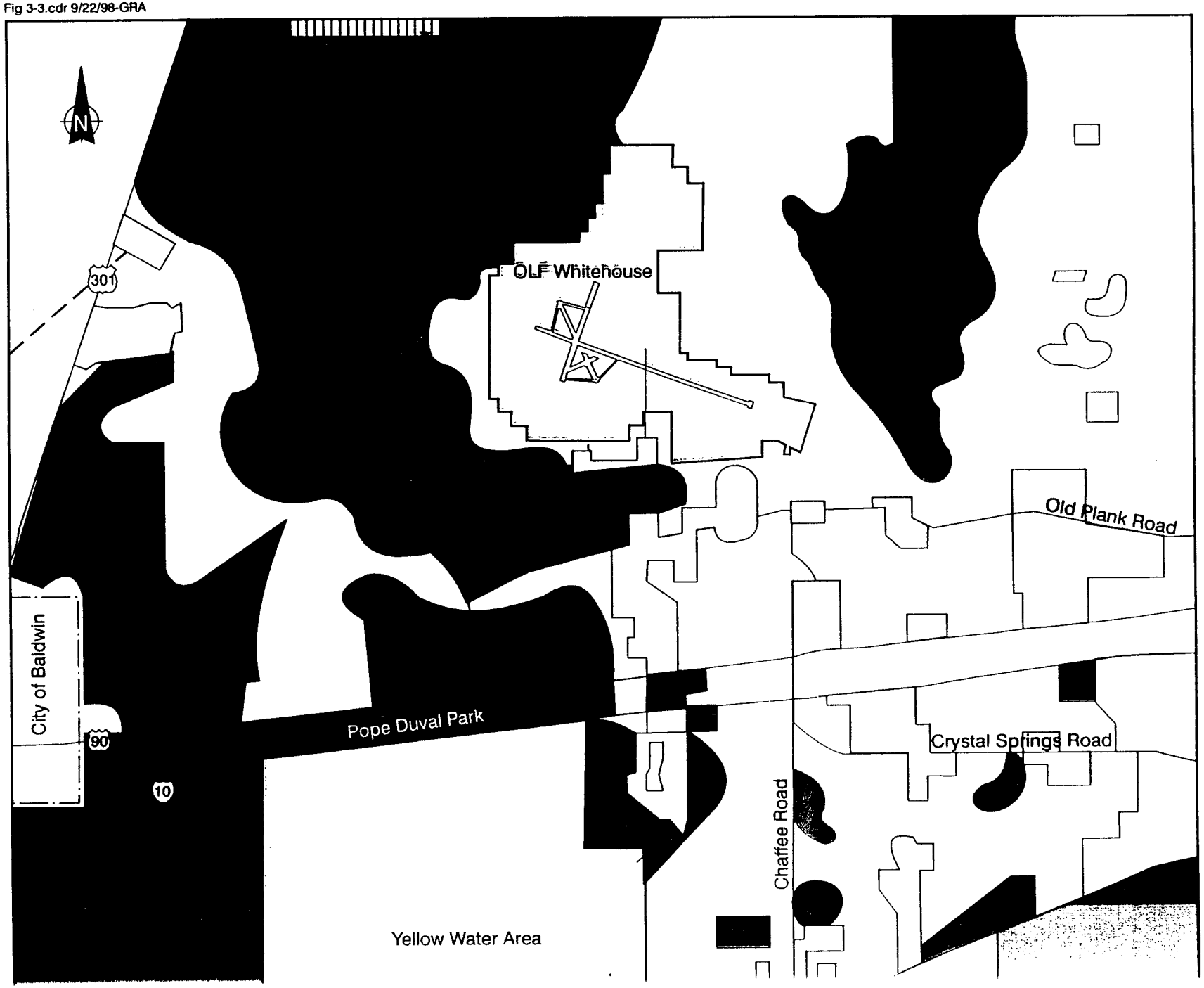
Residential uses consist of scattered, low-density, single-family development along Halsema Road, Normandy Boulevard, and east of the Main Station and Yellow Water Area along 103rd Street, Old Middleburg Road, and Crystal Springs Road (Jacksonville Planning and Development Department 1990).

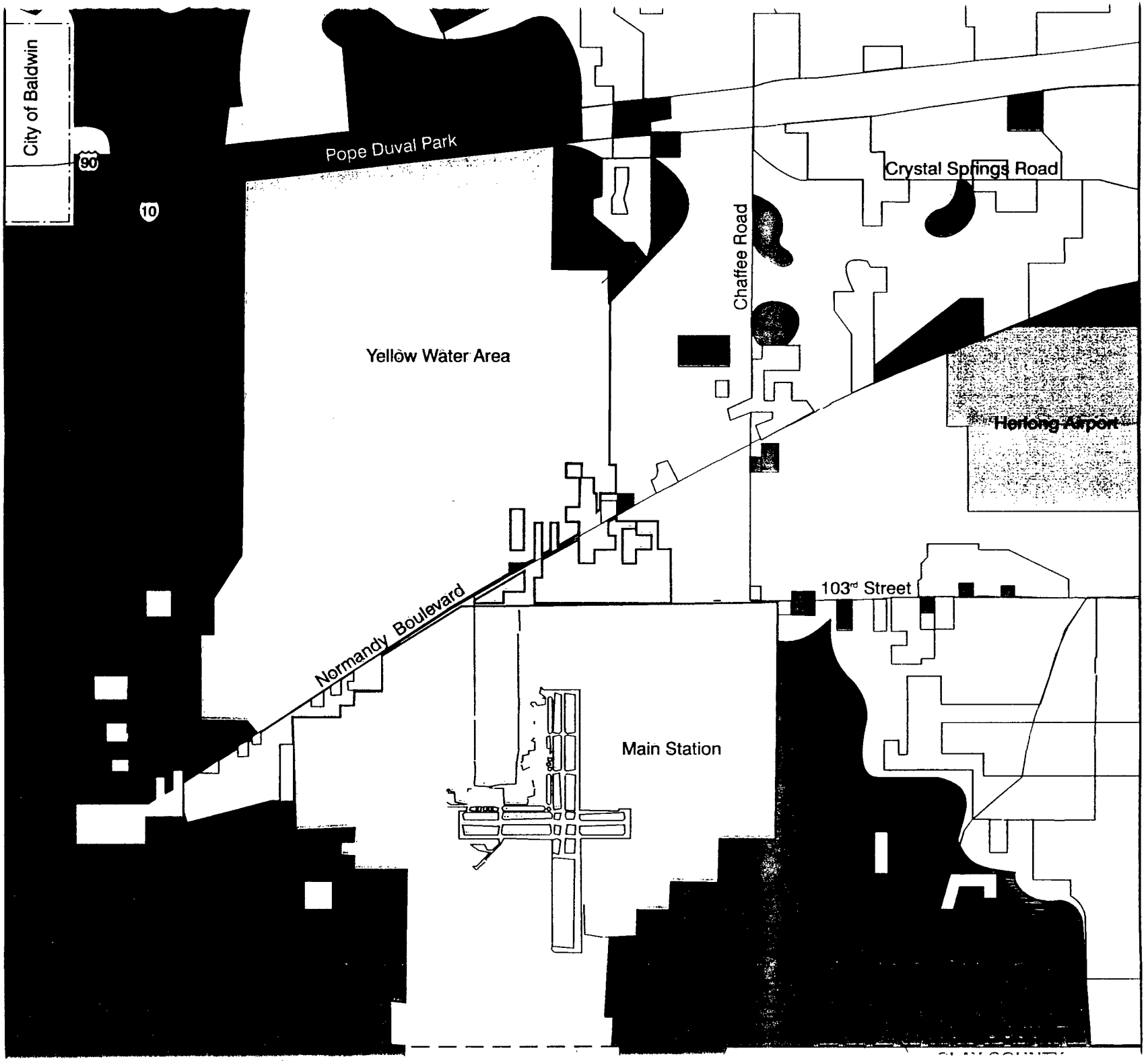
Recreational uses in the area include Pope Duval Park, located directly north of the Yellow Water Area; Brannan Field Mitigation Park, located southeast of the Main Station; and the Jenning Forest Wildlife Management Area, located southwest of the Main Station.

In compliance with the Conservation/Coastal Management Element of the 2010 Comprehensive Plan, the city of Jacksonville has proposed to create a special management area (Northeast Florida Regional Mitigation Park) to protect a tract of significant natural habitat located southeast of NAS Cecil Field before it is developed by private interests. Developers would be able to purchase mitigation credits from this mitigation bank to compensate for impacts caused by other development projects (Jacksonville Planning and Development Department 1990).

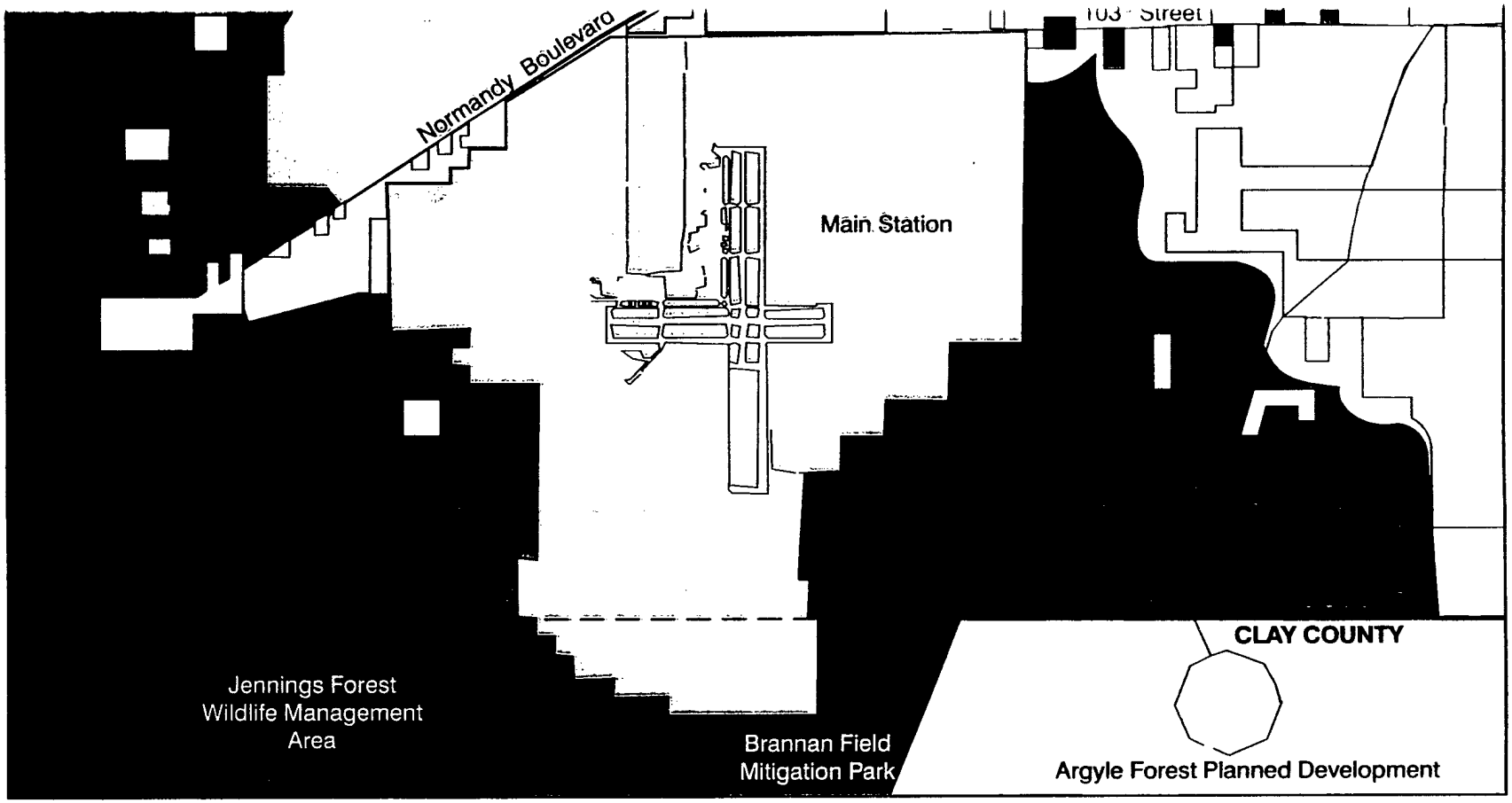
Commercial uses in the area are scattered along Normandy Boulevard and 103rd Street near the station. These uses consist mainly of general commercial development near the station, such as automobile salvage yards, general retail establishments, and heavy commercial uses such as a concrete products company. More consumer-oriented commercial uses exist along Normandy Boulevard and 103rd Street near their intersections with I-295.

02: 000822_VM06_00_90-0009
Fig 3-3.cdr 9/22/98-GRA




City of Baldwin
90
10
Pope Duval Park
Crystal Springs Road
Chaffee Road
Yellow Water Area
Herlong Airport
103rd Street
Normandy Boulevard
Main Station

(2)



SOURCE: Jacksonville Planning and Development Department 1990

KEY:

- Agriculture
- Low-Density Residential
- Navy Property
- Recreation
- Commercial
- Airport
- Planned Community (Not yet constructed)
- State Forest
- Open Space/Vacant
- Proposed Northeast Florida Regional Wildlife Mitigation Park

SCALE

0 3,500 7,000 14,000 Feet

Figure 3-3 SURROUNDING LAND USES

Other major land uses in the vicinity of the station include:

- Herlong Airport, a general aviation facility located 4.5 mi (7.24 km) northeast of the Main Station along Normandy Boulevard;
- The city of Baldwin, located 4 mi (6.4 km) west of the Yellow Water Area along U.S. 90; and
- An undeveloped portion of Argyle Forest, a planned community being developed in Duval and Clay counties, located southeast of the Main Station (Ford 1994).

3.1.3 Land Use Plans and Land Development Regulations

Land use and development in the state of Florida is regulated by county and local municipalities. However, as a federal facility, NAS Cecil Field is not subject to the purview of local government regulations. Upon closure and disposal of the property by Navy to another entity, future development on the station property will by guided and regulated by the city of Jacksonville/Duval County and Clay County, pursuant to the requirements set forth in the State and Regional Planning Act, 1984 Fla. Sess. Law 257 (West) (codified in scattered sections of Fla. Stat, primarily in Ch. 23 and 160) and the Local Government Comprehensive Planning and Land Development Regulation Act, Fla. Stat. Ch. 163.3161-163.3244 (1997).

The State and Regional Planning Act, enacted in 1984 by the Florida Legislature, mandates the development of a State Comprehensive Plan to provide long-range guidance for orderly social, economic, and physical growth in the state. The act also mandated the development of 11 Comprehensive Regional Policy Plans (CRPPs) designed to further the goals and policies of the State Comprehensive Plan. For Duval and Clay counties, the Strategic Regional Policy Plan is the CRPP. The CRPP links the State Comprehensive Plan and the local comprehensive plan (Northeast Florida Comprehensive Regional Planning Policy 1987).

The Local Government Comprehensive Planning and Land Development Regulation Act, Fla. Stat. Ch. 163.3161-163.3244 (1997), passed by the legislature in 1985, mandates the preparation of local comprehensive plans. The act requires that the local plan be developed to guide and control future development, and be consistent with both the State Comprehensive Plan and the CRPP.

Under Fla. Stat. Ch. 163, Jacksonville/Duval County and Clay County are required to adopt and implement three requirements that will influence future development at NAS Cecil Field. These are:

- Local Comprehensive Plans for Jacksonville/Duval County and Clay County;
- Land Development Regulations for Jacksonville/Duval County and Clay County; and
- Concurrency Management Systems.

3.1.3.1 Local Comprehensive Plans

The Jacksonville/Duval County 2010 Comprehensive Plan and the Clay County 2001 Comprehensive Plan are required under Florida statutes to have, at a minimum, seven elements and a capital improvements plan. These elements are future land use; traffic circulation; general infrastructure, including sanitary sewer, solid waste, drainage, potable water, and natural groundwater aquifer recharge; conservation; housing; intergovernmental coordination; and recreation and open space (Jacksonville Planning and Development Department 1990; Clay County 1992). Each element of the plan, which is required to meet the minimum criteria under Fla. Admin. Code Ann. Rule 9J-5, has its own goals, objectives, and policies; all proposed development and redevelopment must be consistent with the policies of each applicable element. Comprehensive plans are required to be approved by the Florida DCA and may be amended twice a year. The comprehensive plan is a policy document that is implemented by the local government's land development regulations.

The following summary identifies the intent of each of the 12 elements within the Jacksonville/Duval County and Clay County Comprehensive Plans. Although the comprehensive plans are organized in slightly different ways, each comprehensive plan addresses the following elements (Clay County 1992; Jacksonville Planning and Development Department 1990):

- **Future Land Use:** To achieve an integrated, functional network of urban, suburban, and rural working environments by providing a framework to guide land development and redevelopment decisions throughout the planning period.
- **Intergovernmental Coordination**: To focus on the consolidated government's working relationships with other governmental entities. The purpose is to identify relationships that exist between local, regional, state, and federal agencies, and improve coordination to minimize duplicate and incompatible actions.
- **Recreation and Open Space Policies:** To call for growth of open space and recreation acreage; identify current deficiencies; and project future needs.

- **Traffic Circulation and Mass Transit:** To provide the framework for the safe and efficient movement of goods and persons (see Section 3.8).

- **Potable Water:** Designed to ensure protection of potable water resources through responsible growth and development (see Section 3.9.1).

- **Sanitary Sewer:** To ensure adequate provision of wastewater treatment and disposal and to systematically expand these services to avoid urban sprawl (see Section 3.9.2).

- **Housing:** To meet future housing needs, stabilize and improve existing neighborhoods, identify the social issues affecting housing, and identify those with special housing needs.

- **Drainage:** To provide the framework for managing stormwater systems by addressing water quantity and quality issues (see Sections 3.4 and 3.9.3).

- **Natural Groundwater Recharge:** To ensure adequate recharge of aquifer systems by identifying and protecting water basins (see Section 3.4.1).

- **Conservation and Coastal Management:** To identify specific goals in coastal areas for such issues as air quality, water quality, fisheries, wetlands, special management areas, and beach management.

- **Ports, Aviation, and Related Facilities:** To provide a framework for efficient and safe air, rail, and water transportation (see Section 3.8).

- **Capital Improvements:** To assess and demonstrate the financial feasibility of capital improvements required to implement various goals of the comprehensive plan (see Section 3.9.9).

The future land use (FLU) element is of primary concern in the development of future land use regulations. The FLU element indicates the desired patterns, densities, and intensities of development for the local community. Within Jacksonville, the station lies within the Southwest Comprehensive Planning District. On the Jacksonville/Duval County FLU map (see Figure 3-4), the station is designated as a public facility (Jacksonville Planning and Development Department 1990). The Clay County FLU map identifies the southern part of the Main Station as a military reservation (Clay County 1992).

Certain types and densities of land uses are recommended within each FLU category. The following is a general description of the land uses permitted within the FLU categories in Jacksonville and Clay County surrounding NAS Cecil Field:

- **Community/General Commercial Use:** Areas east of the station along Normandy Boulevard and 103rd Street are designated for community/general commercial uses. A wide range of retail sales and services are permitted in this category, including general merchandise and food-related items. Uses should abut a roadway classified as an arterial or higher-level road.

- **Low-Density Residential Use:** Areas east of the Main Station and Yellow Water are designated for low-density residential uses. A density of seven dwelling units per ac is permitted in this category if urban services are available; otherwise, a density of two dwelling units per ac is permitted when municipal water and sewer services are not available.

- **Rural Residential Use:** An area east of the Main Station is designated for rural residential uses. A density of one unit per ac is permitted in this area.

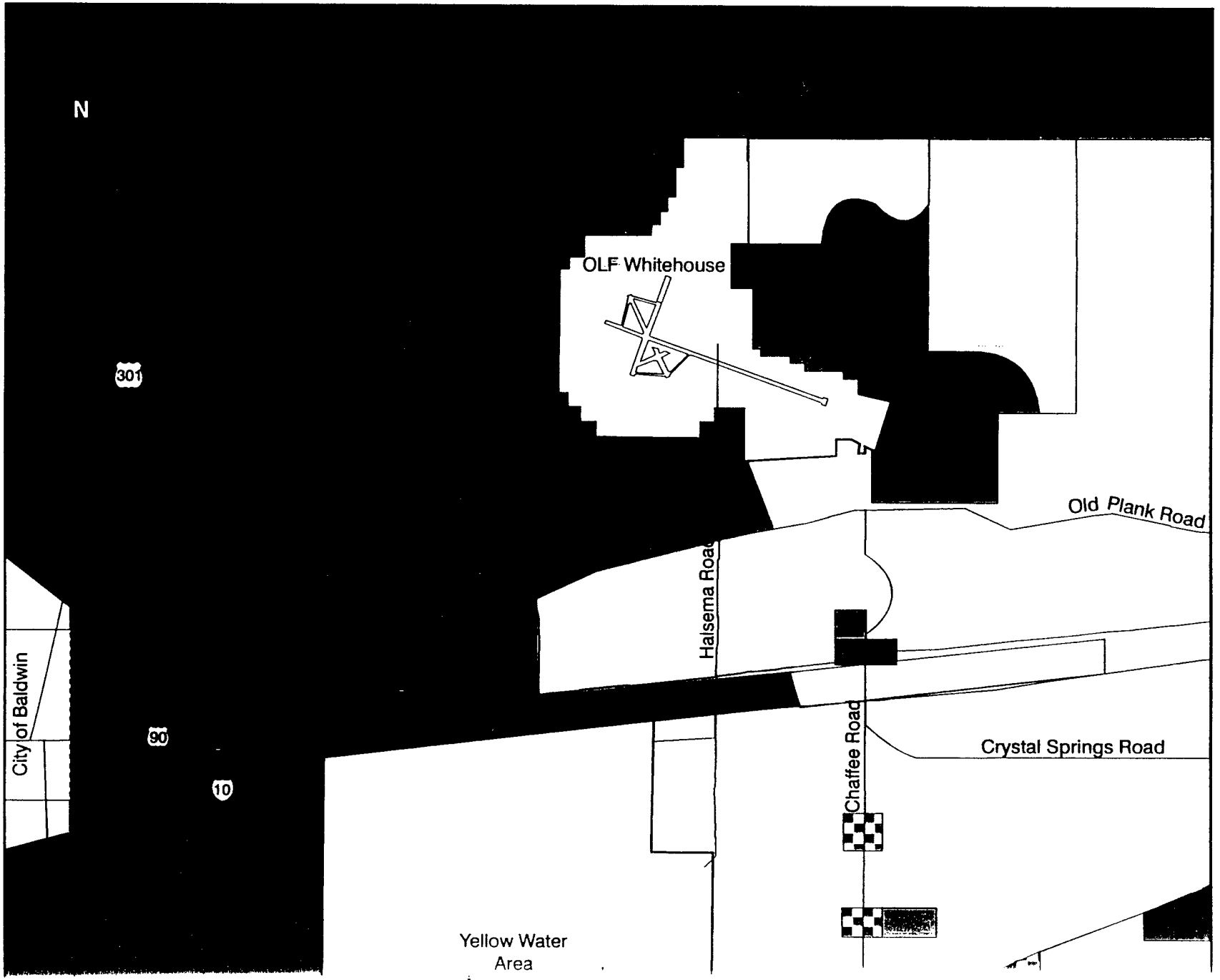
- **Business Park Use:** A small area east of the station along Normandy Boulevard is designated for business park use. Light assembly and manufacturing, processing, and research/development activities are permitted in this land use category.

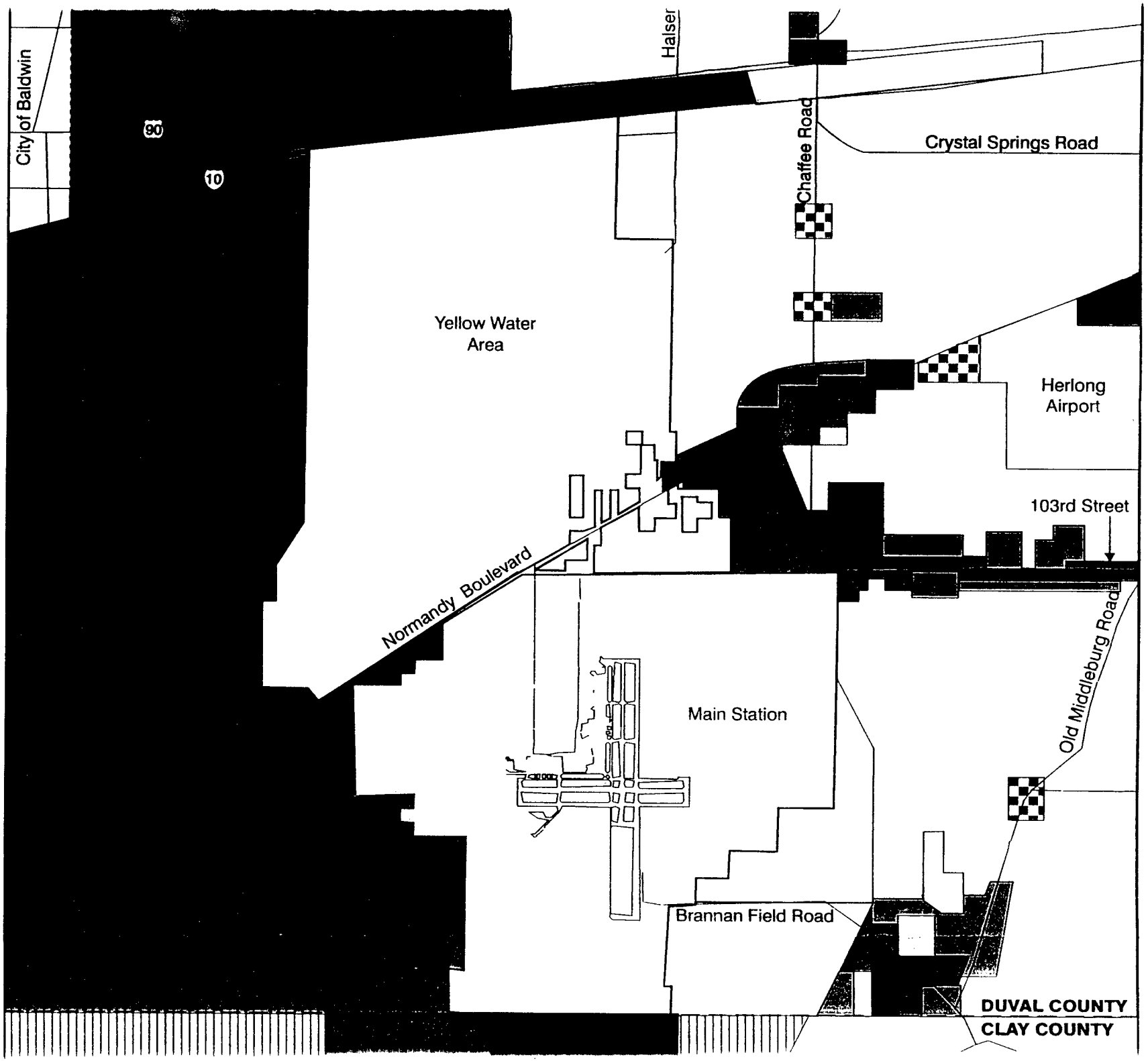
- **Agriculture:** Agriculture and related uses include those that do not attract spin-off urban development or activities that are not desirable in an urban area because of external impacts. The intensity and density of permitted development are minimal.

- **Recreational and Open Space Uses:** Areas directly north of the Yellow Water Area are designated for recreation and open space uses. These areas comprise Pope Duval Park. No new private development would be permitted in these areas.

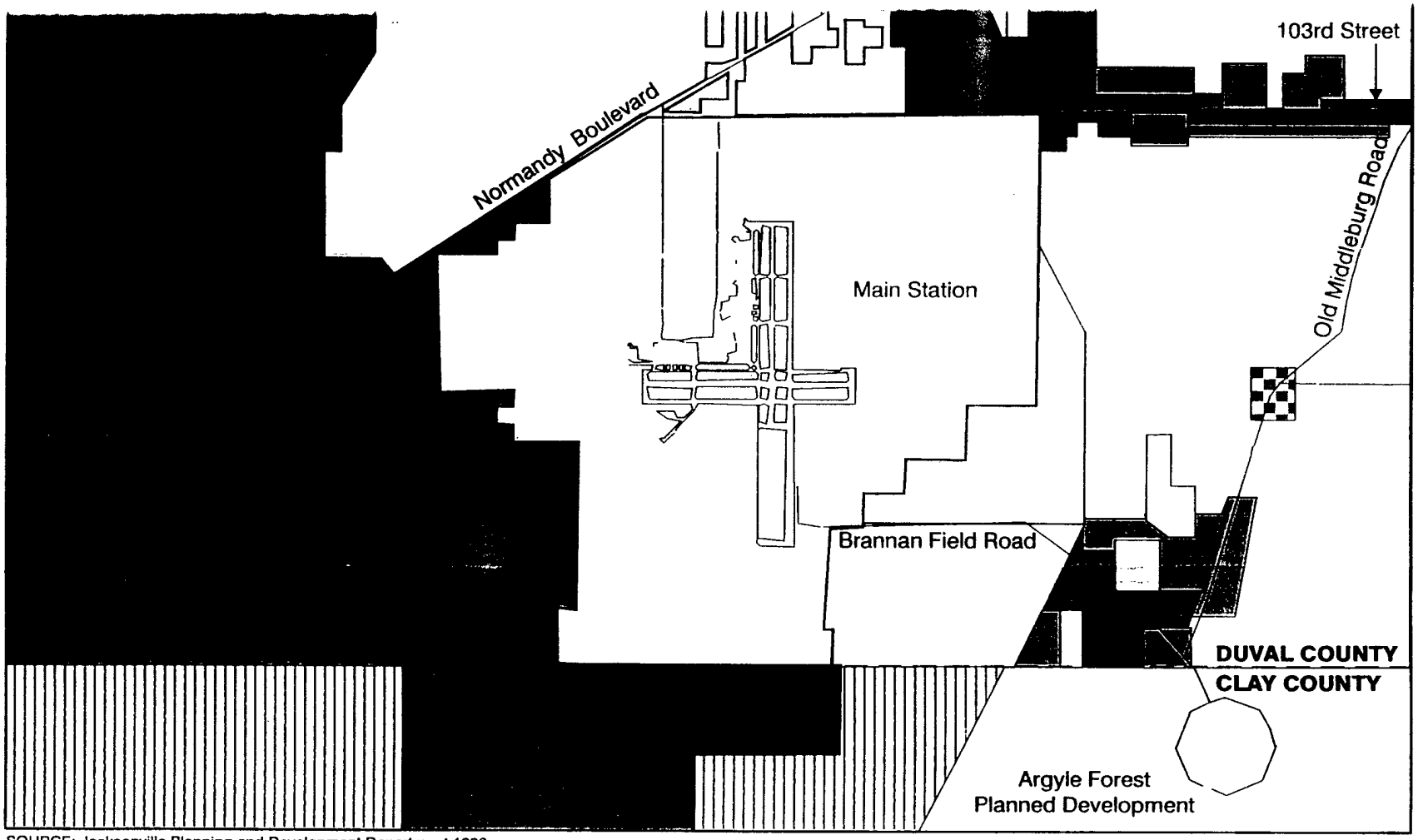
- **Conservation (designated as Recreation/Preservation in Clay County FLU):** Areas southeast of the Main Station in Jacksonville and Clay County are designated for conservation. These areas represent publicly owned land and land slated for public acquisition, containing valuable natural resources such as sensitive vegetation, high-value habitats, and wetlands.

02: 000822_VM06_00_90-B0009
Fig 3-4.cdr 9/22/98-GRA




City of Baldwin
90
10
Halser
Chaffee Road
Crystal Springs Road
Yellow Water
Area
Herlong
Airport
103rd Street
Normandy Boulevard
Old Middleburg Road
Main Station
Brannan Field Road
DUVAL COUNTY
CLAY COUNTY

(2)



SOURCE: Jacksonville Planning and Development Department 1990

SCALE

0 3,500 7,000 14,000 Feet

KEY:

- Rural Residential
- Low-Density Residential
- Medium Density Residential
- Residential, Professional and Institutional
- Neighborhood Commercial
- Community/General Commercial
- Business Park
- Light Industrial
- Agriculture
- Conservation
- Recreation and Open Space
- Recreation/Preservation
- Planned Community
- Military Reservation
- Public Facilities

Figure 3-4 COMPREHENSIVE PLAN FUTURE LAND USE DESIGNATIONS

3.1.3.2 Land Development Regulations

Local governments are required to adopt land development regulations (LDRs) within one year of submission of their local comprehensive plans, in accordance with Fla. Stat. Ch. 163.3202(1); land development regulations; and Fla. Admin. Code Ann. Rule 9J-24. LDRs are the implementation tools for the local comprehensive plans and must be consistent with the plans' provisions. LDRs consist of various types of regulations including zoning codes and subdivision regulations.

Zoning Code

The primary purposes of the zoning code are to promote the health, safety, and welfare of the general public; to regulate the use of land and buildings; and to implement the local comprehensive plan. Both the City of Jacksonville/Duval County and Clay County have a zoning map that outlines zoning districts in each jurisdiction. Duval County contains 36 separate zoning districts; Clay County contains 38 separate zoning districts. Each code describes the uses and densities permitted within each zoning district. Although federal facilities are typically exempt from local zoning, the portion of NAS Cecil Field within Jacksonville/Duval County is zoned PB-1, or public building facilities, which permits major public uses or community service activities such as institutional, communication and utilities, and transportation services. The portion of NAS Cecil Field situated in Clay County is not zoned (Ford 1994). Each FLU category is implemented through a series of individual zoning districts responding to the specific land use characteristics in the immediate area of the zoning district. Each zoning district within a specific FLU category (e.g., rural residential) is required to be consistent with the purpose and intent of that category.

Both Jacksonville/Duval County (Part 10, Chapter 656) and Clay County (Ordinance 85-87) have an Air Installation Compatible Use Zone (AICUZ) ordinance. The purpose of the AICUZ ordinance is to provide a guide to compatible land development on and off the station property to minimize public exposure to aircraft noise and accidents, and at the same time protect the operational capability of the station. The AICUZ program defines multiple noise and accident-compatible use zones, and the range of acceptable land uses within the zones. The goal of the AICUZ program is to achieve compatible land use in the air installation environs (NAS Cecil Field n.d.). A discussion of the noise levels associated with the station's AICUZ is provided in Section 3.6 of this FEIS.

Subdivision Regulations

The primary purpose of subdivision regulations is to regulate the subdivision of land and provide for adequate provision of light, air, recreation, transportation, potable water, flood prevention, drainage, sewers, other sanitary facilities, environmental protection, and government services for each new parcel. Land subdivision is the first step in the development of a community, and in nearly all cases, subdivision approval by the local government is required for the legal transfer of a newly subdivided parcel. Subdivision regulations are intended to be consistent with the applicable goals, objectives, and policies set forth in the local comprehensive plan. In Jacksonville/Duval County, subdivision requirements are addressed under Chapter 654, Municipal Code. Clay County addresses subdivision requirements under Ordinance 85-68.

3.1.3.3 Concurrency Management System

The Concurrency Management System (CMS) in Jacksonville/Duval County and Clay County was developed pursuant to the concurrency requirements set forth in Fla. Stat. Ch. 163.3177(10)(h), which require that public facilities and services needed to support development be available concurrent with the impacts of such development. The purpose of the CMS is to measure the potential impact of a proposed development on the adopted levels of service established in the comprehensive plan. The CMS ensures that the adopted levels of service will not be degraded by issuance of a final development order. The components of the CMS in Jacksonville/Duval County are addressed under Chapter 655, Municipal Code, which requires concurrency for roadway and mass transit, drainage, water and sewer services, recreation, and solid waste facilities. Clay County addresses the concurrency management requirement under Ordinance 92-19, as amended, and requires concurrency for traffic, sanitary sewer services, potable water, and stormwater management.

3.1.4 Aesthetic Resources

The aesthetic environment at NAS Cecil Field varies significantly, comprising undeveloped areas, personnel support areas, and military operations areas. The overall aesthetic image of NAS Cecil Field is positive, although some elements detract from this image.

Tall pine trees, dominant in undeveloped areas and scattered in developed areas, provide a unifying feature throughout the station. These trees dominate the undeveloped portions of "A" Avenue and "D" Avenue leading away from the main entrances. A pedestrian walkway is located along "D" Avenue and is adequately separated from the road. Traffic circulation is positive because of the gridiron network of roadways, and access to most of the developed areas

of the station is relatively easy. The design of existing parking areas, however, tends to detract from a positive aesthetic experience as a result of poor entrance visibility, insufficient buffering to the roadways, and encroachments onto the streets (Navy 1988).

Vistas are limited throughout the station because of the low-density, tall pines and the flat topography. Views occur primarily along major roads and in the air operations area.

Existing utility facilities tend to affect the view of aesthetic resources on the station. Aboveground utility lines and steam lines combined with utility boxes, heating and air conditioning units, and garbage dumpsters are evident in the developed areas of the station. Many of these items are surrounded with chain-link fences, which provide no visual buffer.

The aesthetic environment of the family housing areas varies between officer and enlisted areas. Senior officer housing consists of large-lot, single-family, detached, wooden houses among the tall pine trees along "G" Avenue and "H" Avenue. Enlisted family housing along "D" Avenue is characterized by one-story, concrete-block, attached dwellings situated both perpendicular and horizontal to the street. The sidewalks in the enlisted housing area are small and appear to also function as drainage pathways. Additional family housing in the form of a mobile home park is located south of the family housing area. The family housing areas are buffered from "D" Avenue by tall pine trees.

The architectural design of structures at NAS Cecil Field is basically utilitarian. Buildings range from those constructed during World War II to modern three-story buildings. Most buildings at the Main Station were built during the 1950s and many have flat roofs (Navy 1988).

The air operations area is an open area characterized by aircraft hangars, operations buildings, parking areas, and miscellaneous industrial, warehouse, and training buildings. Aircraft are visible along the runway apron. The edge of the air operations area along "A" Avenue is characterized by steam lines and a collection of structures of different types and sizes.

Recreational areas such as Lake Fretwell, Lake Newman, and the golf course are generally well designed and surrounded by tall pines, and provide a feeling of remoteness. Because these areas are removed from the developed part of the Main Station, the facilities are not visible from the built-up area.

The aesthetic resources of the Yellow Water Area are characterized as low-lying, flat, natural environments dominated by large expanses of tall pines with small pockets of minor development.

3.2 Topography, Geology, and Soils

NAS Cecil Field lies within a physiographic feature called the Duval uplands, which is an irregular flat plain composed mostly of the Wicomico marine terrace (Scott *et al.* 1988). The Wicomico marine terrace ranges in elevation from 70 to 100 ft (21.3 to 30.5 m) above mean sea level (MSL). The southern portion of the facility is located on remnants of the Penholoway marine terrace (42 to 70 ft [12.8 to 21.3 m] above MSL) (Scott 1988). Land surfaces at NAS Cecil Field are nearly level, with very slight slopes leading to creeks and wetland areas.

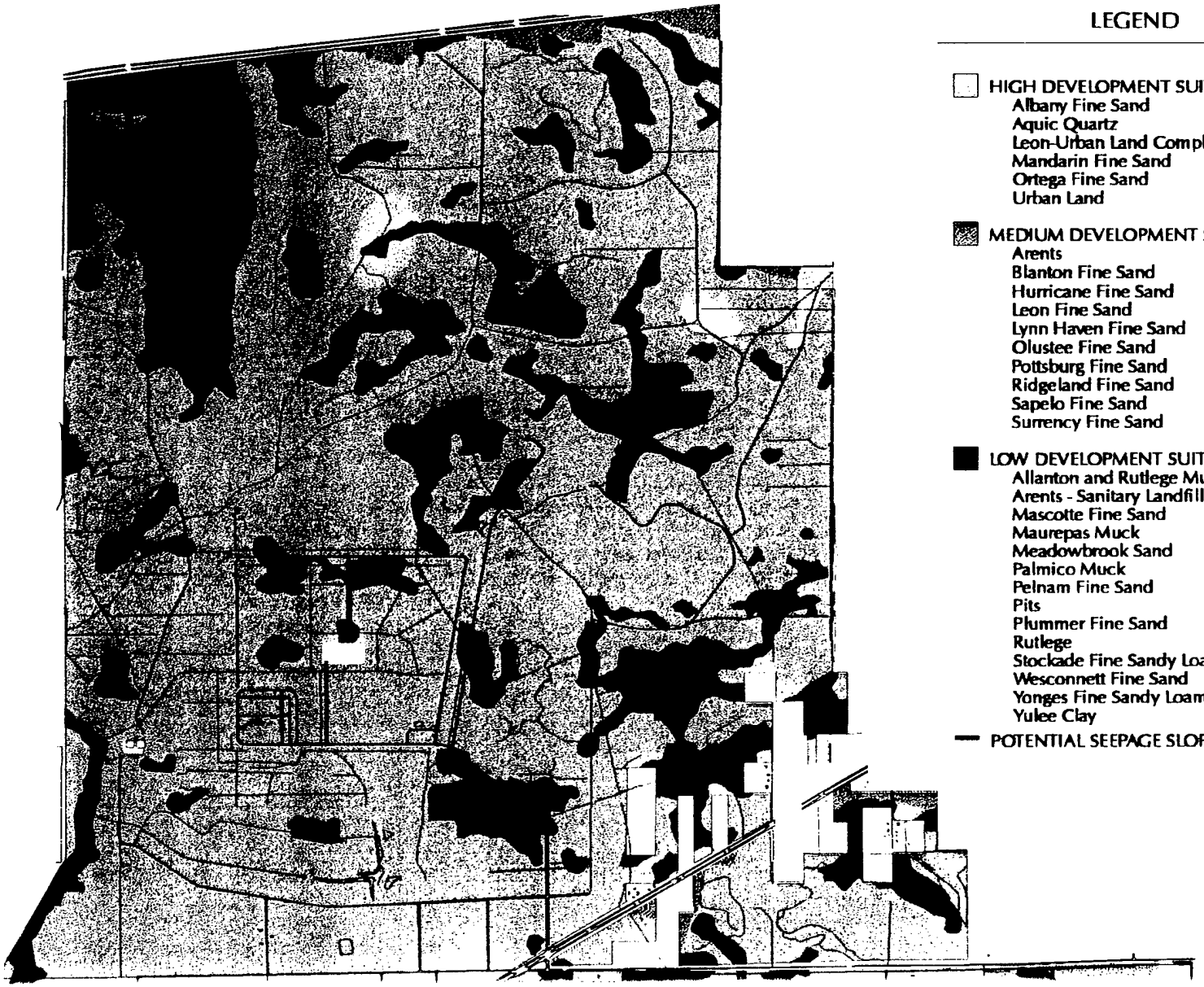
Soils in Duval and Clay counties have been divided into four groups: soil of the sand ridges, soil of the flatwoods, soil of the hardwood and cypress swamps, and soil of the tidal marsh. Soil types at NAS Cecil Field generally consist of soil of the flatwoods (USDA 1978; 1989).

Flatwoods soil characterizes the Leon-Ortega, Leon-Ridgeland-Wesconnett, and Pelham-Mascotte-Sapelo map units. Only the Leon-Ridgeland-Wesconnett series and the Pelham-Mascotte-Sapelo series are present at NAS Cecil Field.

Leon-Ridgeland-Wesconnett soils are nearly level, poorly to very poorly drained fine sands that are well suited for use as pine woodland/silvicultural activity, but moderately well suited to poorly suited for community development because of wetness. Pelham-Mascotte-Sapelo soils are also nearly level fine sands with drainage characteristics similar to those of the Leon-Ridgeland-Wesconnett soils. Pelham-Mascotte-Sapelo soils contain fine sandy loams and sandy clay loams at depths of 15 in (38 cm) below ground surface (BGS) or greater.

In addition, portions of the station along the Sal Taylor Creek, the Caldwell Branch, and Yellow Water Creek have been designated as potential seepage slopes by the city of Jacksonville (Moore 1996).

Thirty individual soil units are present at NAS Cecil Field (USDA 1978; 1989). Figure 3-5 depicts these various units, grouped by development suitability. Soils classified as having high development suitability are sandy, moderately well-drained soils with little organic matter that are not subject to flooding. Soils classified as having medium development suitability are somewhat poorly to moderately drained soils which, with proper stormwater management, could be relatively easy to develop. Soils with low development suitability are those which are poorly drained, contain high amounts of organic matter, and are subject to long periods of flooding. These soils are often located in drainageways and are indicative of wetlands, floodplains, and seepage slopes (USDA 1978; 1989).



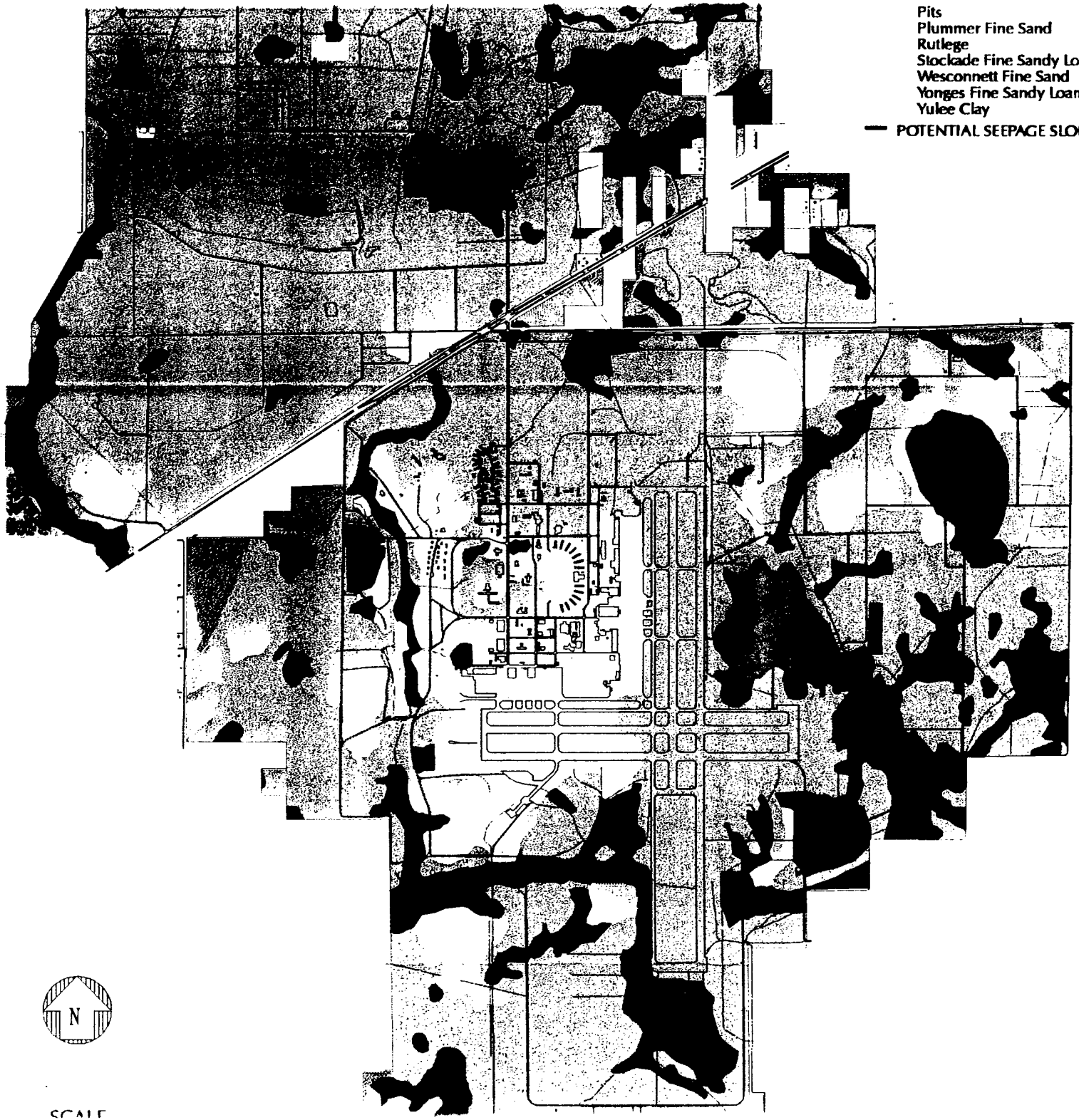
LEGEND

HIGH DEVELOPMENT SUITABILITY
- Albany Fine Sand
- Aquic Quartz
- Leon-Urban Land Complex
- Mandarin Fine Sand
- Ortega Fine Sand
- Urban Land

MEDIUM DEVELOPMENT SUITABILITY
- Arents
- Blanton Fine Sand
- Hurricane Fine Sand
- Leon Fine Sand
- Lynn Haven Fine Sand
- Olustee Fine Sand
- Pottsburg Fine Sand
- Ridgeland Fine Sand
- Sapelo Fine Sand
- Surrency Fine Sand

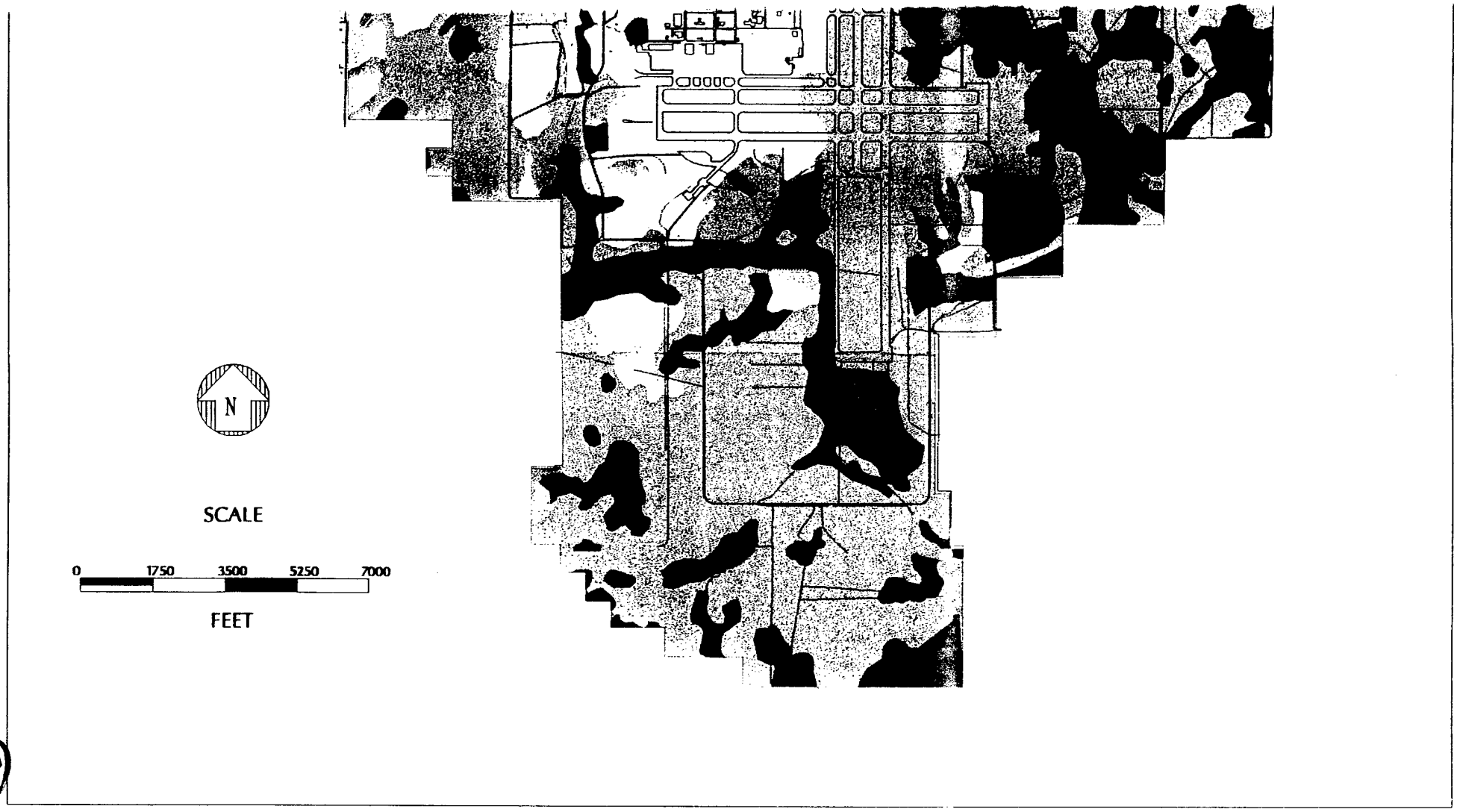
LOW DEVELOPMENT SUITABILITY
- Allanton and Rutlege Mucky
- Arents - Sanitary Landfill
- Mascotte Fine Sand
- Maurepas Muck
- Meadowbrook Sand
- Palmico Muck
- Pelnam Fine Sand
- Pits
- Plummer Fine Sand
- Rutlege
- Stockade Fine Sandy Loams
- Wesconnett Fine Sand
- Yonges Fine Sandy Loam
- Yulee Clay

POTENTIAL SEEPAGE SLOPES


Pits
Plummer Fine Sand
Rutlege
Stockade Fine Sandy Loams
Wesconnett Fine Sand
Yonges Fine Sandy Loam
Yulee Clay
POTENTIAL SEEPAGE SLOPES
N

(2)

SCALE



Source: USDA 1978 ; 1989

Figure 3-5 SOILS MAP - MAIN STATION / YELLOW WATER AREA

3.3 Terrestrial Resources

3.3.1 Vegetation

Vegetation in the Main Station and the Yellow Water Area is managed under Navy's Long Range Forest Resource Management Plan, which was implemented in 1963. Forest cover types are divided into stands (i.e., contiguous groups of trees of similar age). Stands are managed using an even-aged management system whereby the dominant trees originate at about the same time and therefore are typically harvested at the same time by clearcutting. An initial thinning is conducted approximately 18 to 20 years after clearcutting, followed by additional thinning every seven to 10 years until final harvest. The final harvest usually occurs after 55 to 65 years for pine-dominated stands, and after 75 to 85 years for hardwood-dominated stands. Over 99% of the forested acreage at the facility was harvested less than 60 years ago, and approximately 92% was harvested less than 50 years ago (Navy 1992). Approximate acreages and descriptions of upland and wetland cover types are based on the Forestry Management Section of the Natural Resources Management Plan for Cecil Field, the Cecil Field Gopher Tortoise Survey and Management Plan (CZR, Inc. 1994), and National Wetland Inventory (NWI) maps (Navy 1994c).

3.3.1.1 Upland Vegetation

The upland vegetation of NAS Cecil Field can be categorized into six cover types: pine and mixed hardwood forest, pine flatwoods, longleaf pine-turkey oak, shrub and brushland, transitional hardwoods, and disturbed/developed areas. The dominant cover type is pine and mixed hardwood, which accounts for approximately 33% of the station property. The other five upland cover types comprise a total of 42% of the station property, and the remainder of the area is wetland. Distribution of the upland cover types is presented on Figure 3-6.

Pine and Mixed Hardwood Forest

Upland forests dominated by slash pine (*Pinus elliottii*), loblolly pine (*P. taeda*), longleaf pine (*P. palustris*), and pond pine (*P. serotina*) occupy approximately 5,813 ac (2,353 ha) of the station. Slash pine has been planted in many areas along the coastal plain that formerly were longleaf pine flatwoods. Military activity in the 1940s resulted in the removal of much of the existing vegetation and subsequent replanting with slash pine (Navy 1992).

The pine forests are usually managed intensively through periodic thinning, improvement cutting, salvage cutting, and prescribed periodic burns to diminish the density of the shrub

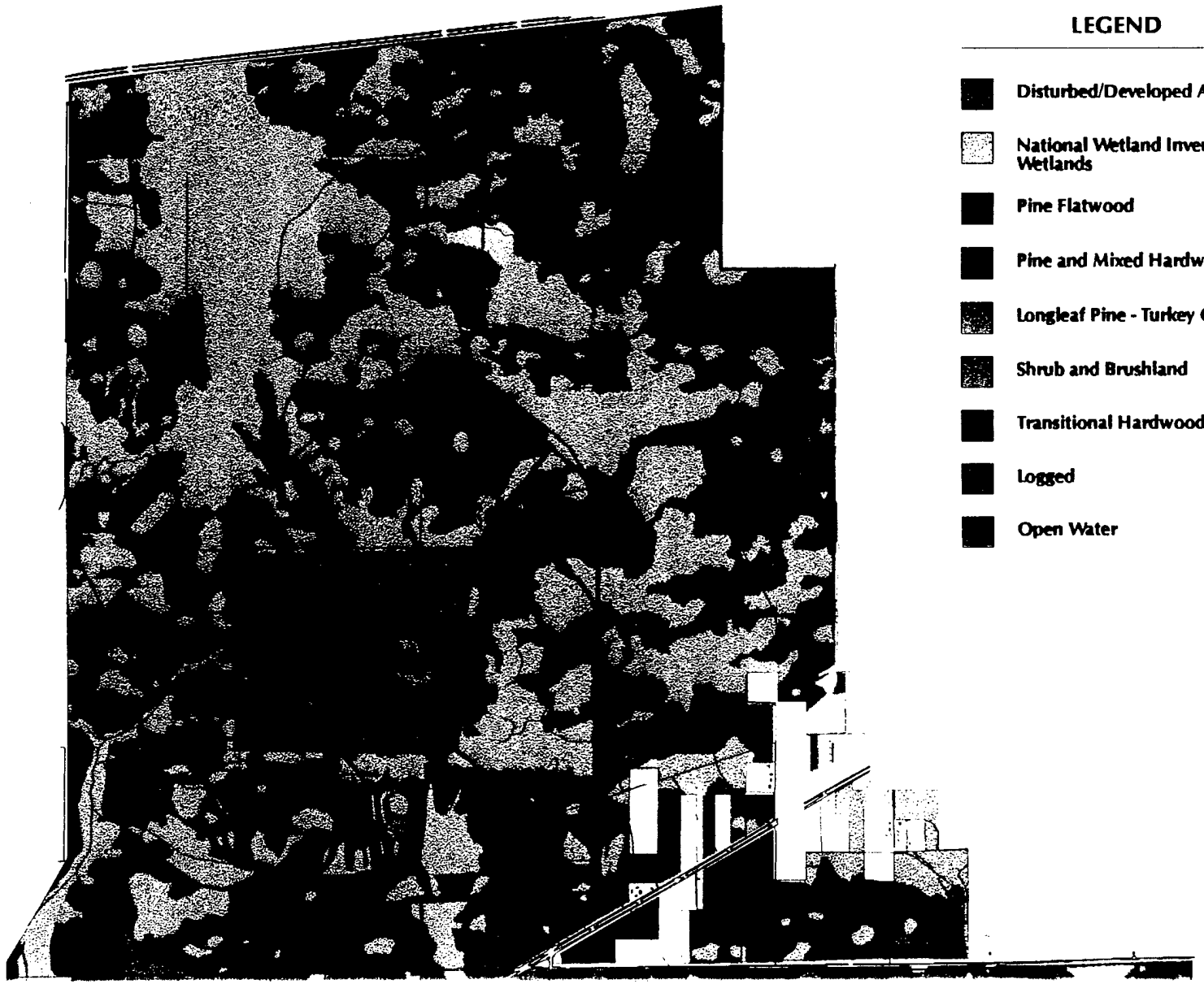
layer, which presumably competes with the more desirable overstory for water and nutrients. Whereas hardwood forests generally are not replanted, pine forests are usually replaced by natural or artificial reseeding or by planting seedlings. Presently, approximately 12% (2,000 ac [809 ha]) of the forested area at NAS Cecil Field is less than 20 years old (Navy 1992).

Although the overstory of pine forest consists principally of the aforementioned pine species, bald cypress (*Taxodium distichum*) and broad-leaved species including sweetgum (*Liquidambar styraciflua*), water oak (*Quercus nigra*), red maple (*Acer rubrum*), redbay (*Persea borbonia*), loblolly bay (*Gordonia lasianthus*), sweetbay (*Magnolia virginiana*), and occasionally southern red cedar (*Juniperus silicicola*) can constitute significant portions of the overstory and subcanopy. The shrub layer typically consists of wax myrtle (*Myrica cerifera*), gallberry (*Ilex glabra*), fetterbush (*Lyonia lucida*), titi (*Cliftonia monophylla*), staggerbush (*Lyonia* spp.), and saw palmetto (*Seranoa repens*). Ground cover species include St. John's wort (*Hypericum* spp.), spikerush (*Eleocharis* spp.), yellow-eyed grass (*Xyris* spp.), bog buttons (*Lachnocaulon* spp.), and bracken fern (*Pteridium aquilinum*). Vines including muscadine grape (*Vitis rotundifolia*), Virginia creeper (*Parthenocissus cinquefolia*), and green brier (*Smilax* spp.) are locally abundant.

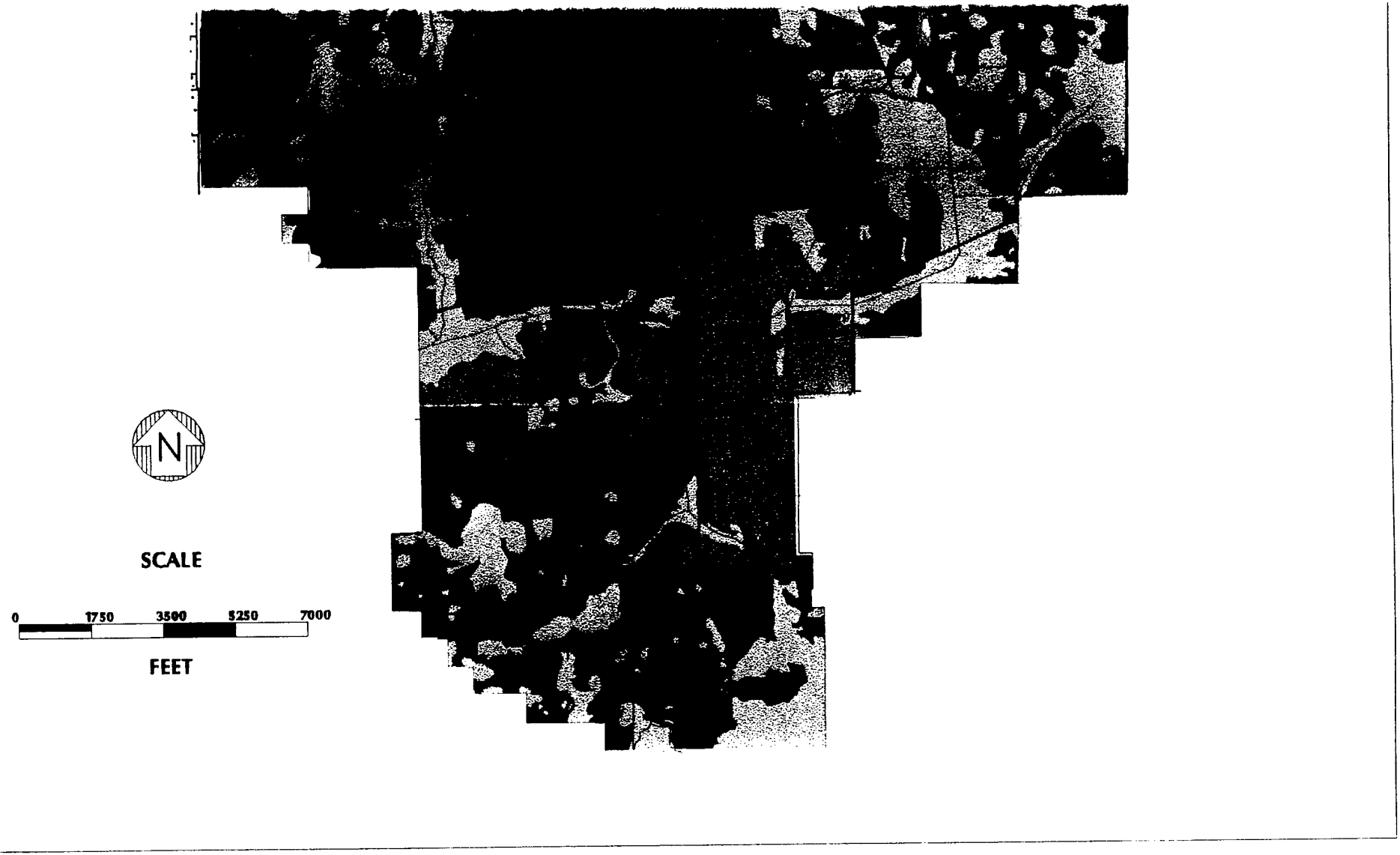
On drier sites, such as those dominated by longleaf pine, typical components of the subcanopy and shrub layers include turkey oak (*Quercus laevis*), blue jack oak (*Quercus incana*), persimmon (*Diospyros virginiana*), and black cherry (*Prunus serotina*). Ground cover consists of gopher apple (*Licania michauxii*), tarflower (*Befaria racemosa*), beargrass (*Yucca filamentosa*), bracken fern, blueberry (*Vaccinium* spp.), broomsedge (*Andropogon* spp.), and wiregrass (*Aristida* spp.).

Pine Flatwoods

The pine flatwood community occurs on relatively level terrain and occupies approximately 3,591 ac (1,453 ha) of the station. Large portions of this community have a water table near the surface for prolonged periods, and the soils are typically acidic and moderately well drained to poorly drained (CZR, Inc. 1994). The majority of this habitat type consists of planted pine. The dominant canopy species is slash pine, with canopy coverage ranging from 60 to 80 percent. Saw palmetto dominates the shrub layer in the drier areas of this cover type, while gallberry (*Ilex glabra*) is usually scattered throughout the wetter flatwood areas. The amount of groundcover present is highly variable, often depending on the relative density of the canopy and shrub layer. Frequently occurring groundcover species include wiregrass, low bush blueberry (*Vaccinium myrsinites*), and blackberry (*Rubus* spp.). Other common species in this community


LEGEND
Disturbed/Developed Areas
National Wetland Inventory (NWI) Wetlands
Pine Flatwood
Pine and Mixed Hardwood Forest
Longleaf Pine - Turkey Oak
Shrub and Brushland
Transitional Hardwoods
Logged
Open Water

N
SCALE



Source: CZR 1994

FIGURE 3-6 VEGETATION - MAIN STATION / YELLOW WATER AREA

include live oak (*Quercus virginiana*), bracken fern, laurel greenbriar (*Smilax laurifolia*), and Carolina jessamine (*Gelsemium sempervirens*) (CZR, Inc. 1994).

Longleaf Pine-Turkey Oak

Longleaf pine-turkey oak plant communities usually occur on relatively infertile, well-drained soils and account for approximately 322 ac (130 ha) of vegetation at the station. Two variations of this community occur, although both are dominated by longleaf pine and turkey oak. The first variation is composed primarily of mature longleaf pine with a scattered subcanopy of turkey oak and runner oak (*Quercus* spp.). The second type includes areas in which the longleaf pine trees have been cleared for timber, and the areas are dominated by turkey oaks. The groundcover in both types is scattered and diverse with numerous areas of exposed soil. Common herbaceous species include wiregrass, milkweed (*Asclepias humistrata*), butterfly pea (*Centrosoma virninianum*), British soldier (*Cladonia* spp.), and low panicum (*Panicum* spp.) (CZR, Inc. 1994).

Shrub and Brushland

Shrub and brushland areas are dominated by several woody shrub species, as well as herbaceous plants and grasses. These areas comprise approximately 382 ac (155 ha) of land throughout the station. The shrub areas of this community typically include slash pine saplings, saw palmetto, wax myrtle, and gallberry. The brushland or herbaceous areas consist of wiregrass, muscadine grape, and rusty lyonia (*Lyonia ferruginea*) (CZR, Inc. 1994).

Transitional Hardwoods

The transitional hardwood community includes a small area of approximately 8 ac (3.2 ha) in the Main Station, and is composed primarily of upland hardwood species with scattered pine species. Commonly occurring species include live oak, loblolly pine, sweetgum, and loblolly bay. Other plant species commonly found in this community type include beautyberry (*Callicarpa americana*), laurel greenbriar, redbay, and water oak (CZR, Inc. 1994).

Disturbed/Developed Areas

Disturbed/developed areas occur on approximately 3,058 ac (1,238 ha) of the station. These areas include the land immediately surrounding buildings, airstrips, recreational facilities, roads, and any other areas that are regularly managed (mowed) by base personnel. Vegetation

within these areas consists primarily of herbaceous plants and/or ornamental trees and shrubs. Dominant herbaceous plants include planted grasses such as Bermuda (*Cynodon dactylon*) and bahia (*Paspalum notatum*), and other herbs such as capeweed (*Lippia nodiflora*), cudweed (*Gnaphalium* spp.), and clovers (*Trifolium* spp.). Commonly planted ornamental trees or shrubs include dwarf holly (*Ilex vomitora*), Chinese holly (*Ilex burfordi*), Harland boxwood (*Buxus harlandi*), Japanese yew (*Podocarpus macrophylla*), crab apple (*Malus hybrida*), and flowering dogwood (*Cornus florida*) (CZR, Inc. 1994).

3.3.1.2 Wetland Vegetation

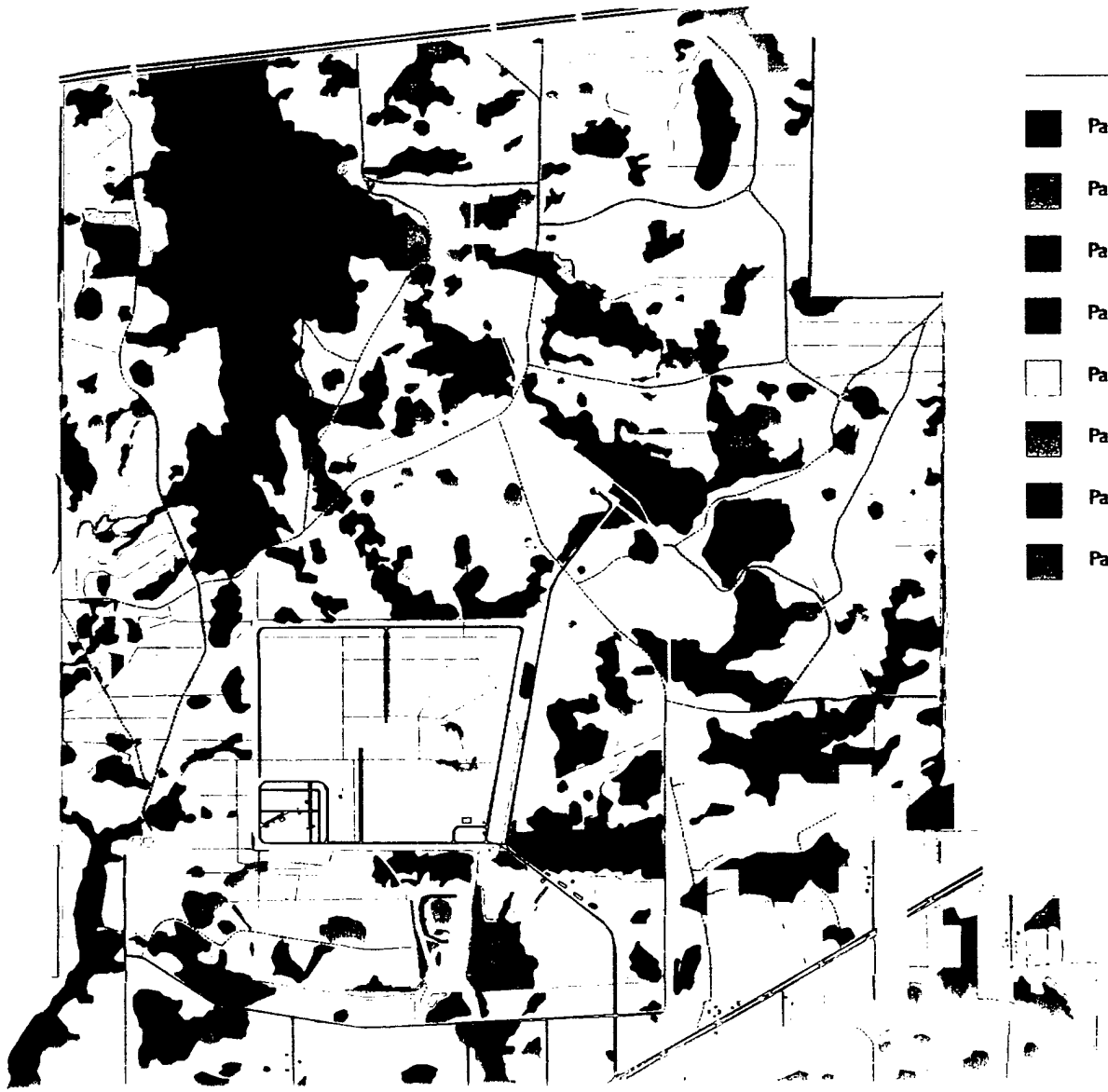
Wetland areas on NAS Cecil Field were identified using the United States Fish and Wildlife Service's (USFWS) existing NWI maps of the area (see Figure 3-7). These wetlands were grouped and characterized according to the Cowardin System of wetland classification (Cowardin *et al.* 1979). Wetlands identified on NWI maps are usually based on aerial photo-graph interpretation. Therefore, a formal wetland delineation survey may reveal additional wetland areas or varying extents of mapped wetlands.

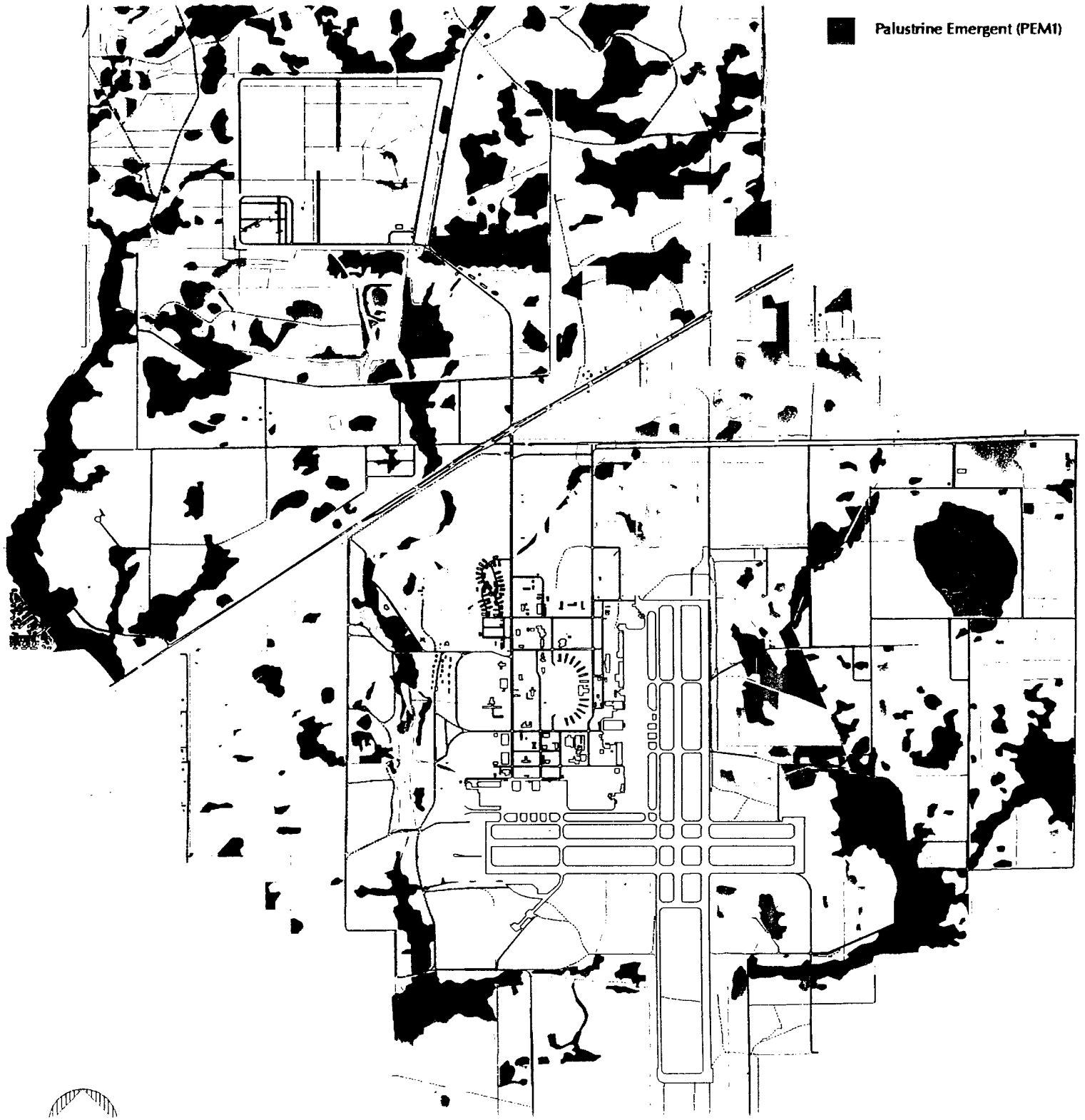
At the Main Station and Yellow Water Area, wetland plant communities account for approximately 25% (4,427 ac [1,792 ha]) of the total land area. The majority of the wetlands on these facilities have been disturbed by logging practices or construction of military facilities. Individual wetland types are discussed in the following paragraphs.

Palustrine Forested (PFO)

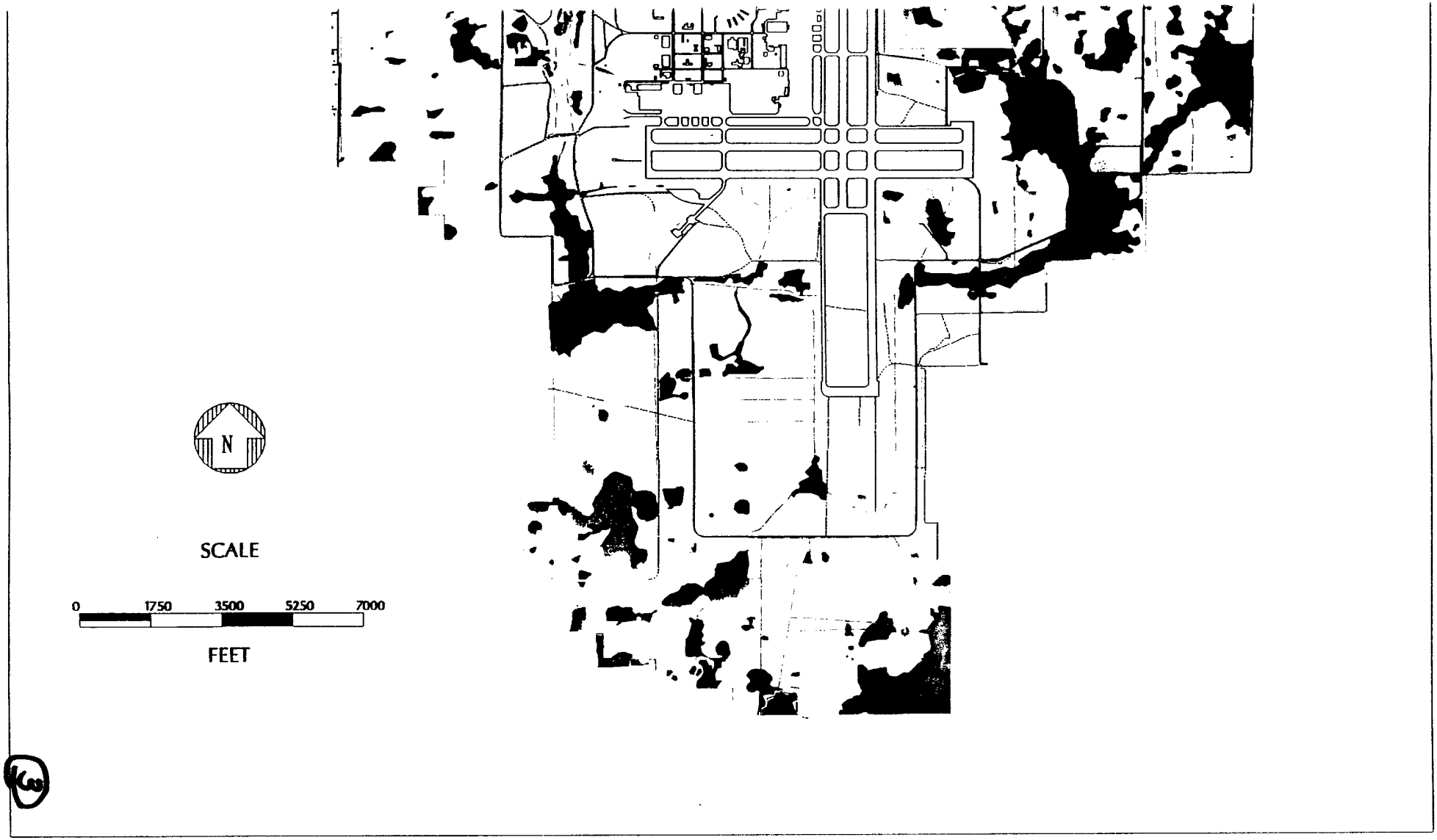
Approximately 3,696 ac (1,496 ha) of palustrine forested wetland occur along the streams (Rowell Creek, Sal Taylor Creek, and Yellow Water Creek) located at the station (Navy 1991). Forested wetlands at the station include hardwood wetlands, broad-leaved deciduous (PFO1); cypress swamps, needle-leaved deciduous (PFO2); bay swamps, broad-leaved evergreen (PFO3); and pine wetlands, needle-leaved evergreen (PFO4). Hardwood wetland is the most prevalent wetland type at the facility and occupies 2,438 ac (987 ha).

Hardwood wetlands (PFO1) are dominated by deciduous hardwoods bordering creeks and areas where the forest floor is saturated or submerged during part of the year. They are present in low-lying areas where floodwaters collect at the Main Station and Yellow Water Area. The most extensive hardwood wetland is located in the northwest corner of the Yellow Water


LEGEND
Palustrine Forested (PF01)
Palustrine Forested (PF02)
Palustrine Forested (PF03)
Palustrine Forested (PF04)
Palustrine Scrub/Shrub (PSS1)
Palustrine Scrub/Shrub (PSS3)
Palustrine Scrub/Shrub (PSS4)
Palustrine Emergent (PEM1)



(2)



Source: U.S. Navy 1994

FIGURE 3-7 WETLANDS - MAIN STATION / YELLOW WATER AREA

Area. Most hardwood wetland areas are subject to intermittent flooding (floodwaters as high as 4 to 5 ft [1.2 to 1.5 m] were observed during a 1994 field survey conducted by ABB Environmental Services, Inc. [ABB-ES 1994]). Rowell Creek, Sal Taylor Creek, Yellow Water Creek, and some of the lesser tributaries to the east are typified by this classification at the Main Station and Yellow Water Area. Red maple (*Acer rubrum*), water oak (*Quercus nigra*), swamp bay (*Persea palustris*), tupelo (*Nyssa sylvatica var. biflora*), and sweet gum (*Liquidambar styraciflua*) are common along these drainage pathways. Many forested areas, such as the area draining to the east into Rowell Creek, contain hardwood forests with a variable understory of herbs and ferns. Occasional bayheads, scattered in the pine flatwoods, harbor many of these same species as well as an occasional bald cypress (Envirodyne Engineers 1985). The soils commonly associated with this community are nearly level, stratified, alluvial sediments derived from erosion of the adjoining uplands drained by these river systems. The soils are rarely inundated but tend to be saturated with a high water table.

Cypress swamps (PF02) occupy a total of 216 ac (87 ha) scattered throughout the station in depressions in pine forests and adjacent to hardwood wetlands. Bald cypress (*Taxodium distichum*) and pond cypress (*T. ascendens*) are dominant species found in this wetland type at the Main Station and Yellow Water Area. The overstory trees on the facility are typically small to medium in size. Groundcover species include cinnamon fern (*Osmunda cinnamomea*), Virginia chain fern (*Woodwardia virginica*), St. John's wort (*Hypericum fasciculatum*), and red root (*Lachnanthes caroliniana*) (Navy 1988). The soils commonly associated with cypress swamps are nearly level and poorly to very poorly drained, with coarse to medium-textured surfaces.

Bay swamps (PF03) occupy approximately 62 ac (25 ha) of the station and are dominated by broad-leaved evergreen trees that grow in peat-forming depressions, shallow drainageways, and stream bottoms in the vicinity of the Main Station and the Yellow Water Area. Bay swamp areas are typically located at the lower moving headwaters of the various creeks, although some bay swamps on the facility are isolated. Typical species in the area include loblolly bay (*Gordonia lasianthus*), sweetbay, swamp bay, and red maple. Other canopy species include sweetgum, Carolina willow (*Salix caroliniana*), Chinese tallow tree (*Sapium sebiferum*), and bald cypress (*Taxodium distichum*). Loblolly bay, sweetbay, swamp bay, red maple, and waxmyrtle (*Myrica cerifera*) dominate the subcanopy. Groundcover species include cinnamon fern, shield fern (*Thelypteris kunthii*), and elderberry (*Sambucus canadensis*) (Navy 1988).

Pine wetlands (PF04) are the second most prevalent wetland type, occupying approximately 980 ac (397 ha) of the station. They are dispersed throughout the Main Station and Yellow Water Area at slightly lower elevations than the surrounding slash pine forests and typically are seasonally flooded (USACE 1988). Slash pine is usually the dominant tree in these low areas, but a mixture of hardwood swamp species may be present (USACE 1988). Typical understory species include slash pine (*Pinus elliottii*), pond pine (*Pinus serotina*), titi (*Cyrilla racemiflora*), waxmyrtle, and gallberry. Standing water, sometimes up to several feet in depth, is common during the rainy season. The soils commonly associated with this community are nearly level, acidic, poorly to very poorly drained, coarse to moderately fine textured, and covered with a thin organic surface layer on low-lying flats.

Palustrine Scrub-Shrub (PSS)

Scrub-shrub wetlands (PSS) are characterized by woody shrubs or low trees (less than 6 m) where the soil is saturated to the surface or where standing water persists throughout most of the growing season in most years (USACE 1988). At the Main Station and Yellow Water Area, this habitat typically occurs along stream channels on poorly drained substrates and is usually interspersed with other wetland types in low-lying areas. Scrub-shrub wetlands at NAS Cecil Field include broad-leaved deciduous (PSS1); broad-leaved evergreen (PSS3); and needle-leaved evergreen (PSS4).

Approximately 550 ac (223 ha) of scrub-shrub wetland are located on the station. Scrub-shrub wetland is characterized by relatively open canopy with dense understory shrub layers. Typical species include slash pine, red maple, redbay (*Persea borbonia*), sweetbay, swamp bay, sweetgum, waxmyrtle, royal fern (*Osmunda regalis*), gallberry, cinnamon fern, and virginia creeper (*Parthenocissus quinquefolia*).

Palustrine Emergent (PEM)

Approximately 181 ac (73 ha) of palustrine emergent wetlands (PEM) exist at the Main Station and Yellow Water Area. Most occur in the floodplains associated with Sal Taylor Creek, Yellow Water Creek, and Rowell Creek. Emergent wetland areas are also found scattered throughout the station in low-lying, pond-like areas with prolonged soil saturation. These areas usually remain saturated or inundated because of the presence of groundwater seeps (ABB-ES 1994). The dominant vegetation in these wetland areas at the Main Station and Yellow Water Area includes arrowheads (*Sagittaria latifolia*), fragrant water lily (*Nymphea odorata*), bog buttons (*Lachnocaulon anceps*), rushes (*Scirpus* spp.), sedges (*Carex* spp.), St. Johns' wort

(*Hypericum brachyphyllum*), dotted smartweed (*Polygonum punctatum*), hatpins (*Eriocaulon compressum*), red root, waxmyrtle (*Panicum* spp.), meadowbeauty (*Rhexia virginica*), sundew (*Drosera capillaris*), and pitcher plants (*Sarracenia minor*).

3.3.1.3 Local Wetland Protection Policies

The goals of the Jacksonville Comprehensive Plan are to achieve no further net loss of the natural functions of the city's remaining wetlands; to improve the quality of the city's wetlands resources over the long term; and to improve the water quality and fish and wildlife values of wetlands (Jacksonville Planning and Development Department 1990). In addition, Clay County's 2001 Comprehensive Plan contains a program to ensure the preservation and protection of wetlands (Clay County 1992). The effectiveness of these wetland resource protection efforts depends on the programs of other local, regional, state, and federal agencies that have jurisdiction over the natural resources at NAS Cecil Field.

3.3.2 Wildlife

This section describes the wildlife species in northern Florida that are typically associated with the upland and wetland habitats described in Section 3.3.1. This discussion is intended to describe species most likely to occur within, but not necessarily limited to, NAS Cecil Field. A list of wildlife species that are known to occur or may occur at the Main Station or Yellow Water Area is presented in Appendix B.

3.3.2.1 Upland Wildlife Habitats

Pine Forest

Pine forest is the most extensive and widely distributed terrestrial habitat in Florida and at NAS Cecil Field (Abrahamson and Hartnett 1990). A broad assemblage of wildlife can be found in pine forests, but very few species are restricted to these habitats. A few of the wildlife species that commonly inhabit pine forests include the pine woods tree frog (*Hyla femoralis*), oak toad (*Bufo quercicus*), Florida box turtle (*Terrapene carolina bauri*), southern black racer (*Coluber constrictor priapus*), eastern diamondback rattlesnake (*Crotalus adamenteus*), brown-headed nuthatch (*Sitta pusilla*), pine warbler (*Dendroica pinus*), great horned owl (*Bubo virginianus*), hispid cotton rat (*Sigmodon hispidus*), cotton mouse (*Peromyscus gossypinus*), nine-banded armadillo (*Dasypus novemcinctus*), Virginia opossum (*Didelphis marsupialis*), gray

fox (*Urocyon cinereoargenteus*), wild hog (*Sus scofa*), and white-tailed deer (*Odocoileus virginianus*) (Abrahamson and Hartnett 1990; Simmons 1990). Pine forests are often intermixed with cypress swamps and hardwood wetlands. Species that prefer these habitats use pine forests at some time during the year.

Wildlife management of pine forests is often dictated by local forestry practices. Pine forest management designed solely to maximize timber production may conflict with wildlife management principles. For example, intensively managed pine forests usually lack den or cavity trees, dead trees, dead wood on ground, and mast-bearing hardwoods (Jackson *et al.* 1984). As a result, population sizes and bird species richness (abundance and diversity) decrease when natural pine is converted to pine plantation. However, species such as the northern bobwhite (*Colinus virginianus*) are locally common in managed pine forests with an open understory maintained by burning (Abrahamson and Hartnett 1990).

Drier pine forests, such as those dominated by longleaf pine and turkey or bluejack oaks, are fire-maintained habitats that commonly support a large number of wildlife species. Many species have adapted to the dry, sandy conditions that characterize these areas. Species adapted to xeric habitats tend to be burrow dwellers including the gopher frog (*Rana areolata*), south-eastern pocket gopher (*Geomys pinetis*), eastern coachwhip (*Masticophis flagellum*), eastern diamondback rattlesnake, and gray fox.

Dry pine forests need to be burned periodically to maintain their value as wildlife habitats. For example, populations of gopher tortoises (*Gopherus polyphemeus*) thrive on herbaceous vegetation, which is lost in the absence of fire. The practice of fire suppression has resulted in decreased populations of several wildlife species including the red-headed woodpecker (*Melanerpes erythrocephalus*), loggerhead shrike (*Lanius ludorvicianus*), Bachman's sparrow (*Aimophila aestirilis)*, northern bobwhite, and eastern coachwhip.

Hardwood Forest

Hardwood forests, including transitional hardwoods and shrub/brushland areas, generally exhibit a high degree of plant species diversity and provide valuable wildlife habitat. Many of the same wildlife species that inhabit more mesic pine forests also use hardwood habitats. On average, however, hardwood stands produce greater habitat diversity for wildlife than do stands of pure pine. For example, dead trees are often more numerous because burning is not routinely conducted in mixed hardwood-pine forests (Jackson *et al.* 1984). Therefore, cavity-dwelling wildlife species are often more abundant in these habitats, such as the Carolina chickadee (*Parus carolinensis*), tufted titmouse (*P. bicolor*), Carolina wren (*Thryothorus*

ludovicianus), brown-headed nuthatch, black vulture (*Coragyps atratus*), turkey vulture (*Cathartes aura*), eastern screech owl (*Otus asio*), barred owl (*Strix varia*), woodpecker, gray squirrel (*Sciurus carolinensis*), southern flying squirrel (*Glaucomys volans*), raccoon (*Procyon lotor*), Virginia opossum, white-tailed deer, and several species of mice.

The composition of canopy-dwelling wildlife species often differs between hammocks and pine forests. For example, gray squirrels tend to be more abundant in hammocks and fox squirrels (*Sciurus niger*) in pine forests. Likewise, red-shouldered hawks (*Buteo lineatus*) and barred owls are common in hardwood forests, whereas red-tailed hawks (*B. jamaicensis*) and great horned owls are more common in pine forests (Simmons 1990). Rotten wood from fallen dead trees creates additional habitat by providing food and cover for lizards, salamanders, snakes, and mice (Jackson *et al.* 1984). Some of the more common amphibians and reptiles include the green anole (*Anolis carolinensis*), Florida box turtle, eastern glass lizard (*Ophisaurus ventralis*), broadhead skink (*Eumeces laticeps*), ground skink (*Scinella lateralis*), Florida red-bellied snake (*Storeria occipitomaculata*), and rough green snake (*Opheodrys aestivus*) (FNAI 1990).

Disturbed/developed areas are used by wildlife species tolerant of high levels of human disturbance. The most common species are often exotic, such as the house sparrow (*Passer domesticus*), european starling, black rat (*Rattus rattus*), house mouse (*Mus musculus*), rock dove (*Columba livia*), and Mediterranean gecko (*Hemidactylus turcicus*). However, many native species are found in these habitats as well, such as the mourning dove, Carolina wren, northern mockingbird, northern cardinal, blue jay, chimney swift (*Chaetura pelagica*), and gray squirrel.

3.3.2.2 Wetland Wildlife Habitats

Palustrine Forested and Scrub-Shrub Wetlands

Forested and scrub-shrub wetlands are discussed together because most wildlife species present in any one of these wetland cover types generally occupy the other type as well. These habitats provide excellent habitat for a variety of amphibians, reptiles, and birds, but few mammal species are associated exclusively with wetlands. Pronounced wet-dry cycles provide favorable year-round habitat for amphibians and reptiles, and frogs dominate the vertebrate fauna in most inundated wetlands during the summer (Ewel 1990). The marbled salamander (*Ambystoma opacum*), eastern mud snake (*Farancia abacura*), and rainbow snake (*Farancia erytrogramma*) are seldom found outside these habitats. Other species commonly found in inundated wetlands include the southeastern five-lined skink (*Eumeces egregius similus*), cotton-

mouth (*Agkistrodon piscivorus*), anhinga (*Anhinga anhinga*), barred owl, hooded warbler, herons, egrets, woodpeckers, wood duck (*Aix sponsa*), eastern coyote (*Canis latrans*), white-tailed deer, bobcat (*Lynx rufus*), and raccoon.

Despite the general overlap of species compositions among wetland habitats found at the station, certain species preferentially use various forested wetlands. For example, the Florida chicken turtle (*Deirochelys reticularia chrysea*) and glossy crayfish water snake (*Regina rigida*) appear to thrive particularly well in cypress swamps (Simmons 1990). The flatwoods salamander (*Ambystoma cingulatum*) primarily inhabits pine wetlands with pools more than other wetland types (Conant and Collins 1975).

Palustrine Emergent Wetland

Palustrine emergent wetlands can be productive habitats for diverse aquatic and terrestrial species. Insects, crayfish, snails, and other invertebrates are plentiful in these habitats and provide an abundant, high-quality food source for vertebrate wildlife. Common species found in these wetland areas include the southern leopard frog (*Rana sphenocephala*), green tree frog (*Hyla cinerea*), Florida green water snake (*Nerodia cyclopion floridana*), swamp snake (*Seminatrix pygaea*), cottonmouth, Florida mud turtle (*Kinosternon subrubrum steindachneri*), Florida cooter (*Chrysemys floridana*), Florida water rat (*Neofiber alleni*), white-tailed deer, herons, egrets, bitterns, rails, ducks, and red-winged blackbirds (*Agelaius phoeniceus*) (Kushlan 1990; Simmons 1990).

3.3.2.3 Fishery Resources

Aquatic habitats at NAS Cecil Field support a diverse fishery community. The station manages five constructed impoundments including Lake Newman, Lake Fretwell, Lake Wright, Lake Yellow Water, and Lake Burrell (Navy 1992). Important game (recreation) fish species in these lakes include the largemouth bass (*Micropterus salmoides)*, red ear sunfish (*Lepomis microlophus*), warmouth (*Lepomis gulosus*), channel catfish (*Ictalurus punctatus*), and bullhead (*Ictalurus nebolosus*). Largemouth bass are generally found in shallow, heavily vegetated areas of water bodies. Areas of submerged vegetation are also preferred by young red ear sunfish, whereas older fish inhabit adjoining areas of open water. Channel catfish are generally found in lakes that have adjacent creeks and rivers where adults can spawn. Bullheads tend to inhabit more stagnant, heavily vegetated waters.

3.3.3 Threatened and Endangered Species

This section presents federal and state-listed species with special protection status reported to occur or potentially occur at the Main Station and/or Yellow Water Area based on contacts with USFWS (see Appendix C), the Florida Game and Fresh Water Fish Commission (FGFWFC), the Florida Natural Areas Inventory (FNAI), and the Environmental Department of NAS Cecil Field. Federally listed threatened and endangered plant and animal species are protected by the Endangered Species Act (ESA) of 1973, 16 U.S.C. §§ 1531-1544 (1994), administered by USFWS. State-listed animal species are protected by Fla. Admin. Code Ann. Ch. 39-27.002 through 39-27.005 the auspices of FGFWFC. State-listed plant species are protected by Sections 581.185 through 581.187 and 581.201 of the Preservation of Native Flora of Florida Act, Fla. Stat. Ch. 581.185-187 (1997), administered by the Florida Department of Agriculture. The legal protective status of state- and federally listed plant and animal species is derived from the *Official Lists of Endangered and Potentially Endangered Fauna and Flora of Florida* (FGFWFC 1994).

Potential habitats of threatened species, endangered species, and species of concern at the station were determined from site visits and a review of appropriate literature including *Closing the Gaps in Florida's Wildlife Habitat Conservation System* (Cox *et al.* 1994). Information used in preparation of this publication was processed and analyzed using a Geographic Information System (GIS)-based approach that facilitates identification of strategic habitat conservation areas. Such identification promotes biodiversity through the conservation of rare, threatened, and endangered plant and animal species and their habitats. As required by Section 7 of the ESA, 16 U.S.C. §§ 1531-1544 (1996), a biological assessment was conducted to determine potential occurrences of federally listed plant and animal species at NAS Cecil Field (see Appendix D). The assessment included an on-site survey performed in February 1995; an extensive review of the habitat (foraging and breeding) requirements and diets for listed species and an evaluation of potential impacts to areas of suitable habitat and/or individuals of the identified species. Figure 3-8 identifies the areas of suitable habitat for listed species at NAS Cecil Field. Table 3-1 identifies the state- and federally listed species of concern that may occur in Duval and Clay counties. It should be noted that habitats of certain listed species that occur in Duval and Clay counties (e.g., marine habitats) are not present at NAS Cecil Field. Therefore, detailed descriptions of these species (e.g., Florida manatee, sea turtles) have been omitted from the following sections.

3.3.3.1 Animals

The following provides a brief description of the physical characteristics, distributions, ranges, and habitat requirements for each of the listed animal species identified by the USFWS and FGFWFC (see Appendix D).

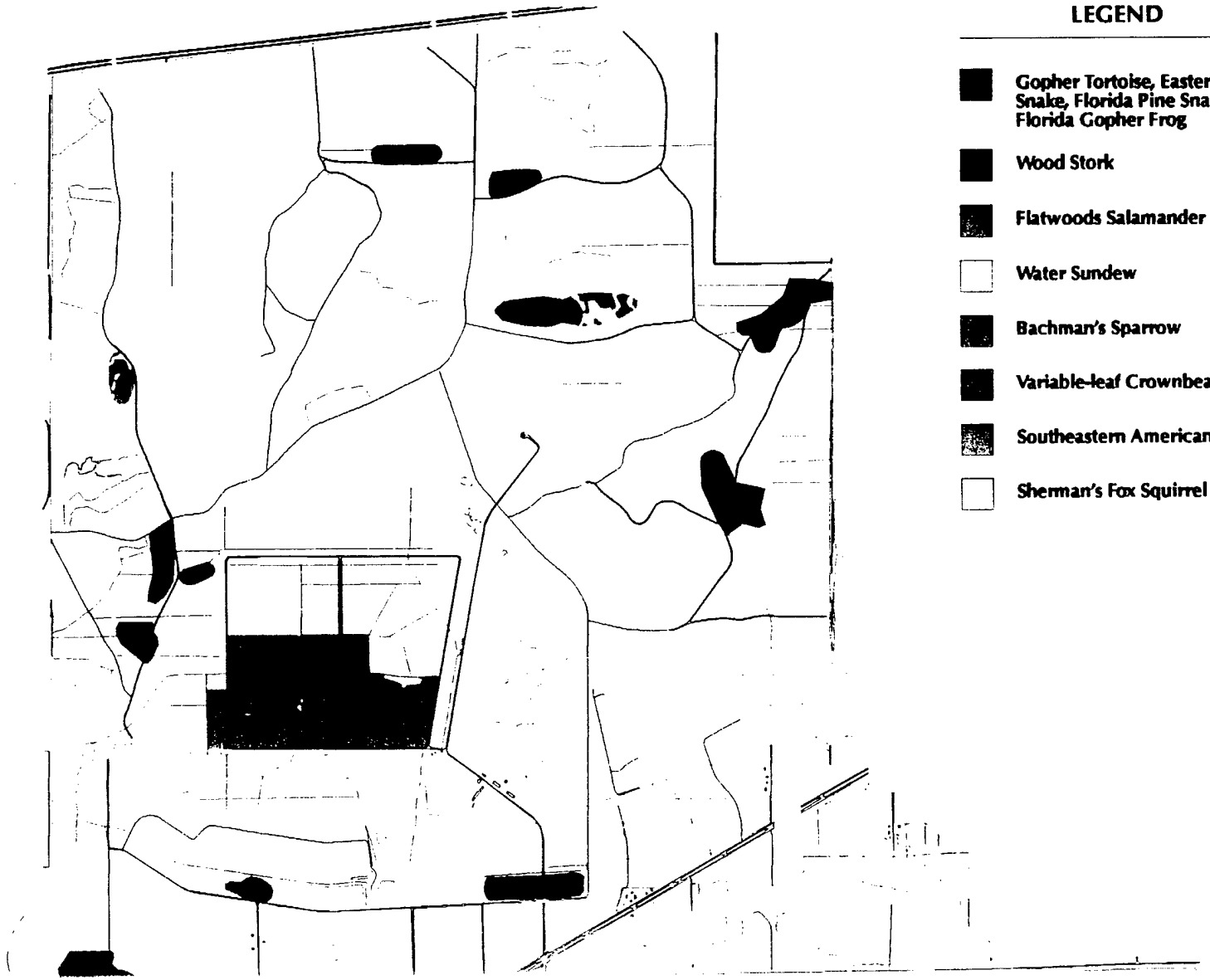
Eastern Indigo Snake (*Drymarchon corais couperi*)

The eastern indigo snake is listed as threatened at the federal and state levels. It is a large snake, often reaching 5 to 7 ft (1.5 to 2.1 m) in length, that ranges from peninsular Florida northward through the Florida Panhandle and into the Georgia coastal plain (Conant and Collins 1975). Populations are widely scattered throughout its breeding range (Mount 1976). Except for extreme southern Florida, the eastern indigo snake is typically found in the proximity of gopher tortoise burrows, which the snake uses for shelter during winter months (Mount 1976; Mount *et al.* 1988). A variety of habitats, ranging from xeric to wetland areas, may be utilized during the summer months. Suitable habitat for the eastern indigo snake exists at the station (see Figure 3-8), but there are no specific records of eastern indigo snakes historically residing within station properties (Moler 1985). No evidence (e.g., skins) or individuals were found during examination of numerous gopher tortoise burrows using a fiber optic scope (see Appendix D).

Gopher Tortoise (*Gopherus polyphemus*)

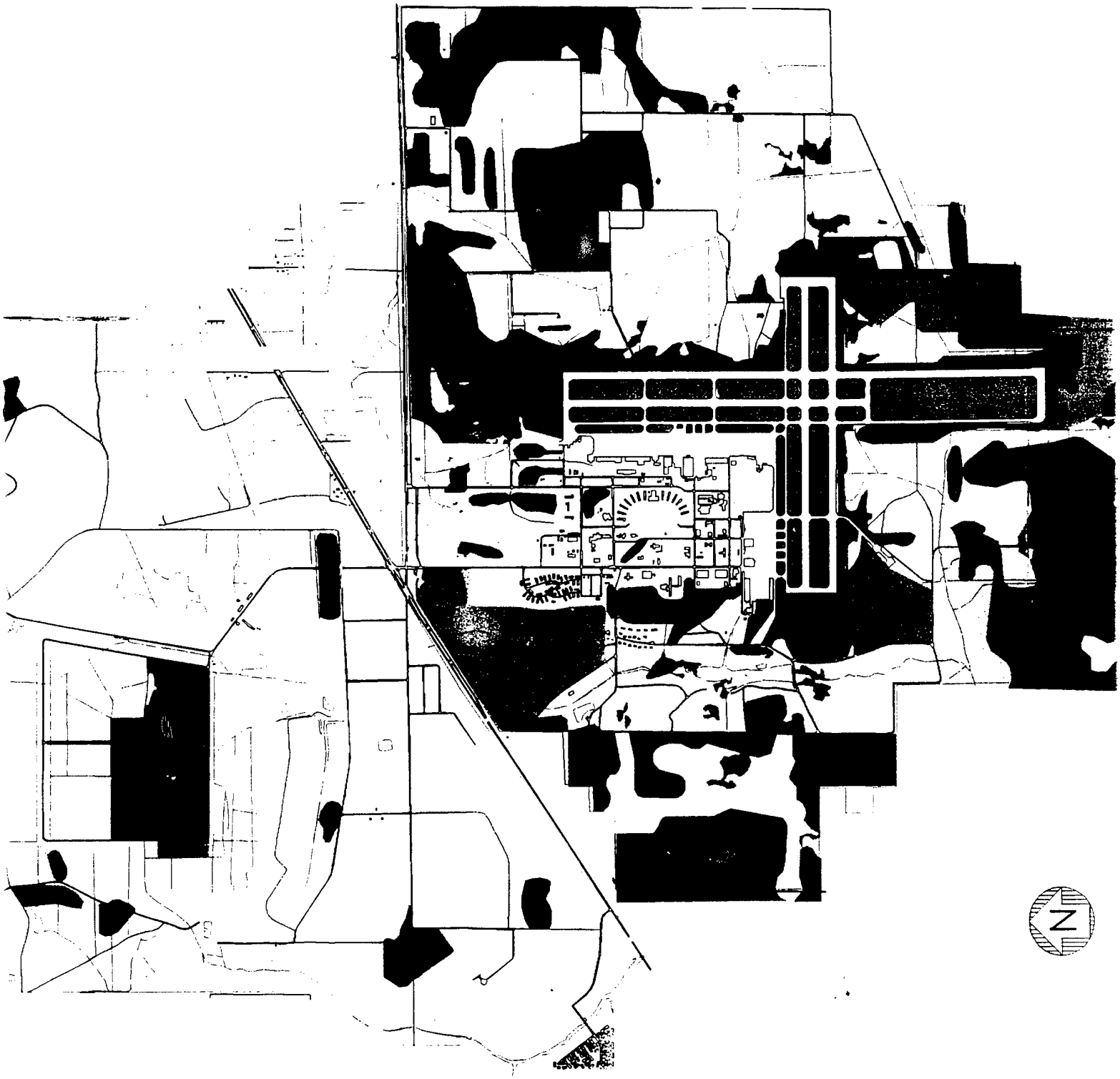
The gopher tortoise is a state-listed species of special concern. It is associated primarily with dry upland pine forest and sandhill habitats throughout its range, which extends across much of the coastal plain of the southeastern United States (Christman 1992). The gopher tortoise creates characteristic burrows that are up to 30 ft (9.1 m) long and 12 ft (3.7 m) deep (Conant and Collins 1991). As many as 43 species of wildlife have been reported to use gopher tortoise burrows, and species in certain parts of their range are considered dependent on gopher tortoise burrows for survival, including the Florida mouse, eastern indigo snake, and gopher frog (Cox *et. al.* 1987).

A 1994 gopher tortoise survey was conducted at the station that identified 3,075 ac (1,249 ha) of suitable habitat at the Main Station and 245 ac (99 ha) in the Yellow Water Area (see Figure 3-8). Estimated population density was 0.43 gopher tortoise per ac (0.17 per ha) at the Main Station, and 0.05 per ac (0.02 per ha) in the Yellow Water Area (CZR, Inc. 1994). The 1995 biological assessment confirmed the presence of active gopher tortoise burrows in the areas identified as suitable habitat (see Appendix D).



LEGEND

- Gopher Tortoise, Eastern Indigo Snake, Florida Pine Snake, and Florida Gopher Frog
- Wood Stork
- Flatwoods Salamander
- Water Sundew
- Bachman's Sparrow
- Variable-leaf Crownbeard
- Southeastern American Kestrel
- Sherman's Fox Squirrel


N



Source: ESP 1990; CZR 1994; Ecology and Environment, Inc. 1996

FIGURE 3-8 SUITABLE HABITAT MAP FOR FEDERAL- AND STATE-LISTED SPECIES MAIN STATION / YELLOW WATER AREA

Table 3-1

STATUS OF FEDERAL- AND STATE-LISTED SPECIES THAT OCCUR OR POTENTIALLY OCCUR IN DUVAL AND CLAY COUNTIES, FLORIDA

Species		Status	
Common Name	**Scientific Name**	**USFWS**	**FGFWFC/FDA**
Reptiles and Amphibians			
Eastern Indigo Snake	*Drymarchon corais couperi*	T	T
Gopher Tortoise	*Gopherus polyphemus*	Not listed	SSC
Florida Pine Snake	*Pituophis melanoleucus mugitus*	Not listed	SSC
Florida Gopher Frog	*Rana capito aesopus*	Not listed	SSC
Flatwoods Salamander	*Ambystoma cingulatum*	C2	Not listed
Green Sea Turtle	*Chelonia mydas*	E	E
Kemp's Ridley Sea Turtle	*Lepidochelys kempii*	E	E
Hawksbill Sea Turtle	*Eretmochelys imbricata*	E	E
Leatherback Sea Turtle	*Dermochrlys coriacea*	E	E
Loggerhead Sea Turtle	*Caretta caretta*	E	E
Birds			
Little Blue Heron	*Egretta caerulea*	Not listed	SSC
Snowy Egret	*Egretta thula*	Not listed	SSC
Tricolored Heron	*Egretta tricolor*	Not listed	SSC
White Ibis	*Eudocimus albus*	Not listed	SSC
Wood Stork	*Mycteria americana*	E	E
Red-Cockaded Woodpecker	*Picoides borealis*	E	T
Bachman's Sparrow	*Aimophila aestivalis*	C2	Not listed
Southeastern American Kestrel	*Falco sparverius paulus*	Not listed	T
Bald Eagle	*Haliaeetus leucocephalus*	T	T
Florida Scrub Jay	*Aphelocoma coerulescens*	T	T
Piping Plover	*Charadrius melodus*	T	T
Mammals			
Florida Mouse	*Podomys floridanus*	Not listed	SSC
Sherman's Fox Squirrel	*Sciurus niger shermani*	Not listed	SSC
Florida Black Bear	*Ursus americanus floridanus*	Not listed	T
West Indian Manatee	*Trichechus manatus latirostris*	E	E

Table 3-1

STATUS OF FEDERAL- AND STATE-LISTED SPECIES THAT OCCUR OR POTENTIALLY OCCUR IN DUVAL AND CLAY COUNTIES, FLORIDA

Species		Status	
Common Name	**Scientific Name**	**USFWS**	**FGFWFC/FDA**
Invertebrates			
Black Creek Crayfish	*Procambarus pictus*	Not listed	SSC
Plants			
Water Sundew	*Drosera intermedia*	Not listed	T
Bartram's Ixia	*Sphenostigma Coelestina*	Not listed	E
Southern Milkweed	*Asclepias viridula*	Not listed	T
Curtiss' Sandgrass	*Calamovilfa curtissii*	Not listed	E
Hartwrightia	*Hartwrightia floridana*	Not listed	T
Lake-Side Sunflower	*Helianthus carnosus*	Not listed	E
Florida Milkweed	*Matelea floridana*	Not listed	E
Chapman's Rhododendron	*Rhododentdron chapmanii*	E	E
St. John's Susan	*Rudbeckia nitida*	Not listed	E
Green Ladies-Tresses	*Spiranthes polyantha*	Not listed	E
Variable-Leaf Crownbeard	*Verbesina heterophylla*	Not listed	T
Fish			
Shortnose Sturgeon	*Acipenser brevirostrum*	E	E

Key:

T = Threatened.
E = Endangered.
C2 = Candidate species for federal listing with some evidence of vulnerability, but for which not enough information exists to justify listing.
FDA = Florida Department of Agriculture.
FGFWFC = Florida Game and Fresh Water Fish Commission.
SSC = Species of special concern.
USFWS = United States Fish and Wildlife Service.

Sources: FGFWFC 1994; USFWS 1994.

Florida Pine Snake (*Pituophis melanoleucus mugitus*)

The Florida pine snake is a state-listed species of special concern. The snake is tan or rusty brown in color and 4 to 5 ft (1.2 to 1.5 m) long. It ranges from southern South Carolina to southern Florida and inhabits dry, sandy areas in stands of oak or pine, and abandoned fields (Franz 1992). It is an excellent burrower and is associated with gopher tortoise burrows. Extensive dry pine forests with high densities of gopher tortoise burrows provide suitable habitat (Landers and Speake 1980).

Suitable habitat for the Florida pine snake exists at the station (see Figure 3-8). A shed pine snake skin was collected during the 1995 biological assessment survey (Moler 1995). No individuals were observed.

Florida Gopher Frog (*Rana capito aesopus)*

The Florida gopher frog is a state-listed species of special concern. The 2- to 4-in (5- to 10-cm), creamy white to brown frog ranges along the coastal plain from southern Georgia to southern Florida. It uses gopher tortoise burrows during the day and forages away from them at night (Godley 1992). Suitable habitat exists wherever gopher tortoise burrows are present in dry habitats.

Suitable habitat for the Florida gopher frog exists at the station (see Figure 3-8). However, no individuals or signs of the gopher frog were observed during a survey of active and inactive gopher tortoise burrows located at the station (see Appendix D).

Flatwoods Salamander (*Ambystoma cingulatum*)

The flatwoods salamander is a federally listed candidate species. This salamander is dark brownish black to gray with variable and irregular whitish, blotchy, and netlike patterns (Conant and Collins 1991). It is distributed in a small area of the southeastern coastal plain from southern South Carolina, across Georgia, to southern Alabama, and south to the northern part of peninsular Florida (Conant and Collins 1991). It occurs in longleaf or slash pine/wiregrass flatwoods adjacent to wetlands with some standing water (Anderson and Williamson 1976).

Although no individuals (larvae or adult) have been observed at the station, suitable breeding habitat for the flatwoods salamander occurs within the Yellow Water Area (Palis 1995) (see Figure 3-8). However, unless the areas are burned periodically to promote the growth of wiregrass, the dense shrub layer dominates and diminishes the salamander's potential habitat.

Long-Legged Wading Birds

Several species of wading birds considered state species of special concern occasionally use wetlands and ponds at the station for foraging. The little blue heron (*Egretta caerulea*), tricolored heron (*Egretta tricolor*), snowy egret (*Egretta thula*), and white ibis (*Eudocimus albus*) occasionally feed at Lake Fretwell and are likely to occur in other inundated areas and streams at the station.

The state- and federally listed endangered wood stork (*Mycteria americana*) is a rare visitor at Lake Fretwell (Cochran 1995). Wood storks feed in groups, primarily in shallow-water freshwater swamps and marshes, and usually nest in cypress swamps, preferably in the tops of cypress and dead hardwoods (Ogden 1985). Although a small colony of wood storks is currently located on private property adjacent to the station, the degraded wetland habitat conditions and high levels of human disturbance apparently discourage nesting at the station.

Four cypress-dominated wetlands were identified and characterized during the 1995 biological assessment survey (see Appendix D). According to the survey results, the cypress swamps at NAS Cecil Field contain mostly sapling and pole-sized trees; therefore, wetland habitat conditions at the station are inadequate to sustain a nesting colony of wood storks now or in the foreseeable future. However, a few of the wetland areas at the station provide suitable foraging habitat for the wood stork (see Figure 3-8).

Red-Cockaded Woodpecker (*Picoides borealis*)

The red-cockaded woodpecker is a federally listed endangered species and a state-listed threatened species limited to the southeastern coastal plain (Baker 1978). This woodpecker has a solid black nape and cap, a ladder-back pattern, and large white cheek patches (Robbins *et al.* 1983). The red-cockaded woodpecker typically excavates nesting cavities in longleaf pines 95 to 100 years old, and loblolly pines 75 to 80 years old (Jackson *et al.* 1979). Frequent burning (at 3- to 5-year intervals) is required to suppress the understory hardwood growth that makes an area unsuitable for this species (Jackson 1986).

No red-cockaded woodpeckers are reported to occur at NAS Cecil Field, nor do any individuals occur in the local vicinity (FNAI 1994; Powell 1995). The 1995 biological assessment survey identified two areas of potentially suitable habitat that would require active management (i.e., burning of the understory and shrub layers) if developed for red-cockaded woodpeckers (see Appendix D). However, the lack of woodpeckers in the general vicinity and the absence of suitable habitat preclude the use of the station by red-cockaded woodpeckers.

Bachman's Sparrow (*Aimophila aestivalis*)

The Bachman's sparrow is a federally listed candidate species. This relatively large sparrow has a buffy breast and reddish brown striped back. It ranges throughout the southeastern and Appalachian states into Illinois (Peterson 1980). The Bachman's sparrow is typically found in dry, open pine woods or oak woods, especially mature longleaf pine forests, scrub palmetto, and brushy pastures (Dunning and Watts 1990). However, this sparrow has also been reported to occur in agricultural fields and abandoned fields in northern areas (Dorsey 1976). The microhabitat within the different vegetation types is important with regard to the local distribution of Bachman's sparrow (Dunning and Watts 1990).

Two Bachman's sparrows were observed at NAS Cecil Field during the 1995 biological assessment survey (see Appendix D), and several other individuals have been observed and/or heard at other times (Cochran 1995; Powell 1995). In general, the management of pinelands at the station creates and maintains suitable habitat for this sparrow (see Figure 3-8).

Southeastern American Kestrel (*Falco sparverius paulus*)

The southeastern American kestrel is a state-listed threatened subspecies of the American kestrel (*Falco sparverius sparverius*). The southeastern American kestrel is a small, nonmigratory subspecies endemic to Florida. The largest contiguous tracts of kestrel habitat remaining in Florida extend from Hernando County north to Gilchrist, southern Suwannee, and Columbia counties (Cox *et al.* 1994). In Florida, resident southeastern American kestrels prefer mixed hardwood/pine forests to pure pine forests (Bohall-Wood and Collopy 1986).

No southeastern American kestrels have been observed at NAS Cecil Field (Epstein 1996; Powell 1995). However, the open grassy areas around the airstrips, golf course, and adjacent open pine habitat provide suitable breeding and foraging habitat (see Figure 3-8).

Bald Eagle (*Haliaeetus leucocephalus*)

The southern bald eagle is a state- and federally listed threatened species. Currently, eagles do not nest at the station, and are infrequently observed flying over station properties (Cochran 1995). However, eagle sightings can be expected based on the vast daily distances bald eagles travel within their home ranges and the fact that approximately 85% of the bald eagle population in the southeast nests in Florida (USFWS 1989).

In the southeastern United States, bald eagles generally prefer to nest within 1 mi of large permanent bodies of water such as coastal areas (Van Meter 1992). Consequently, there is no suitable breeding habitat for the bald eagle at NAS Cecil Field based on the absence of large

bodies of water. Likewise, the station is not considered an important foraging area for local or transient bald eagles, although Lake Fretwell may serve as an occasional foraging area.

Florida Scrub Jay (*Aphelocoma coerulescens coerulescens*)

The Florida scrub jay is a state- and federally listed threatened species. This relatively large jay lacks the characteristic crest and white-tipped wing and tail feathers of the more common blue jay (Robbins *et. al.* 1983). The Florida scrub jay is restricted to peninsular Florida. It resides in oak scrub areas and avoids wet habitats and forests. The sedentary nature of this jay makes natural repopulation very difficult and unlikely (Woolfenden 1978).

No Florida scrub jays have been reported or observed at NAS Cecil Field. Although the openings created by timber harvesting benefit the scrub jay, these areas are dominated by pine saplings rather than by the preferred oak. Therefore, the limited areas of oak and brushland habitats present at the station are considered to provide only marginal habitat for the Florida scrub jay.

Florida Mouse (*Podomys floridanus*)

The Florida mouse is a state-listed species of special concern. It is a large mouse with naked ears, and its range is limited to peninsular Florida, where it inhabits high sandy ridges. It prefers fire-maintained, xeric vegetation on well-drained sandy soils with low scrub and areas with a greater frequency of acorns. The Florida mouse is frequently found near gopher tortoise burrows (Layne 1992).

No Florida mice have been observed or reported at NAS Cecil Field. Although suitable habitat is present at NAS Cecil Field wherever gopher tortoise burrows occur in dry sandhill habitats, these areas do not support the scrub oak vegetation necessary to support the Florida mouse. Therefore, NAS Cecil Field does not provide suitable habitat for this species of concern.

Sherman's Fox Squirrel (*Sciurus niger shermani*)

The Sherman's fox squirrel is a state-listed species of special concern that inhabits sandhill, mixed pine-hardwood, and prairie habitats from southeastern Florida northward to central Georgia and westward to Walton County, Florida (Cox *et al.* 1994). Suitable habitat for the Sherman's fox squirrel (i.e., longleaf pine-turkey oak communities) is lost when older forests are cut and converted to even-aged pine plantations (Dickson and Huntley 1987). According to Cox *et al.* (1994), Florida currently possesses the minimum base of habitat composition and area requirements needed to sustain long-term populations of Sherman's fox squirrels in the state.

In general, NAS Cecil Field provides suitable habitat for the Sherman's fox squirrel (see Figure 3-8). Three individuals were observed during the 1995 biological assessment survey: two in the sandhill and adjacent slash pine plantation habitats at the Main Station, and the other in the Yellow Water Area (see Appendix D).

Florida Black Bear (*Ursus americanus floridanus*)

The Florida black bear is a state-listed threatened species in all parts of its range, except in nearby Baker and Columbia counties and in Apalachicola National Forest. Populations of the Florida black bear appear to be generally stable throughout its range across the state (Cox *et al.* 1994). Black bears use a variety of habitats, including pine forest, oak scrub, sand pine scrub, mixed hardwood/pine forest, upland hardwood forest, cypress swamp, mixed hardwood swamp, bay swamp, and bottomland hardwood (Cox *et al.* 1994). Osceola National Forest in Baker and Columbia counties is located 26 mi (44 km) northwest of the station and supports approximately 157,700 ac (63,819 ha) of black bear habitat, which could potentially support 32 to 64 breeding adults (Cox *et al.* 1994). Black bears have been known to disperse over long distances (Maehr *et. al.* 1988), but less than 70% of the recorded dispersal events have encompassed more than 35 mi (56 km; Cox *et al.* 1994).

No black bears have been observed or reported at NAS Cecil Field or adjacent areas (FNAI 1994). In general, NAS Cecil Field does not provide any unique or significant areas of potential habitat for the black bear and is considered to provide only marginal habitat for the occasional transient bear.

Invertebrates

The Black Creek crayfish is the only invertebrate state-listed species of concern identified by the FGFWFC as occurring in Duval and Clay counties (Bentzien 1994). This species is not expected to occur at NAS Cecil Field.

3.3.3.2 Plants

Following is a brief description of the physical characteristics, distributions, and habitats for the 12 plant species of concern identified by the USFWS and FGFWFC (see Table 3-1). In addition, based on the endangered plant species survey conducted by Environmental Services and Permitting, Inc. (ESP 1990), occurrences of individual plants and suitable habitats at NAS Cecil Field are discussed for each plant. Because the habitat requirements for these plants are

very general, suitable habitat has not been indicated on Figure 3-8 unless a specific population/location was identified.

Water Sundew (*Drosera intermedia*)

The water sundew is a state-listed threatened perennial herb that characteristically traps and digests insects by means of gland-tipped hairs on the leaf surface. In Florida, the water sundew ranges throughout the panhandle and the central portion of the peninsula. It inhabits clear streams or ponds as well as bogs, and is closely associated with *Sphagnum* moss (Ward 1979).

The water sundew has been reported at one location in a drainage ditch in the Yellow Water Area east of the Caldwell Branch (FNAI 1994) (see Figure 3-8). The surrounding cover type is sawtimber-sized loblolly pine. Associated species at this location include pink sundew (*Drosera capillaris*), branching hedgehyssop (*Gratiola ramosa*), Elliot's yellow-eyed grass (*Xyris elliotti*), and maidencane (*Panicum hemitomon*) (FNAI 1994; ESP 1990).

Bartram's Ixia (*Sphenostigma coelestinum*)

The state of Florida has listed Bartram's Ixia as endangered, and the city of Jacksonville has designated this plant as a state-listed species of special interest (Jacksonville Planning and Development Department 1990). Bartram's Ixia is a perennial herb in the Iris family (*Iridaceae*), which blooms for a few hours from dawn to mid-morning. It is characterized by a disproportionately large lavender flower (measuring 2 in [5 cm] across) perched on a tall (12-in [31-cm]), delicate stem. The plant is known to occur only in seven counties of northeast Florida: Baker, Bradford, Clay, Duval, Putnam, St. Johns, and Union. It grows in pine flatwood depressions and moist pine areas amidst wiregrass (Clewell 1985).

This species has not been observed or reported at NAS Cecil Field (ESP 1990). Although the FNAI records indicate that a small population of this plant occurs at the station, this record was reviewed and determined to be incorrect (Knight 1995).

Southern Milkweed (*Asclepias viridula*)

The southern milkweed is a state-listed threatened species. This narrow, opposite-leaved herb is in the Milkweed family (Asceliadaceae), and typically flowers from May to July. It occurs primarily in dry flatwood areas in the panhandle of Florida (Clewell 1986).

No individuals and/or populations of southern milkweed were identified during the endangered plant survey (ESP 1990). However, extensive areas of dry flatwood at NAS Cecil

Field, particularly at the Main Station, may provide suitable habitat for this plant species of concern.

Curtiss' Sandgrass (*Calamovilfa curtissii*)

Curtiss' sandgrass is a state-listed threatened species. This perennial grass has narrow leaf blades and can grow to a height of approximately 3 ft (0.92 m). The panicle (i.e., inflorescence) is narrow with short, strongly ascending branches. This sandgrass occurs in the dry pineland habitats of a few counties in the Florida panhandle (Clewell 1985).

No individuals and/or populations of Curtiss' sandgrass were identified during the endangered plant survey (ESP 1990). However, extensive areas of dry pineland at NAS Cecil Field, particularly at the Main Station, may provide suitable habitat for this plant species of concern.

Hartwrightia (*Hartwrightia floridana*)

The hartwrightia is a state-listed threatened species and a member of the Composite family (*Asteraceae*). This plant grows to a height of approximately 3 ft (0.92 m). The oblong-shaped lower leaves are 3 to 10 in (8 to 26 cm) long, and the upper leaves are small and linear. The white flowers are produced in many-flowered heads and typically bloom from September to November (Clewell 1985). The plant's primary habitats include mesic and wet flatwoods, bogs, seepage slopes, baygalls, and mesic clearings in select counties of peninsular Florida.

No individuals and/or populations of hartwrightia were identified during the endangered plant survey (ESP 1990). However, the mesic and wet habitats at NAS Cecil Field, especially the pine and hardwood wetlands of the Yellow Water Area, may provide suitable habitat for this plant species of concern.

Lake-Side Sunflower (*Helianthus carnosus*)

The lake-side sunflower is a state-listed endangered species and a member of the Composite family. This perennial sunflower can grow to a height of approximately 3 ft (0.92 m). Its leaves are opposite and are 3 to 6 in (8 to 15 cm) long towards the base, becoming progressively smaller and fewer in number toward the inflorescence. The distinctive, bright yellow flowers are present in the late summer and fall. This particular sunflower is restricted to northeastern Florida and is typically found in moist to wet pinelands with relatively open overstories and understories (USDA 1983).

No individuals and/or populations of the lake-side sunflower were identified during the endangered plant survey (ESP 1990). However, the wet habitats of the Yellow Water Area may provide suitable habitat for this plant species of concern.

Florida Milkweed (*Matelea floridana*)

The Florida milkweed is a state-listed endangered species and a member of the Milkweed family. This plant is a climbing vine rather than an erect herb such as the southern milkweed. It generally grows to a length of approximately 3 to 6 ft (0.92 to 1.8 m) but can reach a length of 15 ft (4.6 m). The Florida milkweed has elliptically shaped, opposite leaves and produces a spiny seed pod after flowering between April and August (Clewell 1985). In Florida, this milkweed occurs in mixed upland and hardwood forests throughout the panhandle and peninsula.

No individuals and/or populations of Florida milkweed were identified during the endangered plant survey (ESP 1990). However, extensive hardwood areas at NAS Cecil Field, particularly at the Main Station, may provide suitable habitat for this plant species of concern.

Chapman's Rhododendron (*Rhododendron chapmanii*)

The Chapman's rhododendron is a state- and federally listed endangered species that is similar in appearance to ornamental rhododendrons. The leaves of this evergreen plant are characterized as somewhat scaly on the underside. The rose-colored flowers appear in early spring (USDA 1983). The plant typically occurs in mesic flatwoods and seepage slopes in Florida.

No individuals and/or populations of Chapman's rhododendron were identified during the endangered plant survey (ESP 1990). However, the mesic and wet areas at NAS Cecil Field, particularly in the Yellow Water Area, may provide suitable habitat for this plant species of concern.

St. John's Susan (*Rudbeckia nitida*)

St. John's Susan is a state-listed endangered species that resembles the common black-eyed susan (*Rudbeckia hirta*). The flowers are actually a composite of many small, dark flowers that form a central disk from which the petals flare out. This species is usually found in flatwood habitats of Florida (Clewell 1985).

No individuals and/or populations of St. John's Susan were identified during the endangered plant survey (ESP 1990). However, the flatwood areas located throughout the Main Station at NAS Cecil Field may provide suitable habitat for this plant species of concern.

Green Ladies-Tresses (*Spiranthes polyantha*)

The green ladies-tresses is a state-listed endangered species and a member of the Orchid family (*Orchidaceae*). This delicate plant is recognized by its greenish brown flowers arranged in a spiral along the stem, and typically blooms between February and March (Clewell 1985). It prefers rockland, hammock, and upland mixed-forest habitats.

No individuals and/or populations of the green ladies-tresses were identified during the endangered plant survey (ESP 1990). However, the dry pine and hardwood areas at NAS Cecil Field, particularly at the Main Station, may provide suitable habitat for this plant species of concern.

Variable-Leaf Crownbeard (*Verbesina heterophylla*)

The variable-leaf crownbeard is a state-listed threatened species and a member of the Composite family. This plant's leaves are usually opposite or whorled at or below the midstem, and alternate towards the inflorescence. The leaves are generally ovate-shaped with the base of the leaf extending down around the stem as a wide wing (Clewell 1985). The plant occurs in dry pine habitats.

During the endangered plant species survey, one population of the variable-leaf crownbeard was found in the sandhill habitat near the north-south runway of the Main Station (ESP 1990) (see Figure 3-8). Additional individuals and/or populations of this plant species of concern may occur in other dry pineland areas throughout NAS Cecil Field.

3.4 Water Resources

3.4.1 Groundwater

Three principal hydrogeologic units of concern are present at NAS Cecil Field. In descending order of importance, these units are the surficial aquifer system, the intermediate aquifer system, and the Floridan aquifer system (Leve 1966).

The surficial aquifer system includes unconsolidated and consolidated strata of Holocene to Late Miocene age and is approximately 50 to 100 ft (15 to 30 m) thick (ABB-ES 1994; Fairchild 1972). The surficial aquifer system consists of an upper and lower water-bearing

unit, separated by beds of lower permeability. The upper unit (also known as the water table aquifer) consists of medium- to fine-grained unconsolidated quartz sand and is found at 1 to 10 ft (0.3 to 3 m) BGS (ABB-ES 1994). The water table aquifer, which is generally present under unconfined conditions, is capable of yielding 10 to 40 gallons per minute (gpm; 38 to 151 liters per minute) (Fairchild 1972; Causey and Phelps 1978).

The lower water-bearing unit within the surficial aquifer system (also known as the shallow rock aquifer) is composed of semiconfined shell, limestone, and sand deposits of Pliocene and Upper Miocene age. It is commonly found at depths of 40 to 100 ft (12 to 30 m) BGS in Duval County (Fairchild 1972; ABB-ES 1994). This major water-bearing zone in the surficial aquifer system is capable of yielding water at rates of up to 200 gpm (757 liters per minute; Fairchild 1972; Causey and Phelps 1978). Water from the surficial aquifer system is used primarily for domestic purposes. However, industrial, commercial, and agricultural uses are also prevalent.

Regional recharge to the surficial aquifer system occurs primarily through infiltration of rainwater or from rivers, lakes, or marshes. Local recharge to the surficial aquifer system occurs from surface water infiltration in the undeveloped wooded areas of the Main Station and Yellow Water Area. Water is released from the water table zone by evapotranspiration, infiltration into lower layers, seepage into water bodies, and pumpage.

The surficial aquifer system is underlain by the intermediate aquifer system, which occurs at depths of 60 to 110 ft (18 to 34 m) BGS in the area of NAS Cecil Field (ABB-ES 1994). The intermediate aquifer system or confining unit consists of sediment of the Miocene Hawthorn Group, whose water-producing zones and confining zones act collectively as a confining unit for the Floridan aquifer system (Franks and Phelps 1979). The Hawthorn Group is composed of interbedded phosphatic sand, clay, marl, and limestone. The upper part of the Hawthorn Group locally contains a continuous carbonate-rich unit of dolostone, which forms an artesian water-bearing unit used regionally as a private drinking water source. In the area of NAS Cecil Field, this unit is approximately 15 to 25 ft (4.6 to 7.6 m) thick and occurs at depths of 60 to 110 ft (18 to 34 m) BGS, with the shallower depths encountered along incised streams (ABB-ES 1994). The total thickness of the entire Hawthorn Group, including the underlying clayey confining beds, exceeds 300 ft (91.4 m) in the NAS Cecil Field area (FGS 1991). Regional groundwater flow in the upper producing zone of the Hawthorn Group is to the east (Fairchild 1972).

The potential exists for upward discharge of groundwater in the intermediate aquifer system into the surficial aquifer system near creeks such as Rowell Creek and Yellow Water

Creek (ABB-ES 1994). However, in areas away from streams, the likelihood of downward discharge of groundwater from the surficial aquifer system into the intermediate aquifer system increases.

The intermediate aquifer system is underlain by the thick limestone layers of the Floridan aquifer system, the principal source of groundwater derived for public drinking water in most of northern peninsular Florida (Fairchild 1972). At NAS Cecil Field, at least five public supply wells and an irrigation well extract water from this aquifer system (ABB-ES 1994). In the area of the Main Station and in the Yellow Water Area, the Floridan aquifer system is composed of (from oldest to youngest) the Oldsmar Formation, the Avon Park Formation, and the Ocala Limestone. The Hawthorn Group, which forms a confining zone, unconformably overlies the Floridan aquifer system. The top of the limestone of the Floridan aquifer system is encountered at a depth of 260 ft (79 m) BGS and reaches a depth of more than 600 ft (183 m) BGS in Duval County. The aquifer ranges in thickness from 1,500 ft to 2,000 ft (457 to 610 m; Leve 1966; 1968). The transmissivity of the Floridan aquifer system a few miles east of the station was reported to be 190,000 gallons per day per foot (gpd/ft; 719,150 liters per day per 0.3 m) (ABB-ES 1994; Geraghty and Miller 1983). Groundwater within the Floridan aquifer system flows east to northeast in the vicinity of NAS Cecil Field (Leve 1966; Geraghty and Miller 1983).

Principal recharge to the Floridan aquifer system occurs in the lakes region of south-western Clay County, eastern Bradford County, and western Alachua County, where the confining beds are either thin or missing. The recharge rate in these areas is approximately 45 million gallons per day (mgd; 170 million liters per day) (Phelps 1984). The groundwater reservoirs in the area are recharged primarily by rainfall outside of the area, and to a lesser extent by rainfall within the area. Because the hydraulic gradient is in all directions away from the principal recharge area, only part of the water moves laterally downgradient through the permeable beds of the aquifer to reach the region. An estimate of recharge to the Floridan aquifer system is 3 mgd (12 million liters per day) for an area in eastern Baker County and western Duval County (Phelps 1984). Population growth and industrial expansion have caused the potentiometric surface of this aquifer to decline in recent years (Navy 1988).

The quality of water from the Floridan aquifer system at the Main Station and in the Yellow Water Area is considered good (soft water, less dissolved mineral content) because the recharge area is in the western part of Duval County (Navy 1988). However, water quality along the St. Johns River and near the coast in Duval County is poor as a result of high concentrations of chloride and other constituents (Navy 1988). The upper Floridan aquifer system is classified

as a G-II aquifer according to guidelines established in Fla. Admin. Code. Ann. Ch. 17-770. This classification protects groundwater used for potable water supply from contamination. The potability of water from the Floridan aquifer system in the coastal areas of Duval County may be threatened by the intrusion of saltwater resulting from withdrawal of large quantities of fresh water (Fairchild 1978).

The Natural Groundwater Aquifer Recharge Sub-Element of Jacksonville's 2010 Comprehensive Plan provides a long-term goal toward which programs or activities are ultimately directed. The goal of this sub-element is to ensure that the quantity and quality of available water is adequate for potable, commercial, industrial, utility, and agricultural use (Jacksonville Planning and Development Department 1990). Clay County's 2001 Comprehensive Plan also contains a program to protect the quantity and quality of groundwater resources in Clay County (Clay County 1992).

The objectives and policies in the Natural Groundwater Aquifer Recharge Sub-Element are summarized as follows:

- To identify and address the current and projected future uses of the city's groundwater resources;
- To address the procurement and use of an inventory of the area's groundwater resources so that these resources can be conserved and protected;
- To identify the actions necessary to establish effective wellhead protection and groundwater recharge area protection programs, including identification of the aquifer recharge areas, and to describe specific programs, criteria, and studies necessary to protect the city's groundwater;
- To address implementation of a city water reuse ordinance and expanded public education and water-conservation programs; and
- To identify and address water-conservation and demand-reduction programs.

The objectives and policies of the Natural Groundwater Aquifer Recharge Sub-Element are intended to provide the city of Jacksonville with tools to correct existing problems, such as point sources of pollution and excessive withdrawals, and to avoid anticipated future problems associated with the city's groundwater resources through the year 2010. The effectiveness of these groundwater resource protection efforts will also depend on the programs of other local, regional, state, and federal agencies.

3.4.2 Surface Water

NAS Cecil Field is located within the St. Johns and the St. Marys River basins. The Main Station is located entirely within the St. Johns River basin. The Yellow Water Area lies mostly within the St. Johns River basin, with a small portion lying in the St. Marys River basin (see Figure 3-9). Because of the extremely low gradient and the abundance of swampy areas, the surface water division between the St. Johns River basin and the St. Marys River basin is not well defined.

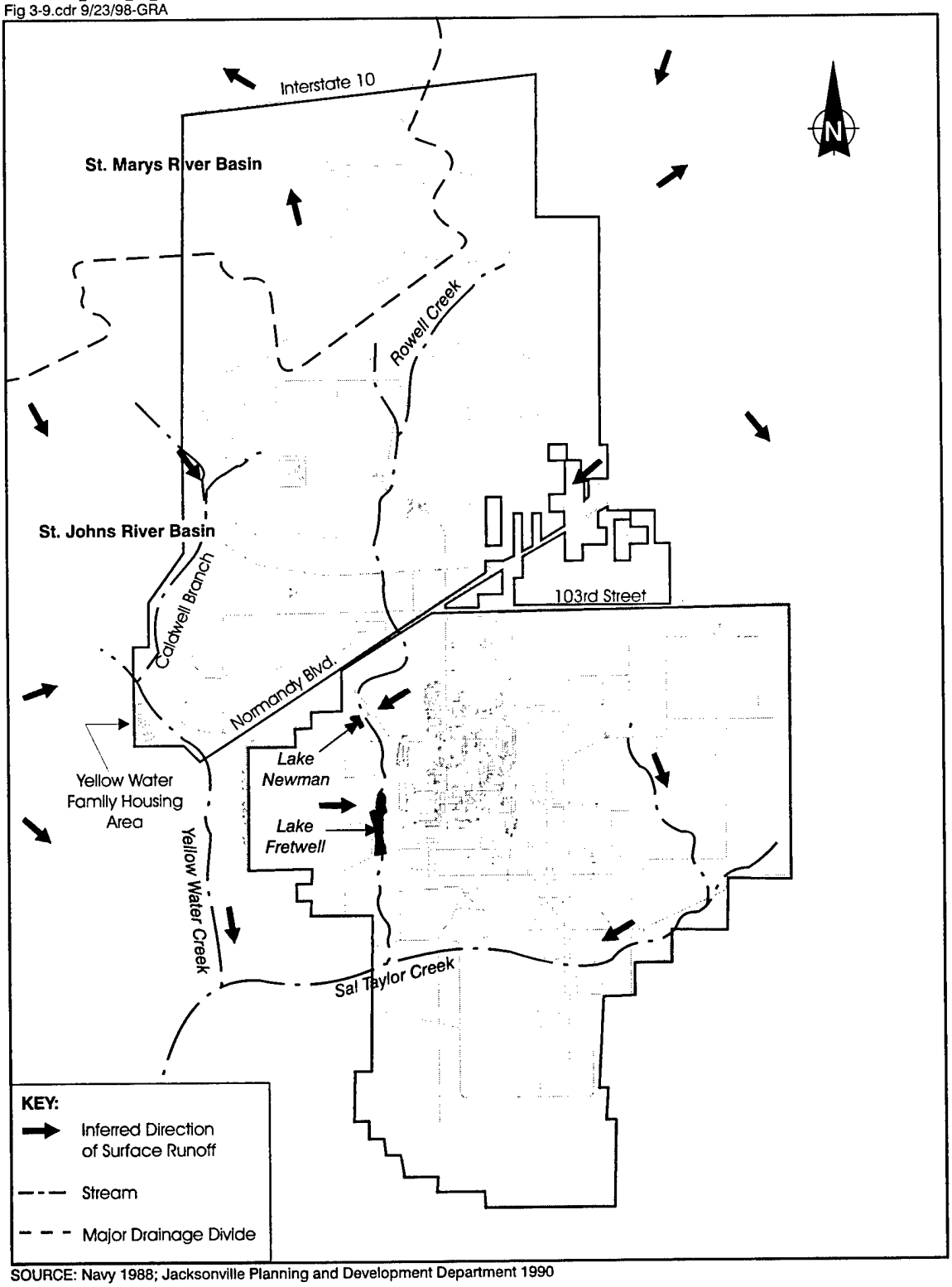
Most surface water in Duval County is derived from rainfall within the county, except for a small amount of inflow from neighboring Baker County to the west (Anderson 1972). Groundwater infiltration and seepage from springs also contribute substantially to station flow in streams.

Drainage at the Main Station and in the Yellow Water Area consists of sheet flow across areas of low topographic relief combined with streams and canals of low order (having few to no tributaries) (ABB-ES 1994). In the St. Johns River basin, streams from west to east include Yellow Water Creek, Rowell Creek, and Sal Taylor Creek. Sal Taylor Creek drains the eastern part of the facility, whereas Rowell Creek receives drainage from the central part and flows into Sal Taylor Creek in the south-central part of the facility. Sal Taylor Creek then flows west into Yellow Water Creek, which flows southward and joins Black Creek approximately 1.5 mi (2.41 km) south of the station boundary. Black Creek eventually flows into the St. Johns River. In the southern half of NAS Cecil Field, swampy areas in the uplands, which are probably perched on locally occurring clayey lenses, are drained by steep-gradient (approximately 40 ft per mi [12 m per km]), first-order, unnamed tributaries that flow directly into the major creeks.

Sal Taylor Creek has the lowest channel gradient in the area (approximately 5 ft per mi [0.95 m per km]), whereas Rowell Creek (approximately 8 ft per mi [1.5 m per km) and Yellow Water Creek (approximately 7 ft per mi [1.3 m per km]) both have significantly larger average channel gradients (ABB-ES 1994). The upper reaches of Yellow Water, Rowell, and Sal Taylor Creeks tend to have relatively low gradients (approximately 5 ft per mi [0.95 m per km]) and slightly incised streambeds, whereas the gradients of downstream slopes tend to be greater (approximately 10 ft per mi [1.9 m per km]), and though broad, the streambeds are more deeply incised (ABB-ES 1994).

NAS Cecil Field currently holds a National Pollutant Discharge Elimination System (NPDES) permit for the temporary operation of a 1.2-mgd (4.5-million-liter-per-day) wastewater treatment plant, which discharges treated chlorinated effluent into Rowell Creek. A

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SOURCE: Navy 1988; Jacksonville Planning and Development Department 1990

SCALE
0 3,500 7,000 14,000 Feet

Figure 3-9 MAJOR DRAINAGE BASINS AT MAIN STATION/YELLOW WATER AREA

stream-gauging data collection effort is currently being conducted by the United States Geologic Survey (USGS) at NAS Cecil Field in Rowell Creek and Sal Taylor Creek (ABB-ES 1994).

FDEP classifies surface water bodies to protect the actual or projected uses of the water. The streams within NAS Cecil Field and the Yellow Water Area are considered Class III water bodies according to Fla. Admin. Code Ann. Ch. 17-302. The five state water quality classifications are defined as follows:

- **Class I:** Potable water supplies;
- **Class II:** Shellfish propagation or harvesting;
- **Class III:** Recreation, propagation, and maintenance of a healthy, well-balanced population of fish and wildlife;
- **Class IV:** Agricultural water supplies; and
- **Class V:** Navigation, utility, and industrial use.

The goal of the Jacksonville Comprehensive Plan is to protect existing streams, rivers, and floodways as a part of its development review process to ensure that no harm is done to the natural drainage system. The Water Quality Attainment Plan, adopted by the City Council in October 1987, provides background data and descriptions of current conditions, and outlines general goals and objectives to be considered to attain water quality standards in Jacksonville (Jacksonville Planning and Development Department 1990). The Clay County 2001 Comprehensive Plan also contains a program to provide comprehensive monitoring and protection of county waters, as well as methods to ensure the continuing natural functions of water bodies, wetlands, and floodplains (Clay County 1992).

3.4.3 Floodplains

Extensive floodplain areas exist in the Jacksonville area because of its slight elevation above sea level and the relatively flat topographic relief of the land surface. The flood-prone areas in the vicinity of the Main Station and the Yellow Water Area are generally the result of flat, poorly drained land where accumulated rainfall runs in a sheet flow or ponds on the surface. These areas are associated with the stream and wetland areas. The streams comprising most floodplain areas at the Main Station and in the Yellow Water Area are Sal Taylor Creek, Rowell Creek, and Yellow Water Creek. The 100-year floodplain at the Main Station and in the Yellow

Water Area is shown on Figure 3-10, based on data obtained from the National Flood Insurance program.

According to flood insurance rate maps generated by the Federal Emergency Management Agency (FEMA), the 100-year floodplain areas located at the Main Station and in the Yellow Water Area are located in Flood Zone AO, which may result in flood depths of 1 to 3 ft (0.31 to 0.92 m; usually sheet flow on sloping terrain) (HUD 1989). The 100-year floodplain covers small portions of the Main Station and the Yellow Water Area. The remainder of the area is located in Zone X, which encompasses areas determined to be outside the 500-year floodplain.

The area surrounding NAS Cecil Field contains some of the highest elevations in Duval County, but extensive flood hazard zones are located west of Yellow Water Creek. McGirts Creek and the Ortega River form a major floodplain area that extends from Old Plank Road southeast to the Clay County line and then curves toward the northeast where it meets the Cedar River and then enters the St. Johns River.

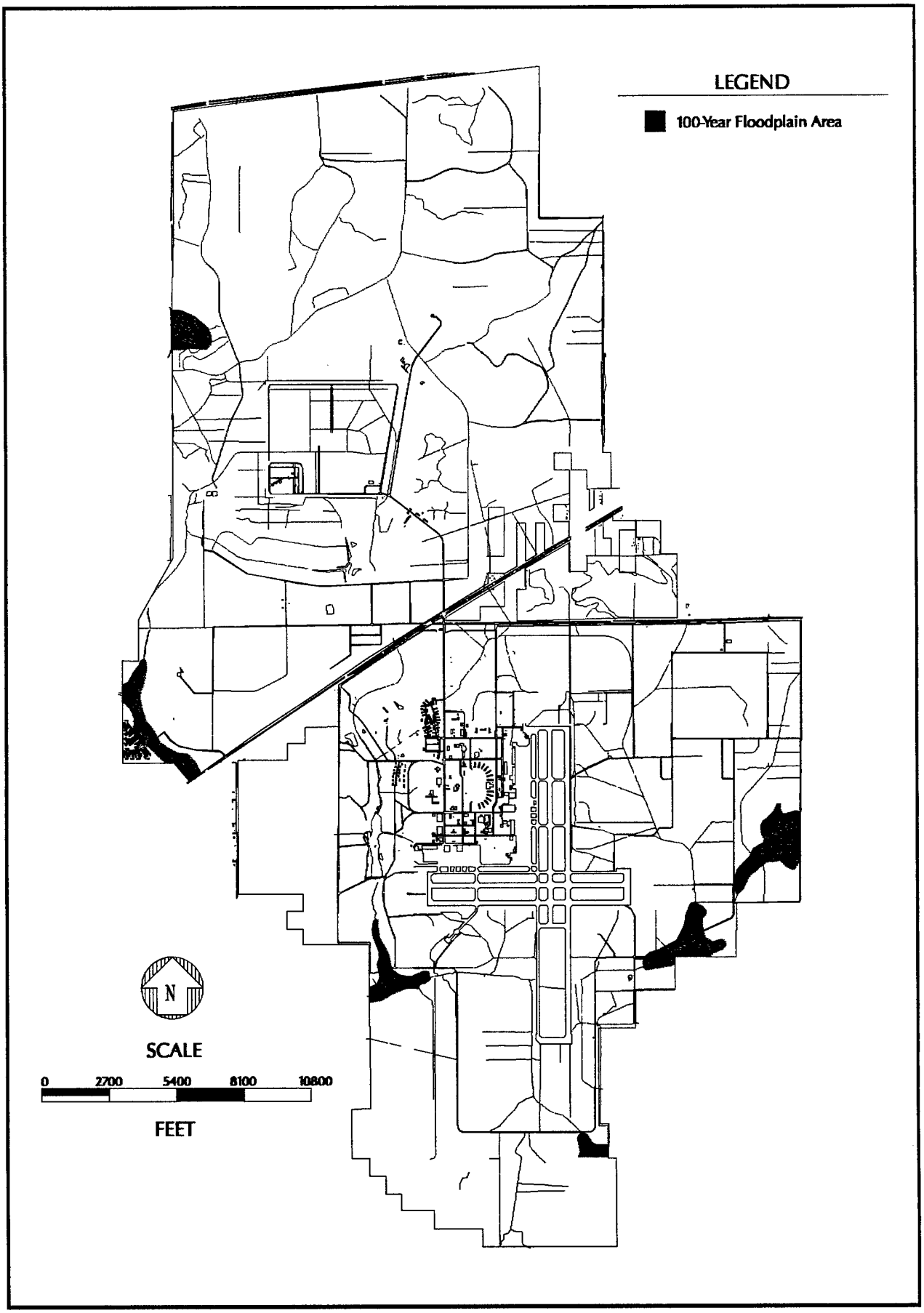
Chapter 652 of the Ordinance Code (Jacksonville Planning and Development Department 1990) contains a floodplain regulation, which addresses construction and building codes within certain zones as determined by FEMA's flood insurance rate maps. The purposes of the floodplain regulation are to limit or minimize structural damage due to flooding and to avoid water body contamination caused by waste disposal systems. Clay County's 2001 Comprehensive Plan also contains a program to ensure the preservation and protection of floodplains (Clay County 1992).

3.5 Climate and Air Quality

3.5.1 Climate

NAS Cecil Field is located approximately 40 mi (64.4 km) inland from the Atlantic Ocean. The nearness of the ocean and the easterly winds, which blow, on average, 40% of the time, produce a maritime influence that tempers summer and winter temperatures. Summer months are hot and humid, while winter months are mild. The infrequent invasion of cold air from the north occasionally causes temperatures to dip below the freezing point.

Table 3-2 summarizes average and extreme meteorological conditions for Jacksonville, including annual maximum and minimum temperatures for the area. The annual average temperature for Jacksonville is 68°F (20°C; USDC 1987). The greatest rainfall occurs during the summer, usually in the form of afternoon thunderstorms. More than 0.1 in (0.3 cm) of



Source: U.S. Department of Housing and Urban Development, 1981.

Figure 3-10 100-YEAR FLOODPLAIN - MAIN STATION / YELLOW WATER AREA

Table 3-2

AVERAGE AND EXTREME METEOROLOGICAL CONDITIONS AT NAS CECIL FIELD[a]

	Temperature (°F [°C])		Precipitation (inches [centimeters])	Winds	
	Maximum	Minimum	Total	Direction	Speed (mph [kmph])
Annual Average	78.7 (25.9)	57.2 (14.0)	52.86 (134.26)	NW[c]	8.1 (13.0)
Extreme	105.0 (40.6)	7.0 (-13.9)	10.17[b] (25.83)	N	61 (gust) (98)

[a] Based on a 47-year record for Jacksonville, Florida, from 1940 to 1987.
[b] Maximum 24-hour measurement.
[c] Through 1963.

Source: U.S. Department of Commerce 1987.

precipitation occurs for approximately 115 days each year. Measurable snowfall is rare (USDC 1987).

Prevailing winds are northeasterly in fall and winter and southwesterly during the spring and summer. Wind speeds average just over 8 mph (12.9 km per hour) and are usually 2 to 3 mph (3.2 to 4.83 km per hour) greater in the afternoon than in the early morning hours. Hurricanes can occur in the NAS Cecil Field area. However, this section of the Florida coast has been fortunate in escaping hurricane-force winds. Most hurricanes reaching this latitude on Florida's east coast have either lost much of their fierceness before reaching this area, or have tended to move parallel to the coast some distance away from the mainland (USDC 1987).

3.5.2 Air Quality

3.5.2.1 Regional Air Quality

NAS Cecil Field is under the jurisdiction of the Jacksonville/Duval County local air quality program administered by the Regulatory and Environmental Services Department (RESD). The air quality in Duval County is classified as attainment or unclassifiable/attainment for all pollutants (Fla. Admin. Code Ann. Ch. 62-275.40), indicating that the county is in compliance with, or has attained, air quality standards.

Jacksonville was formerly classified as "marginal" nonattainment by EPA, indicating a level of ozone in the area that was slightly higher than the National Ambient Air Quality Standards (NAAQS). No exceedance of the ozone air quality standard has occurred since June 1988 (City of Jacksonville 1994). Thus, the city and county have received an official redesignation from EPA to transition from nonattainment to attainment for ozone. The county is designated as an ozone "maintenance" area, indicating that the city and county must demonstrate that ozone concentrations will continue to be below the NAAQS.

Baseline emissions for volatile organic compounds (VOCs), nitrogen oxides (NO_x), and carbon monoxide (CO) in Jacksonville, Florida, are summarized in Table 3-3.

3.5.2.2 Air Quality Regulations

In maintenance and nonattainment areas, federal actions are required to conform with applicable State Implementation Plans (SIPs) developed in response to the Clean Air Act, 42 U.S.C. §§ 7401-7671q.1 (1994), as amended in 1990. The criteria and procedures for demonstrating conformity are explained in the General Conformity Final Rule, 40 C.F.R. Part 51 subpart w (1998).

Table 3-3

BASELINE EMISSIONS FOR TOTAL VOCs, NO_x, AND CO IN JACKSONVILLE

Source Type	Pollutant Emissions (tons/year [tonnes/year])		
	VOCs	NO_x	CO
Point Source	5,448 (4,943)	45,752 (41,506)	14,901 (13,518)
Area Source	18,655 (16,924)	3,054 (2,771)	2,769 (2,512)
Mobile Source	39,062 (35,437)	30,101 (29,308)	286,210 (259,650)
Total	63,165 (57,303)	78,907 (71,584)	303,880 (275,680)

Key:

CO = Carbon monoxide.
NO_x = Nitrogen oxides.
VOCs = Volatile organic compounds.

Source: FDEP 1990.

An applicability analysis is used to determine whether a full-conformity determination is required. Provisions in the conformity rule allow for exemptions from performing a full-conformity determination if total emissions of individual pollutants resulting from the action fall below specific threshold, or "*de minimis*" values. These values are based on the severity of nonattainment. For the NAS Cecil Field area, the ozone transitional nonattainment designation places a 100-ton/year (90.7-tonne/year) threshold value on both VOC and NO_x emissions (i.e., the precursor chemicals for ozone formation) to determine whether a full-conformity analysis is required. Both stationary and mobile emission sources must be considered in the analysis.

In addition to the *de minimis* exemption, many other exemptions are also available, as listed in 40 C.F.R. Part 51.853. The actions covered by these additional exemptions include, among others, transfers of land using an enforceable contract (or lease) where the federal agency does not retain authority to control emissions associated with these lands or any facilities located on these lands.

Under Title V of the Clean Air Act amendments, 42 U.S.C. §§ 7401-7641q (1994), all major sources or facilities are subject to the state's Title V program. A major source/facility is defined as any emission source or facility having the potential to emit 100 tons/year (90.7 tonnes/year) or more of any regulated pollutant, 10 tons/year (9.1 tonnes/year) or more of any single hazardous air pollutant (HAP), or 25 tons/year (22.7 tonnes/year) or more of any combination of HAPs. Only stationary emission sources are to be included in the Title V determination. NAS Cecil Field falls under the jurisdiction of the Jacksonville/Duval County local program, and FDEP has delegated the Title V permit processing to the Jacksonville/Duval County RESD. NAS Cecil Field is classified under Title V as a major source of NO_x, sulfur dioxide (SO_2), and CO emissions (U.S Navy 1995).

3.5.2.3 Air Emission Sources

Several types of stationary and mobile emission sources exist at NAS Cecil Field. There are 149 stationary emission sources, including external combustion equipment, internal combustion equipment, surface coating operations, solvent processes, other VOC sources such as storage tanks, and miscellaneous operations (e.g., woodworking, welding, abrasive blasting) (Navy 1995). Table 3-4 summarizes the pre-closure criteria pollutants emitted from stationary sources at NAS Cecil Field.

Mobile sources at NAS Cecil Field include aircraft operations and vehicle travel at the air station. Aircraft supported by NAS Cecil Field include one C-12, 52 S-3 Vikings, 181 F/A-18 Hornets, and four T-34Cs. Over 175,000 air operations were conducted with these aircraft

Table 3-4

SUMMARY OF PRE-CLOSURE ANNUAL EMISSIONS OF CRITERIA POLLUTANTS FROM STATIONARY SOURCE CATEGORIES AT NAS CECIL FIELD
(tons per year [tonnes per year])

Source Category	Nitrogen Oxides		Sulfur Dioxide		Carbon Monoxide		Particulate Matter		VOCs	
	Actual	Potential	Actual	Potential	Actual	Potential	Actual	Potential	Actual	Potential
External Combustion	8.7 (7.9)	61.4 (55.7)	0.04 (0.04)	108.2 (98.2)	2.2 (2.0)	15.3 (13.9)	0.2 (0.2)	3.3 (3.0)	0.2 (0.2)	1.2 (1.1)
Internal Combustion	15.1 (13.7)	33.1 (30.0)	1.72 (1.56)	4.43 (4.02)	78.2 (70.9)	146.3 (132.7)	9.52 (8.64)	21.64 (19.63)	21.9 (19.9)	37.9 (34.4)
Surface Coating and Solvent Use	NA	NA	NA	NA	NA	NA	NA	NA	7.7 (7.0)	15.2 (13.8)
Fugitive VOC Sources	NA	NA	NA	NA	NA	NA	NA	NA	50.2 (45.5)	87 (79)
Miscellaneous	9.1 (8.3)	42.6 (38.6)	3.1 (2.8)	9.1 (8.3)	2.1 (1.9)	9.7 (8.8)	NA	NA	5.5 (5.0)	7.0 (6.4)
Total	32.9 (29.9)	137.1 (124.3)	4.86 (4.40)	121.73 (110.52)	82.5 (74.8)	171.3 (155.4)	9.54 (8.84)	24.94 (22.63)	85.5 (77.6)	148.3 (134.7)

Key:

NA = Not applicable.
VOC = Volatile organic compound.

Source: Air Emissions Compliance Audit Report, NAS Cecil Field, May 1995.

during 1993. A summary of the facility's aircraft operations and resulting VOC and NO_X emissions is presented in Tables 3-5, 3-6, and 3-7.

The use of personally owned vehicles (POVs) also contributes to the mobile-source emissions resulting from operation of NAS Cecil Field. The majority of the emissions are from POVs used for round-trip work commutes by military and civilian personnel. Annual emissions from these commutes are based on emission factors and the annual average of miles traveled. The number of vehicle miles traveled (VMTs) was calculated based on the off-base residential distribution shown in Table 3-8. Average VMTs per round trip commute were estimated using an average residence location (based on zip code) and the most direct surface street route to and from the base. The emissions generated by commuting personnel are shown in Table 3-9.

A summary of total pre-closure air pollutant emissions of NO_X, VOC, and CO, including contributions from stationary sources, aircraft, and automobiles used to commute to and from the base is presented in Table 3-10. Sources at NAS Cecil Field currently emit 711.1 tons (645.1 tonnes) of VOCs, 551.9 tons (500.7 tonnes) of NO_X, and 883.9 tons (801.9 tonnes) of CO annually.

3.6 Noise

The most significant source of noise at the station is aircraft operations. The station and areas surrounding the station have land uses that are generally incompatible with flight operations. In response to this problem, the DoD has established the AICUZ Program (Navy 1988). The program consists of a series of elements, including:

- Development of a detailed description of the aircraft noise environment and location for potential aircraft accidents;
- Identification of incompatible and compatible development surrounding the station;
- Development of a series of mitigating strategies to ameliorate or eliminate areas of conflict; and
- Establishment of an ongoing dialogue with local officials of surrounding communities to achieve a mutual understanding of how best to ensure continued growth of both the station and these communities without adverse effects.

Noise is generally defined as sound pressure with an intensity greater than that of ambient or background sources. It is determined by measuring noise emissions in terms of the

Table 3-5

AIRCRAFT OPERATION DATA AT NAS CECIL FIELD

Aircraft Type	Annual LTO Cycles	Time in Mode (minutes)/LTO[b]					
		Taxi/Idle Out	Takeoff	Climbout	Approach	Taxi/Idle In	Total
C-12	736	18	0.5	2.5	4.5	7	33.5
F/A-18	133,216	6.5	0.4	0.5	1.6	6.5	15.5
S-3[a]	38,272	6.5	0.4	0.5	1.6	6.5	15.5
T-34C	2,944	6.5	0.4	0.5	1.6	6.5	15.5
Total	175,168	NA	NA	NA	NA	NA	NA

[a] Currently located at NAS Cecil Field. Aircraft to be transferred to NAS Jacksonville in 1998.
[b] Default values used for Time in Mode (EPA 1992).

Key:

LTO = Landing and takeoff.
NA = Not applicable.

Source: EPA 1992.

Table 3-6

EMISSION FACTORS FOR AIRCRAFT OPERATING MODES[a]

Aircraft	Mode	Fuel Flow (lb/min [kilograms/min])	Emissions (lb/1,000 lb fuel [kilograms/454 kg fuel])	
			VOCs	NO_X
C-12	Taxi out/idle	2.5 (1.1)	101.6 (46.1)	2.0 (0.9)
	Takeoff	8.5 (3.9)	1.8 (0.8)	8.0 (3.6)
	Climbout	7.9 (3.6)	2.0 (0.9)	7.6 (3.4)
	Approach	4.6 (2.1)	22.7 (10.3)	4.7 (2.1)
	Taxi in/idle	2.5 (1.1)	101.6 (46.1)	2.0 (0.9)
F/A-18 Hornet	Taxi out/idle	10.4 (4.7)	58.2 (26.4)	1.2 (0.5)
	Takeoff	473 (214.5)	0.1 (0.04)	9.2 (4.2)
	Climbout	135 (61.2)	0.3 (0.1)	25.2 (11.4)
	Approach	109 (49.4)	0.4 (0.2)	14.8 (6.7)
	Taxi in/idle	10.4 (4.7)	58.2 (26.4)	1.2 (0.5)
S-3 Viking	Taxi out/idle	8.1 (3.7)	15 (6.8)	1.7 (0.8)
	Takeoff	6.3 (2.9)	0.4 (0.2)	7.5 (3.4)
	Climbout	7.7 (3.5)	2.6 (1.2)	3.4 (1.5)
	Approach	38 (17.2)	1.7 (0.8)	6 (2.7)
	Taxi in/idle	8.1 (3.7)	15 (6.8)	1.7 (0.8)
T-34C[b]	Taxi out/idle	10.4 (4.7)	58.2 (26.4)	3.2 (1.4)
	Takeoff	473 (214.5)	0.1 (0.04)	4.8 (2.2)
	Climbout	135 (61.2)	0.3 (0.1)	19.6 (8.9)
	Approach	109 (49.4)	0.4 (0.2)	10.7 (4.9)
	Taxi in/idle	10.4 (4.7)	58.2 (26.4)	3.2 (1.4)

[a] Data from EPA mobile-source emission document (EPA 1992).
[b] Assumed to be similar to the F/A-18 because there is no emission data for the T-34C.

Key:

lb = Pound.
min = Minute.
VOCs = Volatile organic compounds.
NO_X = Nitrogen oxides.

Source: EPA 1992.

Table 3-7

PRE-CLOSURE EMISSION ESTIMATES FOR AIRCRAFT AT NAS CECIL FIELD

Aircraft	Number of LTOs/yr per Aircraft	Number of Aircraft	Emissions Estimate			
			VOC		Nitrogen Oxides	
			Per LTO (lb [kg])	Total (tpy [tonnes per year])	Per LTO (lb [kg])	Total (tpy [tonnes per year])
C-12	736	1	0.91 (0.41)	0.3 (0.3)	37.49 (17.00)	13.8 (12.5)
F/A-18	736	181	7.97 (3.62)	531.1 (481.8)	6.19 (2.81)	412.3 (374.0)
S-3	736	52	1.69 (0.77)	32.3 (29.3)	0.58 (0.26)	11.1 (10.1)
T-34C	736	4	0.25 (0.11)	0.4 (0.4)	0.45 (0.20)	0.7 (0.6)
Total	NA	238	NA	564.1 (511.8)	NA	437.9 (397.2)

Key:

lb = Pound.
LTO = Landing and takeoff.
NA = Not applicable.
tpy = Tons per year.

Sources: EPA 1992; Ecology and Environment, Inc. 1998.

Table 3-8

NAS CECIL FIELD RESIDENCE DISTRIBUTION AND VEHICLE MILES TRAVELED

Residence Location	Employee Population[a]	Average VMT per Round-Trip Commute	Work Days per Year	Annual VMT
On Base	2,000	0	260	0
Off Base - Duval Co.	4,387	10.9	260	12,432,758
Off Base - Clay Co.	1,742	30.3	260	13,723,476
Off Base - Other	166	50	260	2,158,000
Total	8,295	NA	NA	28,314,234

[a] Includes contractors working at NAS Cecil Field.

Key:

NA = Not applicable.
VMT = Vehicle miles traveled.

Source: Ecology and Environment, Inc. 1996.

Table 3-9

VEHICLE EMISSION FACTORS AND EMISSIONS GENERATED BY WORKER COMMUTES

	Vehicle Emission Factors (gm/mile [gm/kilometer])	Total Emissions (tons/year [tonnes/year])
VOCs	1.97 (3.17)	61.4 (55.7)
NO_X	2.60 (4.18)	81.1 (73.6)
CO	25.7 (41.35)	801.4 (727.0)

Key:

CO = Carbon monoxide.
NO_X = Nitrogen oxides.
VOCs = Volatile organic compounds.

Source: Ecology and Environment, Inc. 1998.

Table 3-10

SUMMARY OF PRE-CLOSURE EMISSIONS FROM NAS CECIL FIELD (tons per year [tonnes per year])

	VOCs	NO_X	CO
Stationary Sources	85.5 (77.6)	32.9 (29.8)	82.5 (74.8)
Aircraft	564.2 (511.8)	437.9 (397.3)	NA
Personal Vehicles[a]	61.4 (55.7)	81.1 (73.6)	801.4 (727.0)
Total	711.1 (645.1)	551.9 (500.7)	883.9 (801.8)

[a] Emissions based on home-work commuting.

Key:

CO = Carbon monoxide.
NA = Not applicable.
NO_X = Nitrogen oxides.
VOCs = Volatile organic compounds.

Source: Ecology and Environment, Inc. 1998.

sound pressure in a relationship, defined as a decibel (dB). The A-weighted decibel (dB[A]) scale is typically used to measure environmental noise. The dB(A) scale is used to measure the amplitude of both continuous and intermittent sounds in a way that corresponds to healthy human hearing (May 1978).

Noise impact studies conducted in conjunction with the AICUZ Program utilize the day-night average sound level (DNL) to define acceptable noise levels. This measurement is used to define cumulative daily noise exposure, which may fluctuate during a 24-hour period. Because noise is more intrusive at night, the DNL has a 10 dB(A) weighting factor applied to nighttime hours.

To determine existing noise levels, DNL measurements have been collected at various points surrounding the station and developed into corresponding noise level contours to illustrate noise exposures over various land areas (Navy 1988). These contours are utilized to establish three noise zones under the AICUZ Program, reflecting expected public annoyance levels associated with greater or lesser noise levels. These include:

- Noise Zone 3, with noise levels greater than 75-db DNL, having the most severe noise levels;
- Noise Zone 2, with noise levels between 65- and 75-db DNL, having a moderate level of impact; and
- Noise Zone 1, with noise levels below 65-db DNL, which is generally considered suitable for noise-sensitive uses such as residences.

Figure 3-11 illustrates noise zones currently associated with the station. The Main Station and the Yellow Water Area are primarily within Zones 3 and 2. Levels of noise associated with Zone 3 affect even human conversation in sound-attenuated buildings and have a very high annoyance factor (Navy 1988).

3.7 Socioeconomics and Community Services

3.7.1 Population Characteristics

NAS Cecil Field is located in Duval and Clay counties, Florida, and within the Jacksonville Metropolitan Statistical Area (MSA), composed of Clay, Duval, Nassau, and St. Johns counties.

As of fiscal year (FY) 1995, 6,622 active-duty military personnel, including 691 officers and 5,931 enlisted personnel, were stationed at NAS Cecil Field. In addition, 813 civilians and

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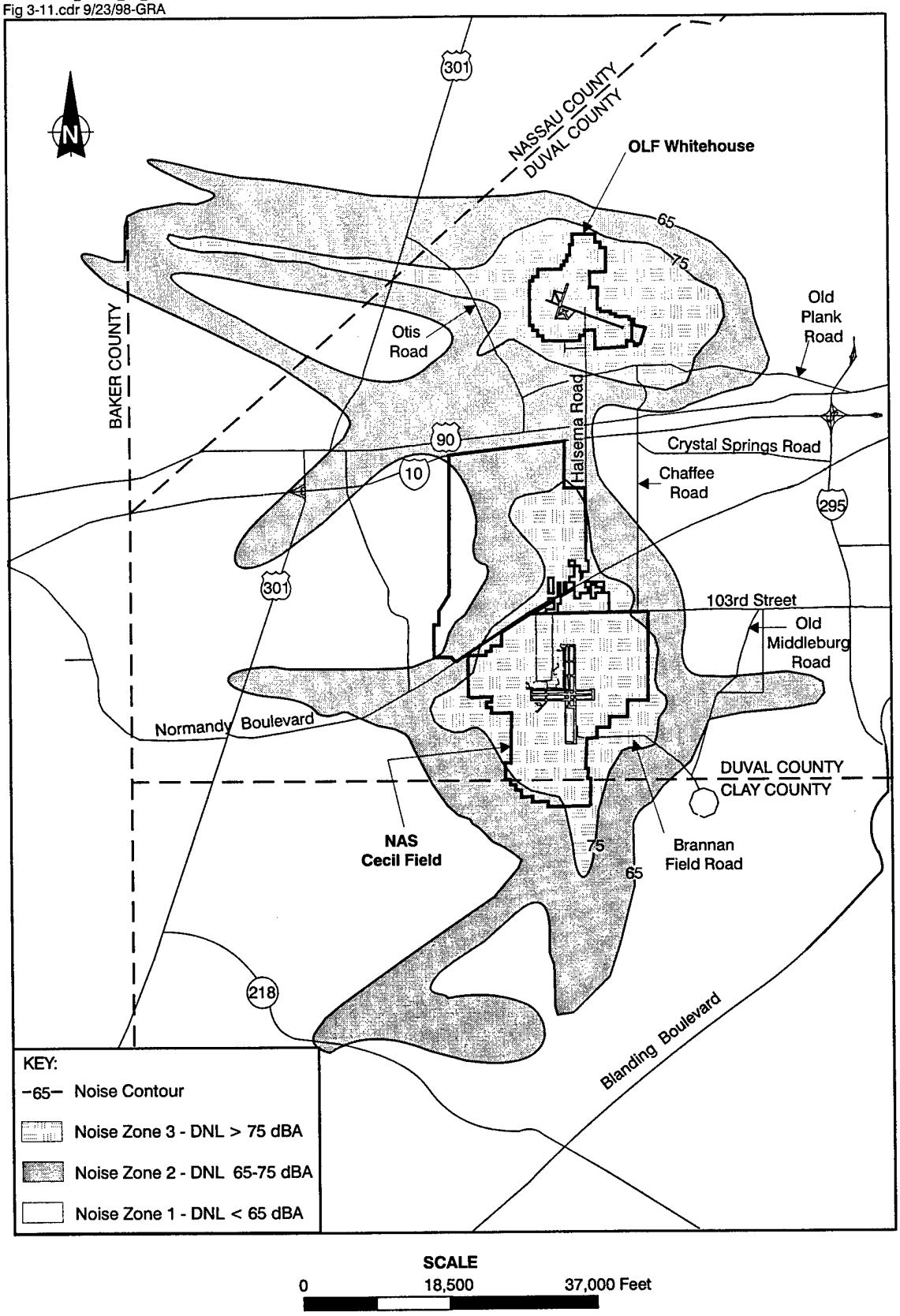


Figure 3-11 NOISE CONTOURS AND AICUZ ZONES

342 contractor personnel were employed full-time at the station, and 518 reservists (82 officers and 436 enlisted personnel) were assigned to NAS Cecil Field (Grimm 1994a).

The three largest commands located at NAS Cecil Field are the Naval Air Station, Strike Fighter Wing Atlantic Fleet (COMSTRKFIGHTWINGLANT), and Sea Control Wing Atlantic Fleet (COMSEACONWINGLANT), which account for 23.6%, 41.7%, and 22.6% of the total active-duty personnel stationed at NAS Cecil Field, respectively. Other commands and tenants account for approximately 12.1% of the total military personnel strength of NAS Cecil Field (see Table 3-11).

Approximately 2,000 military personnel reside at NAS Cecil Field in the bachelor and family housing units located throughout the station (Pierce 1994). A total of 131 bachelor officer quarters, 2,218 bachelor enlisted quarters, and 297 family housing units are located on NAS Cecil Field, including the Yellow Water Family Housing Area (Houston 1994b; Pomper 1994; Pierce 1994).

The majority of military and civilian personnel employed at NAS Cecil Field reside in Duval County, including persons who reside at the station. Table 3-12 shows the geographic distribution of personnel assigned to NAS Cecil Field by place of residence. Approximately 77% of the station population resides in Duval County, the majority within the city of Jacksonville. Nearly 21% of the total military and civilian work force employed by NAS Cecil Field resides in Clay County. The remaining 2% of the work force resides in other counties located throughout the state of Florida.

Duval County is the most populated county in the Jacksonville MSA. In 1990 the total resident population of the county was 672,971, representing an increase of nearly 18% over the 1980 total resident population of approximately 571,000. Despite the substantial increase in population between 1980 and 1990, Duval County was the slowest-growing county in the Jacksonville MSA. Between 1980 and 1990, St. Johns County experienced a 63.4% increase in population, reaching a total of 83,829 residents by 1990. Similarly, Clay County's total population increased 58% from 67,100 residents in 1980 to 105,986 residents in 1990 (see Table 3-13).

Rapid expansion of the Jacksonville MSA is expected to continue through the year 2005. According to population estimates developed by the University of Florida, the Jacksonville MSA is expected to experience a population increase of approximately 23.7% from 1990 to 2005. Duval County is expected to increase at a slower rate than the Jacksonville MSA, with a projected increase of 16.9% from 1990 to 2005. By contrast, St. Johns County and Clay County are expected to experience more rapid population growth than the MSA as a whole, with

Table 3-11

TOTAL PERSONNEL STATIONED AT NAS CECIL FIELD AS OF FY 1995 (BY MAJOR COMMAND)

Command/Tenant	Officers	Enlisted	Total Personnel
Naval Air Station	45	1,516	1,561
COMSTRKFIGHTWINGLANT	358	2,404	2,762
COMSEACONWINGLANT	228	1,267	1,495
Other Commands/Tenants	60	744	804
Total Full-Time Personnel	691	5,931	6,622
Reservists (all commands)	82	436	518
Total Full-Time and Reserve Personnel Stationed at NAS Cecil Field	773	6,367	7,140

Source: Grimm 1994a.

Table 3-12

DISTRIBUTION OF CIVILIAN AND MILITARY PERSONNEL STATIONED AT NAS CECIL FIELD BY PLACE OF RESIDENCE

County	Percent of Personnel Residing in County
Duval	76.8
Clay	20.5
Bradford	0.7
Baker	0.6
Putnam	0.2
Nassau	0.1
St. Johns	0.1
Volusia	0.1
Marion	0.1
Union	0.1
Escambia	0.1
Columbia	0.1
All others	0.5
Total	100.0

Note: Based on a sample of NAS Cecil Field personnel taken in November 1994.

Source: Grimm 1994b.

Table 3-13

TOTAL POPULATION CHANGES FOR THE CITY OF JACKSONVILLE, NEARBY COUNTIES, JACKSONVILLE MSA, AND THE STATE OF FLORIDA (1980 to 1990)

Geographical Area	1980	1990	Percent Change
City of Jacksonville	540,920	635,230	17.4
Clay County	67,100	105,986	58.0
Duval County	571,000	672,971	17.9
Nassau County	32,900	43,941	33.6
St. Johns County	51,300	83,829	63.4
Jacksonville MSA	722,300	906,727	25.5
State of Florida	9,747,000	12,937,900	32.7

Key:

MSA = Metropolitan Statistical Area.

Source: U.S. Department of Commerce, Bureau of the Census 1992.

projected increases of 47.4% and 45.2%, respectively, during the 15-year period (see Table 3-14).

The demographic composition of residents in zip code areas adjacent to NAS Cecil Field is shown in Table 3-15. In all cases, the dominant racial group is Caucasian. In most areas, there are relatively fewer blacks and slightly more Native Americans and Asians/Pacific Islanders residing in these zip code areas than in Clay and Duval counties as a whole (see Table 3-15).

3.7.2 Economy, Employment, and Income

The city of Jacksonville and its surrounding areas have a diversified economy strongly tied to Navy and service industries. Navy supports the Jacksonville economy through payroll and procurement expenditures of more than $1.69 billion to operate NAS Jacksonville, NAS Cecil Field, NAS Mayport, and the Marine Corps' Blount Island Command. NAS Cecil Field is responsible for approximately $255.2 million of this total (Hollingsworth 1994).

As discussed in Section 3.7.1, NAS Cecil Field employed 7,140 full-time and reserve military personnel, 813 civilians, and 342 contractors in FY 1995. The total annual payroll of the station is approximately $229.2 million. NAS Cecil Field also supports the regional economy through spending on construction projects ($1.8 million), repair projects ($13.1 million), and service projects ($5.6 million), and through the purchase of utilities ($5.5 million) (Hollingsworth 1994).

Service industries are also a significant force in the regional economy. In 1990 approximately 31.4% of all jobs in the region were in the service industry. Nine out of every 10 new jobs created in recent years have been in service industries, with nearly 25% of the new jobs created in the health or business service industries (University of Florida 1992; *Florida Times-Union* n.d.).

During 1990, retail and wholesale trade establishments represented the next-largest source of employment in the Jacksonville MSA after service industries, providing work for 26.9% of the employed labor force. Financial, insurance, and real estate companies provided work for an additional 10.3% of the employed population, while manufacturing industries supplied 8.9% of the total jobs available in the region (University of Florida 1992).

The 10 largest private employers in Jacksonville MSA are service-related industries. They include two retail grocers (Winn-Dixie Stores, Inc., and Publix Super Markets, Inc.); two banks (Barnett Banks, Inc., and First Union Bank of Florida); two insurance companies (Blue Cross and Blue Shield of Florida, Inc., and Prudential Insurance Co. of America); one utility

Table 3-14

POPULATION PROJECTIONS FOR THE JACKSONVILLE MSA, NEARBY COUNTIES, AND THE STATE OF FLORIDA FROM 1995 TO 2005

Geographical Area	1990 (actual)	April 1, 1995	2000	2005
Clay County	105,986	121,897	138,267	153,930
Duval County	672,971	713,743	751,466	786,964
Nassau County	43,941	48,662	53,016	57,129
St. Johns County	83,829	97,330	110,749	123,606
Jacksonville MSA	906,727	981,632	1,053,498	1,121,629
State of Florida	12,937,900	14,295,156	15,593,757	16,825,598

Key:

MSA = Metropolitan Statistical Area.

Source: Jacksonville Planning and Development Department 1994.

Table 3-15

DEMOGRAPHIC CHARACTERISTICS OF CLAY COUNTY, DUVAL COUNTY, AND ZIP CODE AREAS DIRECTLY ADJACENT TO NAS CECIL FIELD

Geographic Area	Total Population	Percent of Total Population					Total Hispanic Population[a]
		White	Black	Native American	Asian/ Pacific Islander	Other	
Clay County (total)	105,986	92.2	5.2	0.3	1.7	0.6	2,764
Zip Code 32068	23,157	95.5	2.7	0.4	0.9	0.5	468
Duval County (total)	672,971	72.8	24.3	0.3	1.9	0.7	17,333
Zip Code 32009	1,890	94.2	5.0	0.5	0.1	0.2	21
Zip Code 32210	54,546	82.2	13.3	0.4	3.1	1.1	1,834
Zip Code 32220	9,389	93.0	6.0	0.3	0.6	0.2	133
Zip Code 32221	18,243	84.9	10.5	0.5	2.7	1.3	682
Zip Code 32222	4,092	87.5	7.6	0.4	3.7	0.9	139
Zip Code 32234	5,830	89.9	9.0	0.4	0.5	0.2	56

[a] Hispanic residents may be within any of the racial groups.

Sources: CACI Marketing Systems 1991; Grimm 1994b.

company (AT&T); one medical facility (St. Vincent's Medical Center); and one transportation company (CSX Transportation, Inc.) (*Florida Times-Union* n.d.).

The Jacksonville MSA enjoys a relatively low level of unemployment. In 1993, the total nonagricultural labor force consisted of 474,345 persons. The 1993 average annual unemployment rate for the Jacksonville MSA was 5.33%. This figure compares favorably with 5.71% and 6.25% unemployment rates for the state of Florida and the United States, respectively (*Florida Times-Union* n.d.).

The Jacksonville MSA is slightly less affluent than either the state of Florida or the United States. In 1990 the average annual per capita income for the MSA was $14,141, less than for the state of Florida ($14,698) and for the United States as a whole ($14,420). Income is not evenly distributed through the Jacksonville area. The 1990 per capita income for St. Johns County ($17,113) was substantially greater than the 1990 per capita income for Clay County ($13,945), Duval County ($13,857), and Nassau County ($13,288) (see Table 3-16).

In addition, income within each county is not uniformly distributed. Table 3-17 presents the 1990 per capita income and the 1990 median household income for zip code areas directly adjacent to NAS Cecil Field. As shown in this table, income statistics vary substantially across each zip code area.

3.7.3 Taxes and Revenues

The city of Jacksonville is a consolidated city/county political entity that includes all of Duval County. When consolidation occurred on October 1, 1968, all existing municipalities and public agencies within Duval County, excluding the Duval County School Board, were merged into a single new corporate and political entity known as the city of Jacksonville (City of Jacksonville 1994).

The city of Jacksonville's total annual budget for FY 1994-1995 was $900,816,210, including miscellaneous federal programs. The largest expenditures in the 1994-1995 approved budget were for law enforcement, public utilities, administration and finance, and fire and rescue services. These activities were projected at 16.7%, 15.7%, 12.2%, and 7.3% of the total expenditures for FY 1994-1995, respectively (City of Jacksonville 1994).

The largest single source of revenue for the city of Jacksonville is *ad valorem* taxes, which are levied on property located within Duval County. In FY 1994-1995, the total amount of *ad valorem* taxes was expected to reach approximately $216.8 million and to comprise 24.0% of the total annual revenues raised by the city. In addition to the *ad valorem* taxes, charges for public services, such as solid waste disposal, water and sewer usage, and public parking were

Table 3-16

PER CAPITA INCOME FOR THE JACKSONVILLE MSA, STATE OF FLORIDA, AND UNITED STATES

Geographical Area	1990 Per Capita Income ($)
Clay County	13,945
Duval County	13,857
Nassau County	13,288
St. Johns County	17,113
Jacksonville MSA	14,141
State of Florida	14,698
United States	14,420

Key:

MSA = Metropolitan Statistical Area.

Source: U.S. Department of Commerce, Bureau of the Census 1992.

Table 3-17

INCOME CHARACTERISTICS OF ZIP CODE AREAS DIRECTLY ADJACENT TO NAS CECIL FIELD

Geographic Area	Average Per Capita Income ($)	Median Household Income ($)
Clay County		
Zip Code 32068	10,983	29,435
Duval County		
Zip Code 32009	12,406	31,864
Zip Code 32210	13,727	29,657
Zip Code 32220	9,533	24,451
Zip Code 32221	9,940	32,856
Zip Code 32222	10,002	23,489
Zip Code 32234	9,964	23,983

Note: County income statistics shown on previous tables are based on the 1990 U.S. census of population and housing figures. Zip code area income statistics are based on a combination of census figures and Bureau of Economic Analysis figures. These figures may not be directly comparable.

Source: CACI Marketing Systems 1991.

expected to generate more than $140.3 million, or 15.6% of the total annual revenue; the 0.5% sales tax was expected to generate approximately $80.0 million (8.9% of the total annual revenue); and utilities service taxes were expected to generate more than $60.1 million (6.7% of the total annual revenue). The remaining revenue is generated primarily from intergovernmental transfers, user charges, rents, licenses and permits, and fines and forfeitures (City of Jacksonville 1994).

In 1995, the total assessed value of taxable property in the city of Jacksonville was $20,201,997,000. The total millage rate for FY 1994-1995 was expected to be 11.3158 (City of Jacksonville 1994).

Clay County's total annual budget for FY 1994-1995 was $94,636,180, including fund transfers and surplus cash carried forward from previous years. Projected revenues for FY 1994-1995 totaled $57,345,336. *Ad valorem* taxes were expected to account for approximately $24.1 million, or 42% of the total revenues, while intergovernmental transfers, other taxes (including a tax on gasoline), and charges for services were projected to account for 26.2%, 14.1%, and 12.9% of the total revenues, respectively. The remaining $2.7 million in revenue was expected to be raised from fines, forfeitures, and other miscellaneous sources (Clay County Board of Commissioners 1995).

Total budgeted expenditures during FY 1994-1995 were expected to be more than $76.7 million. General administration and finance, public works, and law enforcement accounted for approximately 26.5%, 21.5%, and 19.9% of the total 1994-1995 budgeted expenditures for Clay County, respectively. Expenditures were also expected for environmental services; fire protection; parks and recreation; health, welfare, and housing programs; civil defense; court and attorney costs; agricultural assistance; and tourist development programs (Clay County Board of Commissioners 1995).

In FY 1994-1995, the total assessed value of property in Clay County was $2,771,291,7-26. This represents an increase of approximately 4.5% over the previous year's figure of $2,650,863,120. The total millage remained constant during these two years at 8.4585 (Clay County Board of Commissioners 1995).

3.7.4 Housing

During 1990 individual counties in the Jacksonville MSA, with the exception of St. Johns County, experienced low homeowner vacancy rates compared with those in the state of Florida as a whole. Homeowner vacancy rates ranged from 1.8% to 3.6% of the total owner-occupied units in the four counties. Conversely, rental vacancy rates were typically

greater in the Jacksonville counties than in the state. Rental vacancy rates ranged from a low of 8.7% of the total rental units in Clay County to a high of 20.8% vacancy in the total rental units in Nassau County (see Table 3-18).

The 1990 median value of occupied housing units in the four counties varied substantially. Median housing values in St. Johns County ($85,800) and Clay County ($82,100) were greater than median values for all homes in the state of Florida ($77,100). By contrast, the median values of housing units in Duval County ($64,000) and Nassau County ($72,600) are significantly lower than the comparable figure for the state (see Table 3-18).

Corresponding to the high rental vacancy rates, median rental prices in the Jacksonville MSA were typically lower than in the state as a whole. Duval, Nassau, and St. Johns Counties all had median contract rents lower than the state's rate of $402. Median rental prices for Clay County were slightly greater than the state's rate at $404 (see Table 3-18).

Navy provides bachelor and family housing for military personnel assigned to the NAS Cecil Field Complex. NAS Cecil Field contains 97 family housing units, including 17 two-bedroom units, 79 three-bedroom units, and one four-bedroom unit. In addition, a total of 200 family housing units are located in the Yellow Water Housing Area, including 50 three-bedroom units and 150 four-bedroom units. Currently, all of the family housing units at the station are occupied and there is a waiting list of approximately 125 families (Pierce 1994). NAS Cecil Field also operates a 48-site trailer park where Navy leases mobile home sites to personnel who own their own trailers. As of November 1994, all but two sites were occupied (Pierce 1994).

Navy operates a total of 131 BOQ units at NAS Cecil Field, including 50 units for officers permanently stationed at NAS Cecil Field and 81 units for transient officers. The permanent BOQ units have a 58% utilization rate, while the transient BOQ units have a 63% utilization rate (Houston, S. 1994).

Similarly, Navy maintains 21 separate BEQ Housing Barracks at NAS Cecil Field. The total housing capacity of these buildings is 2,218 personnel. As of November 1994, these units were operating at a 91% utilization rate (Pomper 1994).

3.7.5 Education

Most school-age children of Cecil Field military and civilian personnel attend public schools in the Duval County and Clay County school districts.

School districts in Florida receive their operating funds from three major sources: the state government, local *ad valorem* property taxes, and the federal government. On average, the

Table 3-18

HOUSING STATISTICS FOR CLAY, DUVAL, NASSAU, AND ST. JOHNS COUNTIES, AND THE STATE OF FLORIDA

	Total Number of Units	Homeowner Vacancy Rate	Rental Vacancy Rate	Median Value ($)	Median Contract Rent ($)
Clay County	40,249	2.6	8.7	82,100	404
Duval County	284,673	2.8	12.6	64,000	355
Nassau County	18,726	1.8	20.8	72,600	327
St. Johns County	40,712	3.6	19.2	85,800	394
State of Florida	6,100,262	3.4	12.4	77,100	402

Source: U.S. Department of Commerce, Bureau of the Census 1992.

Florida Department of Education provides approximately 50% of each school district's operating funds, local funds comprise 42%, and the federal government meets 8% of the district's financial needs (Morris 1994).

A substantial portion of the financial assistance provided by the state is obtained from a 6% state sales tax. The total sales tax collected throughout the state is divided among all the school districts based on an "equal education affordability" formula. This formula considers the economic capability of each local community to educate its students. The state allocates its funds to make up the balance of the cost requirements, in proportion to each district's needs. The intent of this system is to ensure that each school district has the financial ability to provide quality public education, regardless of the community's ability to fund it. The base student allocation (BSA), or the dollar amount allocated from state funds for each full-time student, is determined annually by the state legislature. In the 1994-95 school year, the BSA for grades 4 through 8 was $2,558.17. For grades K through 3 and grades 9 through 12, the BSA was slightly higher, at approximately $2,632.36 and $3,095.39, respectively (Morris 1994). The BSA is the average figure used as a starting point in the equal education affordability formula. Students with physical disabilities are allocated slightly more state aid.

Local *ad valorem* taxes also provide a large portion of school district funding. In Duval County, school millage is levied by the school board and limits are mandated annually by legislation. For example, in 1992 the school millage rate for all tax districts in Duval County was 9.8. In that year, one mill of tax dollars produced approximately $18 million; correspondingly, the school district received approximately $176.4 million dollars from 1992 *ad valorem* taxes (City of Jacksonville, Public Information Office n.d.)

The U.S. Department of Education Impact Aid Program provides financial assistance to public school districts for federally connected students, including children of NAS Cecil Field personnel. The program is designed to compensate school districts for the loss of the property tax due to the federal government's tax-exempt status. To be eligible, students must have at least one parent who is employed by the federal government or must reside on federal property (e.g., at a military installation, on a reservation, or in a low-income housing development). Based on specific eligibility criteria, a certain amount of federal assistance is issued for each eligible student. There are two general categories of students: "A" students are those who both reside on federal property and have a parent employed on federal property (civilian) or a parent on active duty in the "uniformed services" (military); "B" students meet only one of these criteria (U.S. Department of Education, Office of Impact Aid 1992). Table 3-19 presents the average daily attendance of all federally connected students and the corresponding federal impact aid received

Table 3-19

AVERAGE DAILY SCHOOL ATTENDANCE OF FEDERALLY CONNECTED STUDENTS FROM ALL JACKSONVILLE AREA MILITARY INSTALLATIONS, AND FEDERAL IMPACT AID RECEIVED BY SCHOOL SYSTEMS IN THE STUDY AREA

	ADA of Federally Connected Students					
	Military "A"	Civilian "A"	Military "B"	Civilian "B"	Total ADA	Total Federal Impact Aid Received in FY 94
Duval County	1,750	0	5,342	1,833	8,925	$1,964,909
Clay County	0	0	3,104	1,309	4,413	$834,045
Total	1,750	0	8,446	3,142	13,338	$2,798,954

Key:

ADA = Average daily school attendance.
FY = Fiscal year.

Source: U.S. Department of Education 1994.

by public school districts in Duval and Clay counties. These totals include students affiliated with all military installations and federal activities in the area, including NAS Jacksonville, Mayport Naval Station, Blount Island, and NAS Cecil Field.

Duval County School District

In 1993-94, 212,500 students were enrolled in the 148 schools that comprise the Duval County School District. Approximately 12,000 faculty and staff are employed district-wide, and an average ratio of one teacher to every 27 primary grade students is maintained. To accommodate an average annual student growth rate of 2% to 3%, the district typically hires 60 to 120 new teachers per year (Jackson 1994). The Duval County School District has an operating budget of $542 million.

Of the 8,925 federally connected students in the district, it is estimated that 3,670 students are associated with NAS Cecil Field, based on figures supplied by the U.S. Department of Education and estimates made using a zip code residency distribution of Cecil Field military and civilian personnel. In FY 1994, the district received $1,964,909 in federal impact aid, an average of $900.43 per military "A" student, $61.13 per military "B" student, and $34.16 per civilian "B" student (U.S. Department of Education 1994). Of the total federal impact aid received, approximately $613,706 was received for children of NAS Cecil Field personnel (see Table 3-20). In the 1994-95 school year, the Duval County School district received $411,585,302 in primary state aid, an average of approximately $1,936.40 per student (Morris 1994).

Clay County School District

As of November 1994, 23,906 students were enrolled in the Clay County School District's 26 schools (Smokes 1995). The operating budget of $106,304,078 supports 2,449 faculty and staff positions in the district. The average teacher-to-student ratio ranges from 1 to 24 for younger grades to 1 to 30 for grades 7 through 12. The district has experienced a 2.5% student growth rate annually over the past 5 years and has increased its employee base by 307 positions during this time (Denton 1995).

According to the Clay County School District, 1,019 of the 4,413 federally connected students in the district are associated with NAS Cecil Field (Smokes 1995). In fiscal year 1994, the district received $834,045 in federal impact aid, with payments averaging $211.82 for each military "B" student and $134.89 for each civilian "B" student (U.S. Department of Education

Table 3-20

PUBLIC SCHOOL DISTRICT DISTRIBUTION OF CHILDREN OF NAS CECIL FIELD PERSONNEL AND FEDERAL IMPACT AID GENERATED

	Duval County		Clay County	
	Military	Civilian	Military	Civilian
Number of students from NAS Cecil Field families	3,107	563	900	119
Total students enrolled in school district[a]		212,500[b]		23,906[c]
Estimated federal impact aid generated by NAS Cecil Field students (subtotal)	$594,474	$19,232	$190,638	$16,052
Estimated federal impact aid generated by NAS Cecil Field students (total)		$613,706		$206,690

[a] Estimated from zip code district and family housing.
[b] 1993-1994.
[c] 1994-1995.

Sources: U.S. Department of Education 1994; Smokes 1995; zip code residency distribution of Cecil Field personnel 1994.

1994). There were no "A" students in the Clay County School District. Of the total federal impact aid received, approximately $206,690 was received for children of Cecil Field personnel (see Table 3-20). During the 1994-95 school year, the district received primary state aid totaling $79,119,864, an average of approximately $3,310 per student (Morris 1994).

3.7.6 Community Services

3.7.6.1 Security

NAS Cecil Field

Security, law enforcement, and traffic control services at the station are provided by the NAS Cecil Field Security Department based in Building 327 at the Main Gate. The 80 to 100 security personnel in the department are primarily military personnel, except for four civilians. In addition, an auxiliary force of 100 to 150 is available for emergencies and special events that require increased security (Morrison 1994).

The department provides roving patrol, traffic control, and response services throughout the base and the Yellow Water Housing Area. It is responsible for patrol at the two main gates and check-in/issuance of access passes, in addition to security officer training and department administration. The department receives 30 to 40 security calls during daytime hours, a significant portion of which involve domestic and neighbor disputes in the housing areas (Morrison 1994).

Although the department does not have a formal mutual aid agreement with the surrounding City of Jacksonville Police Department, mutual assistance is provided when requested. Requests for assistance from the city or from NAS Cecil Field have been rare (Morrison 1994).

City of Jacksonville

The Office of the Sheriff in the Jacksonville Police Department is a consolidated county/city department whose service area includes the entire 840 square mi (2,176 square km) that comprise Duval County. Although four independent municipalities within the county (including Baldwin, Neptune Beach, Atlantic Beach, and Jacksonville Beach) fund and operate separate police departments that respond to small crimes and perform traffic control activities, the Jacksonville Sheriff's Office continues to provide security services in these areas for larger, more serious law enforcement situations.

There are 1,300 uniformed personnel in the department, and all officers are based in the department's main station in downtown Jacksonville. In 1993, 701,135 calls for service were received. Of these calls, 413,669 (59%) required officers to be dispatched to the scene to respond to a violent crime or burglary in progress (Vanderhoff 1995).

The level of security service in a given area is commonly expressed as a ratio of officers to each 1,000 residents. For the Jacksonville Police Department, the ratio is approximately 1.85 officers per 1,000 residents. This is lower than the state average of two or more officers per 1,000 residents (Vanderhoff 1994).

The Jacksonville Sheriff's Office in the Jacksonville Police Department has mutual aid agreements with all of the surrounding counties and municipalities. Requests for assistance are received periodically and often involve use of the department's helicopters.

3.7.6.2 Fire Protection

NAS Cecil Field

Two fire stations are located at NAS Cecil Field. One is located at the Main Station (Building 9), and one specialized "crash station" is located in the main flight line area. These stations provide first-response services for all on-base fire and plane crash emergencies. The department coordinates with the NAS Cecil Field Medical Clinic, which provides emergency medical services.

Sixty of the 61 firefighters in the NAS Cecil Field Fire Department are civilians, in addition to the chief and assistant chief. The 24-hour shift rotations ensure that 23 firefighters are on duty at all times (Moneyhan 1994).

Equipment used by the department includes three trucks capable of pumping 1,000 gpm (3,785 liters per minute), two trucks capable of pumping 250 gpm (946 liters per minute), seven trucks specifically designed for crash response, one crane, one water tanker, and one vacuum truck for spill response. In addition, the department maintains and uses nine sport/utility vehicles (Moneyhan 1994).

The NAS Cecil Field Fire Department's response times are equal to or faster than those required for Navy facilities under the Naval Shore Establishment Fire Protection/Prevention Program (Moneyhan 1994). This program requires response times of 3 minutes for plane crashes, 5 minutes for other airfield emergencies, and crane response to the airfield within 15 minutes. For structural fire emergencies, the first fire-fighting vehicle responds within 6 minutes

for fire emergencies located within 3 mi (4.8 km), and within 8.5 minutes for fires within 5 mi (8 km) (Navy 1989).

City of Jacksonville

The City of Jacksonville Fire and Rescue Department provides fire protection and emergency rescue services for most of Duval County. The department operates 50 fire stations located throughout its service area, which includes all of Duval County except Jacksonville Beach and Atlantic Beach. The closest station to NAS Cecil Field is Station 31, located on Wilson Boulevard.

The 900 uniformed fire fighters in the department respond to approximately 100,000 fire and emergency rescue calls annually. Included in this total are responses associated with the department's mutual aid agreements with NAS Cecil Field and all of the surrounding counties and municipalities. The city of Jacksonville receives calls for assistance from NAS Cecil Field infrequently (Lindsay 1994).

The Fire and Rescue Department performs its duties using 47 fire engines with pumping capacities greater than 150 gpm (568 liters per minute), seven ladder trucks for multistory building fires, 12 pumpers with water tank reserves, six "woods trucks" with four-wheel-drive capabilities to fight forest fires, and 19 medical rescue units. Response times maintained by the department average 5.5 minutes for fire-fighting first response, and 6.5 minutes for rescue units (Lindsay 1994).

3.7.6.3 Medical Services

NAS Cecil Field

Medical services available at NAS Cecil Field are provided by the Cecil Field Medical Clinic and Dental Clinic. Both will cease operations with the closure of NAS Cecil Field.

The Medical Clinic, located in Building 808, provides urgent (emergency) care, military sick call, primary care for dependents of military personnel, occupational health services, and some types of minor surgery. An in-house pharmacy and analytical laboratory further increase the clinic's level of self-sufficiency. In addition, the medical clinic operates an ambulance and emergency medical response team for on-base emergencies. There are no overnight in-patient facilities. Active-duty station personnel and their dependents are eligible to use the medical clinic; retirees go to the Naval Hospital in Jacksonville for medical needs.

The clinic employs 177 medical and support personnel. Of these, 80% are military personnel and 20% are civilians. On average, 3,000 to 3,500 patients are treated per month, but the clinic has successfully treated as many as 4,000 patients in a month (Dowling 1994).

Patients with special medical problems or severe injuries are referred to the Naval Hospital in Jacksonville or to any of several local hospitals.

The Cecil Field Dental Clinic provides general dental and dental surgery services, including endodentistry (root canal surgery) and periodentistry (gum disease surgery), as well as prosthetics (replacement of teeth) services. The clinic primarily serves active-duty personnel, but also serves dependents of active-duty personnel in emergencies.

Approximately 80% of the clinic's 32 dental and support services employees are military personnel, and approximately six are civilian employees. The medical staff consists of eight dentists and 16 dental technicians. The dental clinic serves an average of 98 to 150 patients per day (Gardner 1995).

City of Jacksonville

The city of Jacksonville offers complete, specialized, and diverse health care resources, including 11 hospitals, more than 2,300 physicians, and almost 500 dentists. In addition, nine publicly funded medical clinics are operated by the Duval County Health Department. The Mayo Clinic, Nemours Children's Clinic, and many of the other hospitals offer several highly specialized services with excellent regional and national reputations. In addition, Jacksonville has one of only four Level I trauma centers in Florida, and a branch of the Boston-based Joslin Diabetes Clinic (Jacksonville Chamber of Commerce 1993).

3.7.6.4 Recreational Facilities

NAS Cecil Field

The Morale, Welfare, and Recreation (MWR) Department at NAS Cecil Field provides military personnel and their dependents with a wide range of athletic and recreational services and facilities. On-base recreational facilities include athletic fields, tennis courts, basketball courts, a skeet range, a bowling alley, a golf course, a marina, swimming pools, picnic areas, the Lake Fretwell Recreation Area, a library, a gymnasium, and an automotive hobby shop.

City of Jacksonville

More than 2,012 ac (814 ha) of parkland are dedicated to active and passive public recreation in the city of Jacksonville. An additional 1,451 ac (587 ha) of pastoral open space are owned by the city, and nearly 2,015 ac (815.4 ha) of land are privately owned and operated as recreational facilities open to the general public (Jacksonville Planning and Development Department 1990).

3.8 Transportation

3.8.1 Road Network

Regional and Local Road Network

NAS Cecil Field is served by a system of roads that is part of a regional and interstate system providing access to the state of Florida and the southeastern United States. Figure 3-12 presents the following major components of this road network (Jacksonville MPO 1994):

- Interstate 10 (I-10) is a limited-access freeway that traverses the state of Florida and the nation from east to west, and connects with the major north/south connectors in the state, Interstate 75 (I-75) to the west, and Interstate 295/95 (I-295/95) to the east;
- Interstate 295 (I-295) is a limited-access freeway that bypasses the western periphery of downtown Jacksonville and connects with I-95 to the north and south of the urbanized area of the city;
- U.S. 301 (Baldwin-Marville Road) is a principal arterial that runs from north to south through the city of Baldwin, west of the station;
- U.S. 90 (Beaver Street West) is a principal arterial that runs parallel to I-10 and provides access to downtown Jacksonville to the east and cities of the Florida panhandle to the west; and
- Florida SR 218 (Normandy Road) is a principal arterial that bisects the main base and provides access from the southwest to the high-intensity development to the east.

The system of local roads adjacent to NAS Cecil Field serves traffic attracted to and generated from the base and neighboring land uses (Jacksonville MPO 1994).

The following roads are included in the local system:

- 103rd Street is a minor arterial road that connects the two primary gates of the NAS to the higher-density development to the east;
- Chaffee Road is a minor arterial road that provides access from 103rd Street north to I-10;
- Blanding Boulevard is a minor arterial that serves as a primary connection between Clay County and the developed areas east of the station;
- Crystal Springs Road is a collector road that provides access to the east from Chaffee Road;
- Old Middleburg Road is a collector road that provides access into Clay County from 103rd Street; and
- Otis Road is a collector road that provides access to Nassau County from U.S. 90.

NAS Cecil Field is served by a network of internal paved and unpaved roads encompassing approximately 137 mi (220 km). "D" Avenue and "A" Avenue are the primary north-south circulation routes to and from the Main Station (Navy 1988). The main gate, located at the intersection of "D" Avenue, 103rd Street, and Normandy Boulevard, is utilized by commercial and visitor vehicles. The eastern gate ("A" Gate), located at the intersection of 103rd Street and "A" Avenue, is a secondary gate for vehicles with preapproved security clearance. The primary east-west collector roads are 9th Street, 6th Street, 4th Street, and 2nd Street.

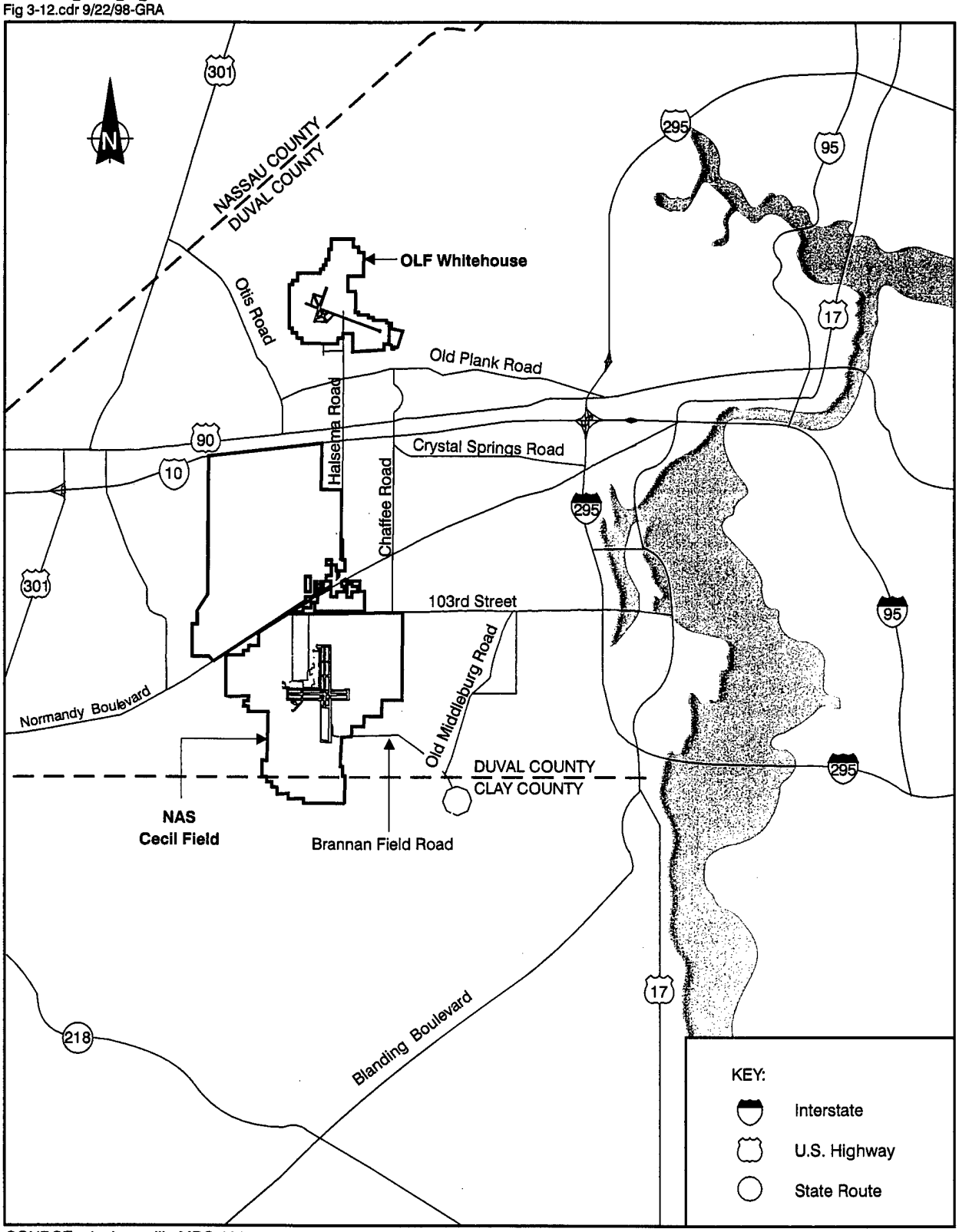
Secondary roads provide access to runways, recreational areas, and the more remote areas of the station (Navy 1988). The principal parking areas for the station are located near the developed areas of the Main Station, totaling approximately 450,000 square yards (376,257 m^2). Figure 3-13 depicts the internal (on-station) transportation network for the Main Station and the Yellow Water Area.

Pre-Closure Traffic Volumes

On-station vehicular activity consists of commuter, visitor, operational, and commercial traffic. In general, the roadways serving the air station exhibit adequate capacity. Traffic volumes on regional and local roads in the vicinity of NAS Cecil Field vary based on the influence of surrounding land uses.

Traffic volumes are measured by average daily trip (ADT) and peak-hour traffic figures. ADTs reflect total daily traffic movements, in both directions, averaged over a given year. Peak-

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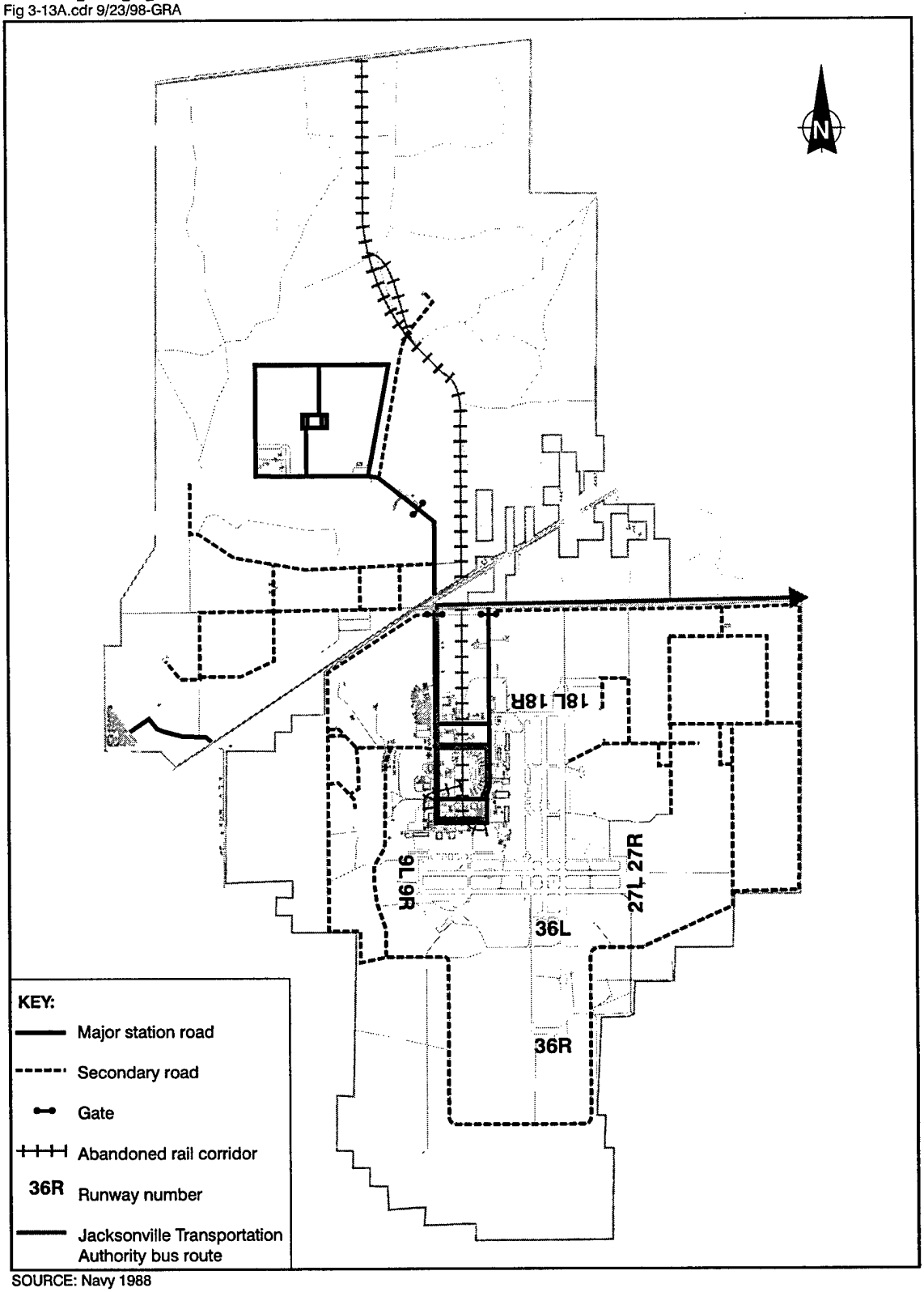


SOURCE: Jacksonville MPO 1994.

SCALE
0 18,500 37,000 Feet

Figure 3-12 ROAD SYSTEM IN THE VICINITY OF NAS CECIL FIELD

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Fig 3-13A.cdr 9/23/98-GRA



SOURCE: Navy 1988

Figure 3-13 ON-STATION TRANSPORTATION NETWORK

hour counts reflect the number of vehicular movements on a road during an average morning or evening peak-hour period.

The capacity of a road indicates the ability of the network to serve the demand and volume of traffic on a specific segment, affected by physical characteristics such as number of lanes, roadway width, intersection control, and distance between intersections. The level of service (LOS) is a qualitative measure of capacity that indicates the characteristics of a roadway by means of an assigned letter ("A" through "F") that describes its operating capacity. The LOS characterizes road capacity in terms of traffic interruptions, freedom to maneuver, driver comfort/convenience, travel time, and vehicle speed (Jacksonville MPO 1994). An LOS of "A" indicates a free-flow condition, or more than adequate capacity for the traffic volumes experienced. Conversely, an LOS of "F" on a roadway indicates low vehicle speeds, intersection congestion, and significant queuing (i.e., stacking) of vehicles.

The ADTs and LOSs for the roads surrounding NAS Cecil Field are presented in Table 3-21 and displayed on Figure 3-14. In general, few congestion problems occur during peak-hour traffic periods in this area. Most roadways are operating at an LOS of C or better. Normandy Boulevard and 103rd Streets, the primary access roads to NAS Cecil Field, operate at a LOS of B or better (Jacksonville MPO 1994).

Few road segments in the vicinity of the station experience congestion problems. Blanding Boulevard, which is designated as a minor arterial, acts as an important connection from development in Southern Duval and Clay County to the southeast. This road operates at a LOS of F near the county line.

The internal road network of NAS Cecil Field experiences virtually no serious incidences of traffic congestion, and there are no problem areas on base; consequently, no capital improvements have been planned for the on-base roads (Morrison 1994). Previously, the entrances experienced periods of congestion during the morning peak hour; however, this situation has been remedied by making the "A" Gate a one-way entrance during rush-hour periods. Traffic exiting the station is dispersed throughout the day; consequently, no evening peak-hour congestion problems are experienced (Morrison 1994).

Most vehicle trips to the station are generated from the residences of NAS Cecil Field employees (see Section 3.7). Most personnel reside in the 32073, 32210, 32215, and 32244 zip code areas (see Figure 3-15), which are close to the station (Grimm 1994a).

Table 3-21

ROADWAY CHARACTERISTICS AND PRE-CLOSURE TRAFFIC VOLUMES

Road Name	Segment	Number of Lanes	ADTs[a] (See note for count year)	P.M. Peak-Hour Vehicle Volume and Reserve Volume[b]	Roadway Type	LOS[c]
Beaver Street West (SR 10)	US 301 - SR 199 (Otis Road)	2	7,100[g]	259[g]	Principal arterial	B
Beaver Street (SR 10)	SR 199 (Otis Road) - Chaffee Road	2	7,000[h]	637[h]	Principal arterial	B
Beaver Street West	Chaffee Road - I-295	2	5,400[g]	624[g]	Principal arterial	B
I-10	US 301 - CSX Railroad	4	18,115[d]	2,960[g]	Freeway	A
I-10	CSX - I-295	4	30,000[e]	3,827[g]	Freeway	B
Normandy Boulevard	US 301 - 103rd Street	2	4,400[g]	422[g]	Principal arterial	B
Normandy Boulevard	103rd Street - Chaffee Road	4	10,100[g]	970[g]	Principal arterial	B
Normandy Boulevard	Chaffee Road - Herlong Road	4	9,000[h]	1,037[h]	Principal arterial	B
103rd Street (SR 134)	Normandy Boulevard - Old Middleburg Road	4	9,500[g]	1,280[g]	Minor arterial	B
103rd Street (SR 134)	Old Middleburg Road - I-295	6	39,000[h]	3,549[h]	Minor arterial	B
Chaffee Road	Normandy Boulevard - 103rd Street	4	NA	580[g]	Principal arterial	C
Chaffee Road	I-10 - Normandy Boulevard	2	6,800[g]	696[g]	Minor arterial	C
Chaffee Road	Beaver Street - I-10	2	9,520[d]	958[g]	Minor arterial	C
Yellow Water Road	Normandy Boulevard - Beaver Street	2	1,662[g]	116[g]	Collector	C
Otis Road	Nassau County Line - 103rd Street	2	2,000[g]	166[g]	Collector	C
Old Plank Road	Otis Road - Jones Road	2	1,728[g]	199[g]	Collector	C
Halsema Road	South of Whitehouse - Beaver Street	2	1,981[g]	182[g]	Collector	C
Crystal Springs Road	Chaffee Road - Lenox Avenue	2	2,929[g]	624[g]	Collector	C
Old Middleburg Road	Clay County Line - 103rd Street	2	3,301[g]	312[g]	Collector	C
Blanding Boulevard (SR 21)	Clay County Line - I-295	6	78,000[h]	6,864[h]	Minor arterial	F

Table 3-21

ROADWAY CHARACTERISTICS AND PRE-CLOSURE TRAFFIC VOLUMES

Road Name	Segment	Number of Lanes	ADTs[a] (See note for count year)	P.M. Peak-Hour Vehicle Volume and Reserve Volume[b]	Roadway Type	LOS[c]
Blanding Boulevard	Wells Road - Duval County Line	6	78,000[h]	6,664[h]	Minor arterial	F
Blanding Boulevard	College Drive - Kingsby	4	76,915[f]	2,028[g]	Minor arterial	F
Wells Road	Blanding Boulevard - DeBarry Avenue	4	18,036[g]	941[g]	Minor arterial	C
Kingsley Avenue (SR 224)	Blanding Boulevard - DeBarry Avenue	2	23,278[f]	969[g]	Minor arterial	F
College Drive (SR 224)	Blanding Boulevard - Remington Court	2	13,138[g]	430[g]	Minor collector	D
College Drive	Remington Court - Bald Eagle Road	2	—	355[g]	Minor collector	C
I-295	SR 13 - SR 15	8	74,500[h]	6,851[h]	Freeway	C
I-295	SR 15 - SR 21	6	64,000[h]	5,888[h]	Freeway	C
I-295	SR 21 - SR 134	6	65,000[h]	5,980[h]	Freeway	C
I-295	SR 134 - SR 228	6	66,250[h]	6,095[h]	Freeway	C
I-295	SR 228 - I-10	6	71,500[h]	6,578[h]	Freeway	C
I-295	I-10 - SR 15	4	40,017[h]	3,682[h]	Freeway	C
I-295	SR 15 - SR 104	4	32,500[h]	2,990[h]	Freeway	C
I-295	SR 15 - SR 115	4	25,500[h]	2,346[h]	Freeway	B
I-295	SR115 - I-95	4	30,000[h]	2,760[h]	Freeway	B
Roosevelt Blvd. (US 17)	Clay County Line - SR 134	6	42,750[h]	3,890[h]	Principal arterial	C
US 301 S	Clay County Line - SR 228	4	16,900[h]	1,572[h]	Principal arterial	B
US 301 S	SR 228 - I-10	4	12,900[h]	1,200[h]	Principal arterial	B
US 301 S	I-10 - US 90	4	7,900[h]	719[h]	Principal arterial	B
US 301 Connector	E US 90 - W US 90	2	9,800[h]	892[h]	Principal arterial	B
N US 301	US 90 - N. Baldwin City Limits	2	5,200[h]	473[h]	Principal arterial	B
N US 301	N. Baldwin City Limits Nassau County Line	2	3,400[h]	316[h]	Principal arterial	B

Table 3-21

ROADWAY CHARACTERISTICS AND PRE-CLOSURE TRAFFIC VOLUMES

Road Name	Segment	Number of Lanes	ADTs[a] (See note for count year)	P.M. Peak-Hour Vehicle Volume and Reserve Volume[b]	Roadway Type	LOS[c]
US 17	Clay County Line - Wells Road	6	61,500[h]	5,904[h]	Principal arterial	C
US 17	Wells Road - SR 224	6	48,500[h]	4,656[h]	Principal arterial	D
US 17	SR 224 - Holly Point Road	6	36,000[h]	3,456[h]	Principal arterial	B
US 17 Bridge	Doctors Inlet Bridge	4	36,000[h]	3,456[h]	Principal arterial	F

[a] Average daily traffic.
[b] Reserve volume is projected new traffic from approved, but not yet constructed, development projects.
[c] LOS is based on Florida's level of service standards (FDOT 1995).
[d] 1989 count.
[e] 1991 count.
[f] 1992 count.
[g] 1993 count.
[h] 1994 count (source FDOT 1995).

Key:

ADTs = Average daily trips.
LOS = Level of service.
SR = State Road.

Source: Jacksonville MPO 1994.

The 32210 zip code, which includes Herlong Airport, has the highest rate of residency by NAS Cecil Field personnel. The main road to this area from the station is 103rd Street. Residents in the 32244 zip code area, located north of Orange Park, also use 103rd Street.

The 32215 zip code area coincides with the Main Station and Yellow Water Area boundaries and roadway trips generally occur on Normandy Boulevard and 103rd Street .

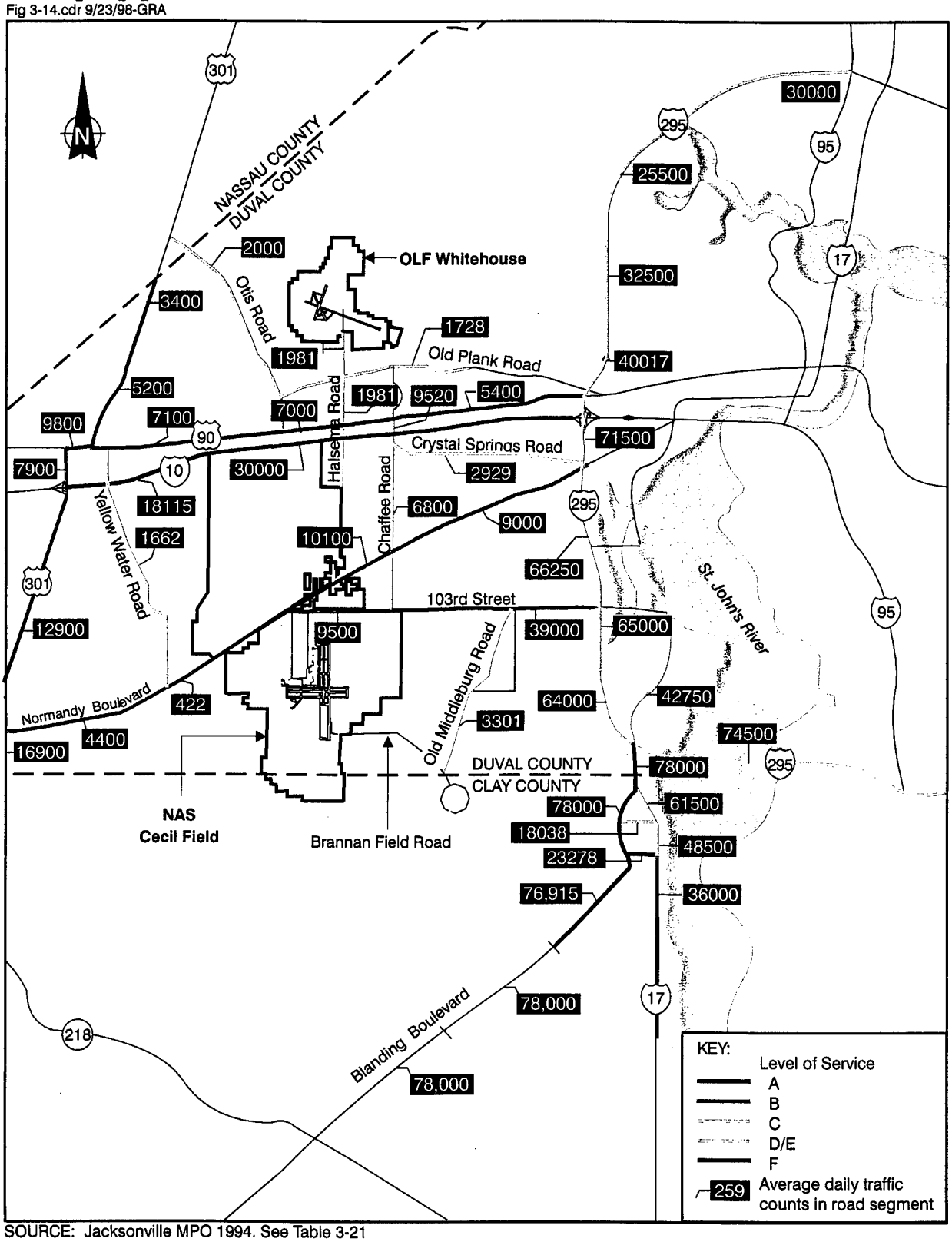
The 32073 zip code area, located within Orange Park and south of the city limits of Jacksonville, is a popular suburb of the Jacksonville metropolitan area. Vehicle trips to the station generally occur on Blanding Boulevard (now operating at a highly congested LOS), I-295, and 103rd Street, as well as on local roads west of Blanding Boulevard.

Traffic counts conducted by the NAS Cecil Field security department on April 23, 1987, between the hours of 0530 and 1800 revealed that inbound traffic volume through "D" Avenue was 3,957 vehicles, and inbound traffic volume on "A" Avenue was 3,132 vehicles (Navy 1988). Because the majority of trips to the station involve daily commuting, the number of outbound trips generally equals that of inbound trips (Taylor 1997). In 1987, trips at the "D" Avenue entrance totaled 7,914, while there were 6,264 total trips through the "A" Avenue entrance, for a total of 14,178 trips in and out of the station. This figure would be most representative of pre-closure traffic at NAS Cecil Field (Taylor 1997). It should be noted that as of fiscal year 1995, 6,622 active-duty military personnel and 813 civilian and 342 contractor personnel were employed full time at the station. With 7,777 full-time employees at NAS Cecil Field in 1995, it was estimated that 15,299 daily trip ends (over a 24-hour period) would be generated using the trip generation equation reported in the Institute of Transportation Engineers Trip Generation Manual, Fifth Edition, 1991, for ITE Land Use Code 501 (military bases).

Planned Regional Road Improvements

As part of the city of Jacksonville's capital improvement process, several roads surrounding NAS Cecil Field are scheduled for expansion. New road construction is also proposed. Plans include extension of Chaffee Road to the southeast, through the northeast corner of the base, across Brannan Field Road, and into Clay County, where it would connect with Blanding Boulevard. This would relieve pressure on Blanding Boulevard and improve LOSs to concurrent levels, allowing proposed/approved development in this area to continue. Table 3-22 shows planned and programmed road improvements in the vicinity of the station.

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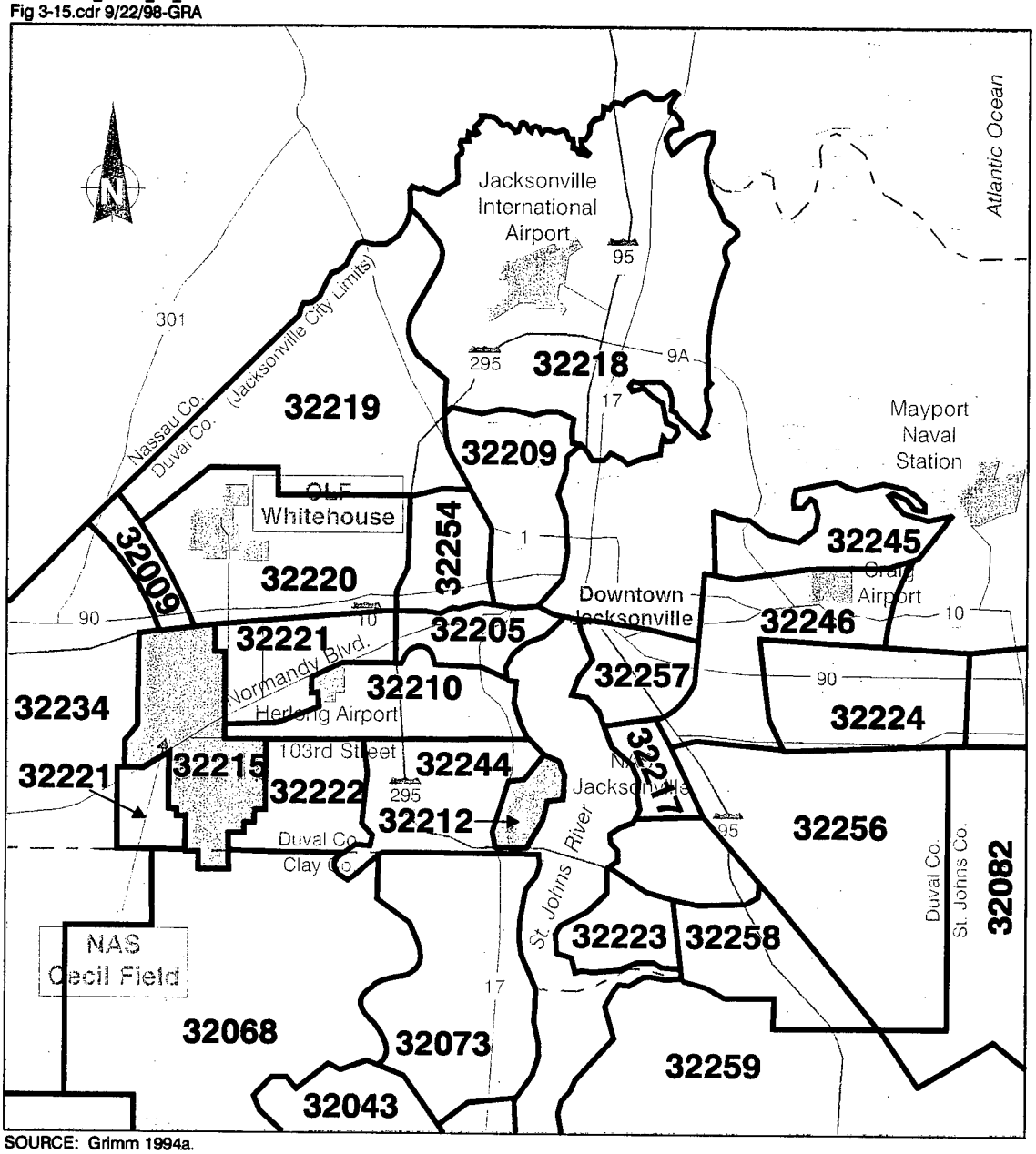


SOURCE: Jacksonville MPO 1994. See Table 3-21

SCALE
0 18,500 37,000 Feet

Figure 3-14 TRAFFIC CONDITIONS FOR ROAD SEGMENTS IN THE VICINITY OF NAS CECIL FIELD

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SOURCE: Grimm 1994a.

SCALE
0 12.3 24.6 Miles

Figure 3-15 ZIP CODE AREAS IN THE VICINITY OF NAS CECIL FIELD

Table 3-22

PLANNED AND PROGRAMMED ROADWAY IMPROVEMENTS FOR FISCAL YEARS 1995 AND 2010

Link To Be Improved	Segment	Improvement	Year	Agency
FY 1995 Roadway Network				
Brannan Field-Chaffee Road	Clay County to I-10	New 4-lane divided	TIP	FDOT
Collins Road	Rampart Road to Blanding Boulevard	Widen to 3 lanes	FY 95/96	City
Fouraker Road	Old Middleburg Road to Normandy Boulevard	Widen to 3 lanes	TIP	City
James Road	San Juan Avenue to Wilson Boulevard	Widen to 3 lanes	FY 95	City
Old Middleburg Road	Wilson Boulevard to 103rd Street	Widen to 4 lanes	TIP	City
Old Middleburg Road	Herlong Road to Wilson Boulevard	Widen to 3 lanes	FY 95/96	City
Rampart Road	Collins Road to Morse Road	Widen to 4 lanes	FY 95	City
Wilson Boulevard	Fouraker Road to Old Middleburg Road	Widen to 3 lanes	FY 95/96	City
FY 2010 Roadway Network				
103rd Street	I-295 to Shindler Drive	Widen to 8 lanes	[a]	[a]
Normandy Boulevard	I-295 to 103rd Street	Widen to 6 lanes	[a]	[a]
Ricker Road	Old Middleburg Road	Widen to 3 lanes	[a]	[a]
Shindler Drive	Collins Road to 103rd Street	Widen to 3 lanes	[a]	[a]

[a] These are projected improvements for which programming has not yet been established.

Key:

FDOT = Florida Department of Transportation.
FY = Fiscal year.
TIP = Within the five-year time frame of the County Transportation Improvement Plan.

Source: Jacksonville MPO 1994.

3.8.2 Mass Transit

Mass transit service in the Jacksonville area is provided by the Jacksonville Transportation Authority (JTA). This service provides transportation throughout the metropolitan area using local and express buses as well as buses equipped for the disabled (Navy 1988).

JTA provides service to NAS Cecil Field at the western service boundary of the Jacksonville metropolitan area. JTA Route WS6X-Cecil Field serves the station, arriving three times a day through the main gate and circulating throughout the station (Jacksonville MPO 1994). Civilian and military personnel utilizing this route can transfer to routes that access the eastern, northern, and southern portions of the metropolitan area. Figure 3-13 shows the existing transit route to NAS Cecil Field (Jacksonville MPO 1994).

3.8.3 Rail Facilities

Three major rail carriers operate in the Jacksonville area: CSX Transportation, Norfolk Southern Corporation, and Florida East Coast Railway (FEC). These rail carriers offer 34 trains a day to and from Jacksonville (Jaxport 1994a). CSX owns most of the rail systems in Jacksonville and all of the lines in western Jacksonville, moving large volumes of freight such as nonmetallic minerals, chemicals, and allied products. Moreover, CSX is Florida's only rail system that moves coal (Jacksonville Planning and Development Department 1990).

FEC is the only other Class I rail operator with lines in Jacksonville. Its transport of large volumes of nonmetallic minerals and dry and liquid bulk commodities makes it the second-largest operator in Jacksonville (Jacksonville Planning and Development Department 1990).

The only active rail corridor in the vicinity of NAS Cecil Field runs parallel to I-10 and U.S. 90 and is owned by CSX Transportation (Jacksonville Planning and Development Department 1990). These lines are also used by Amtrak, a passenger service, to connect service from Jacksonville with a CSX corridor adjacent to U.S. 301 to the south (Jacksonville Planning and Development Department 1985).

The CSX Railroad maintained operations into NAS Cecil Field until the early 1980s. This service involved the use of light rails, designed for slower train speeds than freight-designated rail lines. All operation and maintenance activities were terminated to reduce maintenance costs for rails that were no longer being used (Hale 1994).

3.8.4 Airport Facilities

The Jacksonville area has developed as a center for various forms of air transportation. It has a major commercial passenger airport, two general aviation airports, and five military-

related aviation facilities. As part of this network, NAS Cecil Field is an installation specifically designed for the operation of military jet aircraft. The station has four active runways at the Main Station (see Figure 3-13). The sizes of these facilities are as follows:

- Runway 18R/36L (200 ft by 8,000 ft [61 m by 2,438 m]);
- Runway 18L/36R (200 ft by 12,500 ft [61 m by 3,810 m]);
- Runway 9L/27R (200 ft by 8,000 ft [61 m by 2,438 m]); and
- Runway 9R/27L (200 ft by 8,000 ft [61 m by 2,438 m]).

In addition, NAS Cecil Field operates OLF Whitehouse, located north of the station, which has one runway and supports various training operations conducted by Navy aircraft.

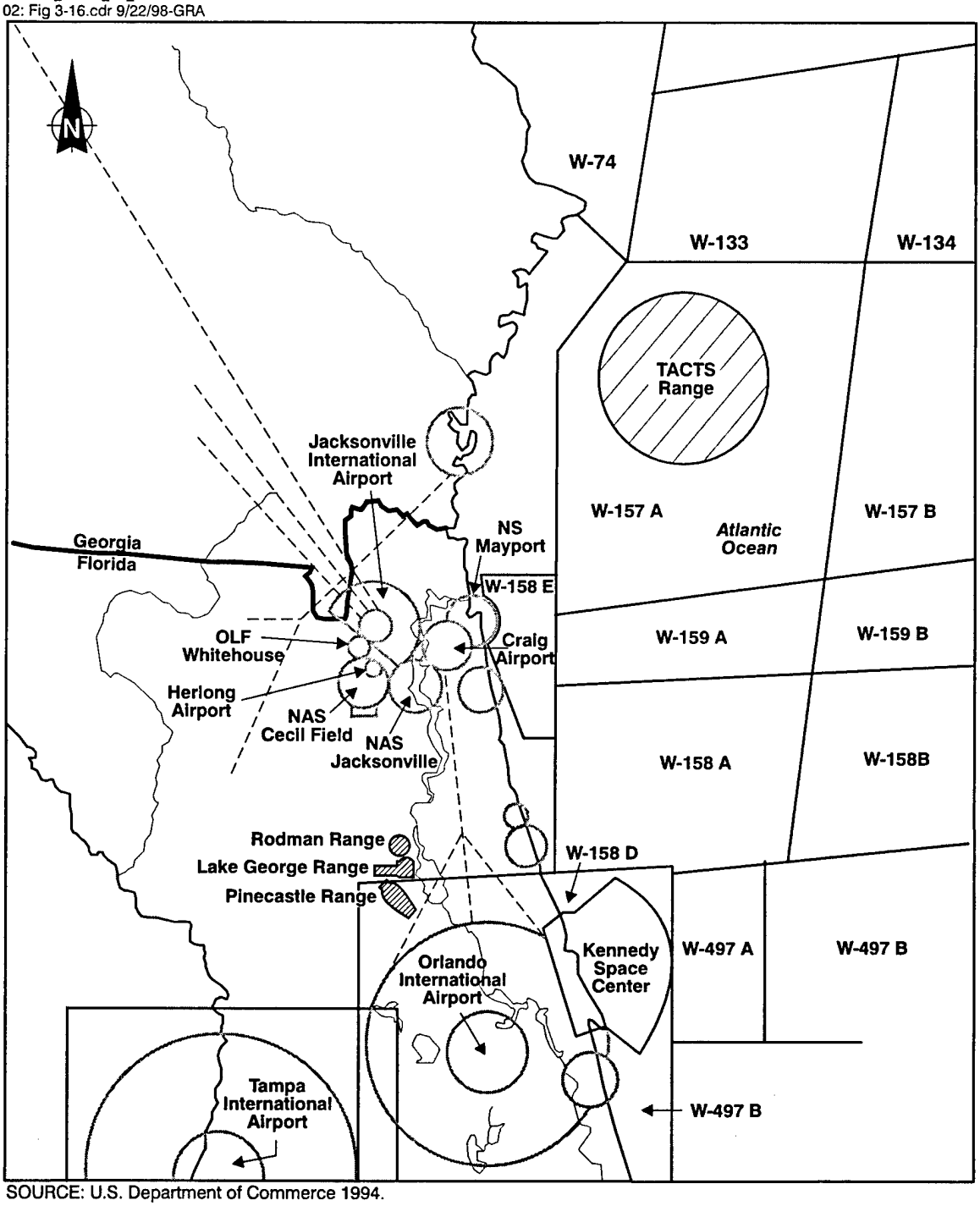
Current operations at NAS Cecil Field consist of sorties for training maneuvers and missions. Several types of aircraft are used during these operations, including one C-12, four T-34s, 181 F/A-18 Hornets, and 52 S-3 Vikings. The F/A-18s and S-3s comprise two squadrons, which are deployed in an active force at any given time. The aircraft participated in approximately 175,168 operations (LTOs) at NAS Cecil Field in 1993 (see Table 3-5).

The facility has numerous structures designed for aviation support activities. There are eight hangars, consisting of 26 modules; the average module contains 20,000 ft^2 (1,858 m^2) of hangar bay. The maintenance area averages 10,000 ft^2 (929 m^2) (NAS Cecil Field 1994).

In addition to air facilities at the Main Station, several civilian and military airfields are located in the vicinity of NAS Cecil Field. Civilian airfields include Craig Airport, Herlong Airport, and Jacksonville International Airport (JIA). Military installations in the Jacksonville area include Mayport Naval Station and NAS Jacksonville, as well as the Florida Air National Guard based out of JIA and the Florida Army National Guard based at Craig Airport (see Figure 3-16). A brief description of each of these facilities follows:

- Craig Airport, located on Jacksonville's south side, has two active runways utilized by a number of corporate aircraft, private air taxis, and charter companies, as well as the sheriff's helicopter unit (Jacksonville Planning and Development Department 1985). In addition, the Florida Army National Guard operates out of this facility, supporting training for Apache helicopter, utility helicopter, and air ambulance units.

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SOURCE: U.S. Department of Commerce 1994.

KEY:

- Primary Commercial Routes
- Designated Airspace
- Special Use Airspace (restricted areas, MOAs, bomb ranges)
- W-497 B — Warning Areas

Figure 3-16 AIRSPACE SYSTEM, NORTHERN FLORIDA/SOUTHERN GEORGIA

- Herlong Airport, located on the city's west side, primarily serves recreational aircraft (ultralights, gliders, hobby aircraft), many of which are based at the airport (Jacksonville Planning and Development Department 1985).

- JIA, located in the northern part of the city just south of the Nassau county line, is the major civilian passenger and cargo airport in the region. Activities include domestic and international air carrier operations, military activities, air taxi operations, and general aviation flights (JAXPORT 1994a). In addition, the Florida Army National Guard operates out of JIA, conducting training for the 125th F-15 Fighter Group.

- Mayport Naval Station, located at the mouth of the St. Johns River, supports Helicopter Wing One and is responsible for five helicopter squadrons in addition to various maritime military activities (JAXPORT 1994b).

- NAS Jacksonville, located on the west bank of the St. John's River, has two runways on which long-range maritime surveillance aircraft, aircraft repair missions, and anti-submarine helicopters operate (JAXPORT 1994b).

Determination of regulated airspace, incorporating vertical, horizontal, and temporal elements, is necessary for safe and efficient operation of regional air facilities. The region has a system of airspaces for military and civilian use, including tactical and bombing ranges, warning areas along the Atlantic coast, and civilian air routes between commercial air facilities. Figure 3-16 shows the airspace system in the Jacksonville vicinity.

3.9 Infrastructure and Utilities

3.9.1 Potable Water

NAS Cecil Field obtains water through a series of 11 wells served by the Floridan aquifer system and other surficial aquifers located beneath the station. The wells range in depth from 400 to 800 ft (122 to 244 m) BGS and have a combined capacity of 4.8 mgd (18 million liters per day). Water obtained from the wells is used for potable water supplies, industrial purposes, and heating (ABB-ES 1994). Potable water pumped from the wells is stored in underground water tanks and elevated water towers.

The Main Station contains two underground water tanks with a combined capacity of 500,000 gallons (1,892,500 liters) and three elevated water tanks with a combined capacity of 600,000 gallons (2,271,000 liters). Two elevated water towers have a capacity of 250,000

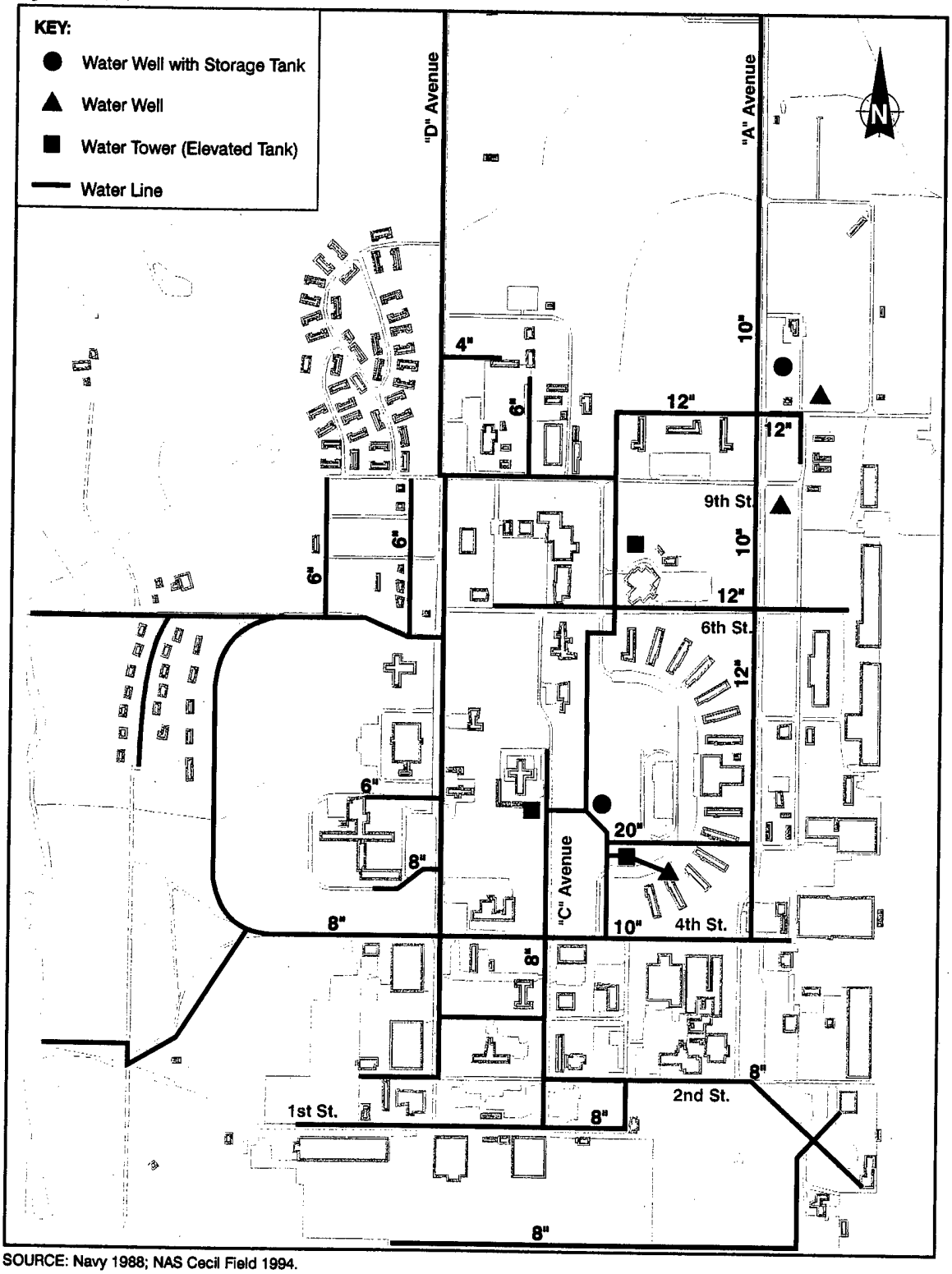
gallons (946,250 liters) each and one has a 100,000-gallon (378,500-liter) capacity (ABB-ES 1994; NAS Cecil Field 1994). The elevated water tanks are located along "B" Circle near the BEQ, "C" Avenue in the recreation area south of Building 203, and "C" Avenue in the personnel support area north of Building 220 (see Figure 3-17). The Yellow Water Area has an underground water tank with a 200,000-gallon (757,000-liter) capacity and a 75,000-gallon (283,875-liter) elevated water tank (Navy 1988).

The supply of potable water at the Main Station is maintained by a multiunit system consisting of five production wells and treatment facilities (ABB-ES 1994). Water at these five plants is treated by means of aeration and chlorination. The water distribution system at NAS Cecil Field consists of a series of 20-, 12-, 10-, 6-, and 4-in (51-, 30.4-, 25.4-, 15.2-, and 10.2-cm) lines that were constructed in the 1940s using standard materials for such a system (probably cast iron). The distribution system within buildings is composed primarily of copper pipe with lead-welded joints, while the distribution systems in some of the housing units are constructed of either polyvinyl chloride (PVC) or galvanized steel (ABB-ES 1994). Water consumed in the Yellow Water Area is supplied by two on-site groundwater wells and one well in the Yellow Water Family Housing Area (Navy 1988).

3.9.2 Sanitary Sewer

Wastewater is collected and transported at NAS Cecil Field via a system of force mains, gravity flow lines, and lift/pump stations. At the Main Station, force mains range in size from 4 to 10 in (10.1 to 25.4 cm) and gravity lines range in size from 6 to 12 in (15.2 to 30.5 cm; see Figure 3-18). The force mains and gravity lines are constructed of steel, cement, and some PVC piping (Willi 1994). Wastewater is transported from the Yellow Water Area to the Main Station by a force main that enters along "D" Avenue. Wastewater generated at the Main Station and in the Yellow Water Area is transported to the station's wastewater treatment plant located along 4th Street, approximately 800 ft (244 m) east of Lake Fretwell. The wastewater treatment plant provides sewage treatment for the majority of NAS Cecil Field and all of the Yellow Water Area. Wastewater from Building Nos. 278, 288, 290, 290B, 352, 500, 510, 540, 573, 595, 810, 854, and 855 is discharged to septic tanks (ABB-ES 1994). Septic tanks are also located at the softball fields along "D" Avenue adjacent to the display aircraft (Heritage Row). The NAS Cecil Field domestic wastewater treatment plant operates under a temporary permit issued by FDEP in accordance with the provisions of Fla. Stat. Ch. 403 and FAC Rules. Maintenance and operation of the plant is the responsibility of Navy Public Works Center Jacksonville (Florida Department of Environmental Regulation 1991).

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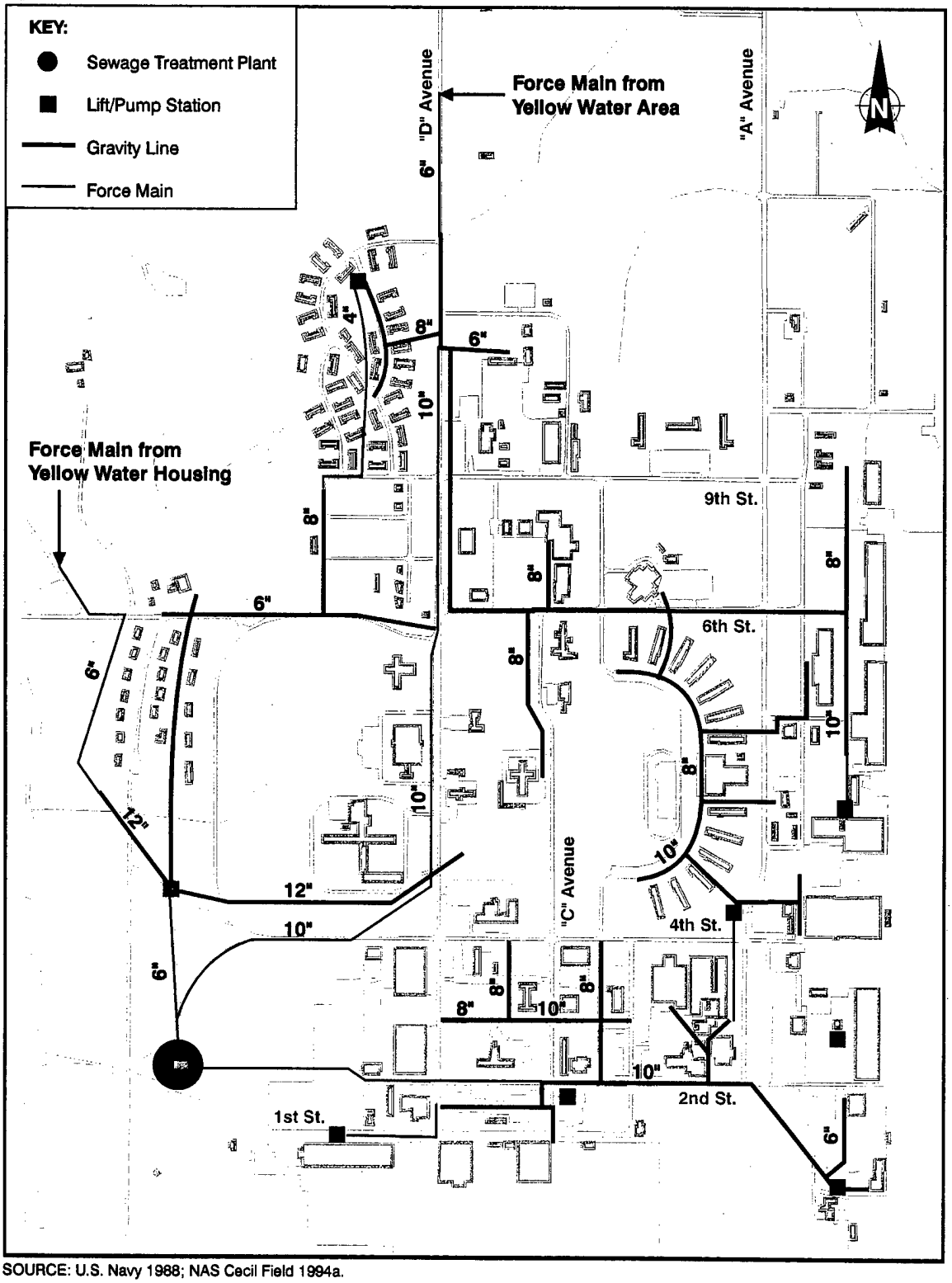


SOURCE: Navy 1988; NAS Cecil Field 1994.

SCALE
0 1,200 2,400 Feet

Figure 3-17 WATER FACILITIES - MAIN STATION DEVELOPED AREA

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Fig 3-18.cdr 9/22/98-GRA



SOURCE: U.S. Navy 1988; NAS Cecil Field 1994a.

SCALE
0 1,200 2,400 Feet

Figure 3-18 SANITARY SEWER FACILITIES - MAIN STATION DEVELOPED AREA

In the mid-1980s, the capacity of the treatment plant was expanded from 820,000 gpd to 1,200,000 gpd (3,103,700 to 4,542,000 liters per day; ABB-ES 1994). Current utilization of the plant's capacity is approximately 900,000 gpd (3,406,500 liters per day), or 75% (NAS Cecil Field 1994). The facility is a 1,200,000-gpd (4,542,000-liter-per-day), activated-sludge, domestic wastewater facility with pretreatment, primary- and secondary-, and chlorination-treatment capabilities, aerobic digesters, and sludge-drying beds. The plant discharges into Rowell Creek south of the Lake Fretwell Dam, which flows into Sal Taylor Creek, Yellow Water Creek, and finally Black Creek (Florida Department of Environmental Regulation 1991). The treatment plant provides for 90% removal of 5-day biochemical oxygen and suspended solids (ABB-ES 1994). The wastewater treatment system is reportedly in good condition, but ground-water infiltration poses a problem during heavy rainfall events (Willi 1994).

3.9.3 Stormwater Drainage

The stormwater system at the Main Station consists of a system of catch basins and drainage pipes and open swales and culverts. The catch basin and drainage pipe system is concentrated primarily in the air operation areas, and to a lesser extent in the BEQ along "B" Circle. The area contains approximately 116 catch basins and drainage pipes ranging from 18 to 84 in (46 to 213 cm). In the flight line area, stormwater runoff is collected in the catch basins, conveyed under the aircraft runways by corrugated metal pipe into open swales, and discharged into Sal Taylor Creek. Stormwater runoff in the remainder of the Main Station is directed and controlled by a system of open swales and culverts that discharge into Rowell Creek in the western portion of the station (Navy 1988).

Stormwater runoff in the Yellow Water Area has three distinctive drainage patterns and outlets. The northern portion of the site drains along the Brady Branch River and discharges into the St. Marys River. The southern portion of the site drains southward under Normandy Boulevard into Rowell Creek, eventually discharging into Lake Fretwell, Sal Taylor Creek, and Yellow Water Creek. The western third of the Yellow Water Area drains into a series of open swales that eventually discharge into Yellow Water Creek (Navy 1988).

3.9.4 Natural Gas

Natural gas is purchased from the People's Gas Company and distributed to the Main Station by a 4-in (10.1-cm) line, which is connected to the natural gas substation located south of 103rd Street between the "A" Avenue gate and the main gate (Navy 1988). The 4-in line runs along the abandoned railroad bed to the central steam plant (Building 11) where the gas is used

in steam production (see Figure 3-19). Two-in- and 1¼-in- (5- and 2.6-cm-) diameter laterals from the main line supply natural gas to the family housing areas and Building Nos. 814, 825, 313, 824, 824A, 1823, 1820, 880, 1846, 1821, 338, 14, 11, 68B, 190, 199, 498, 905, 91, and 220. In addition, laterals from the main gas line serve auxiliary steam-producing boilers located throughout the Main Station (NAS Cecil Field 1994). Natural gas consumption at the Main Station in 1993 ranged from 97,000 to 117,000 therms per month (People's Gas Company 1994).

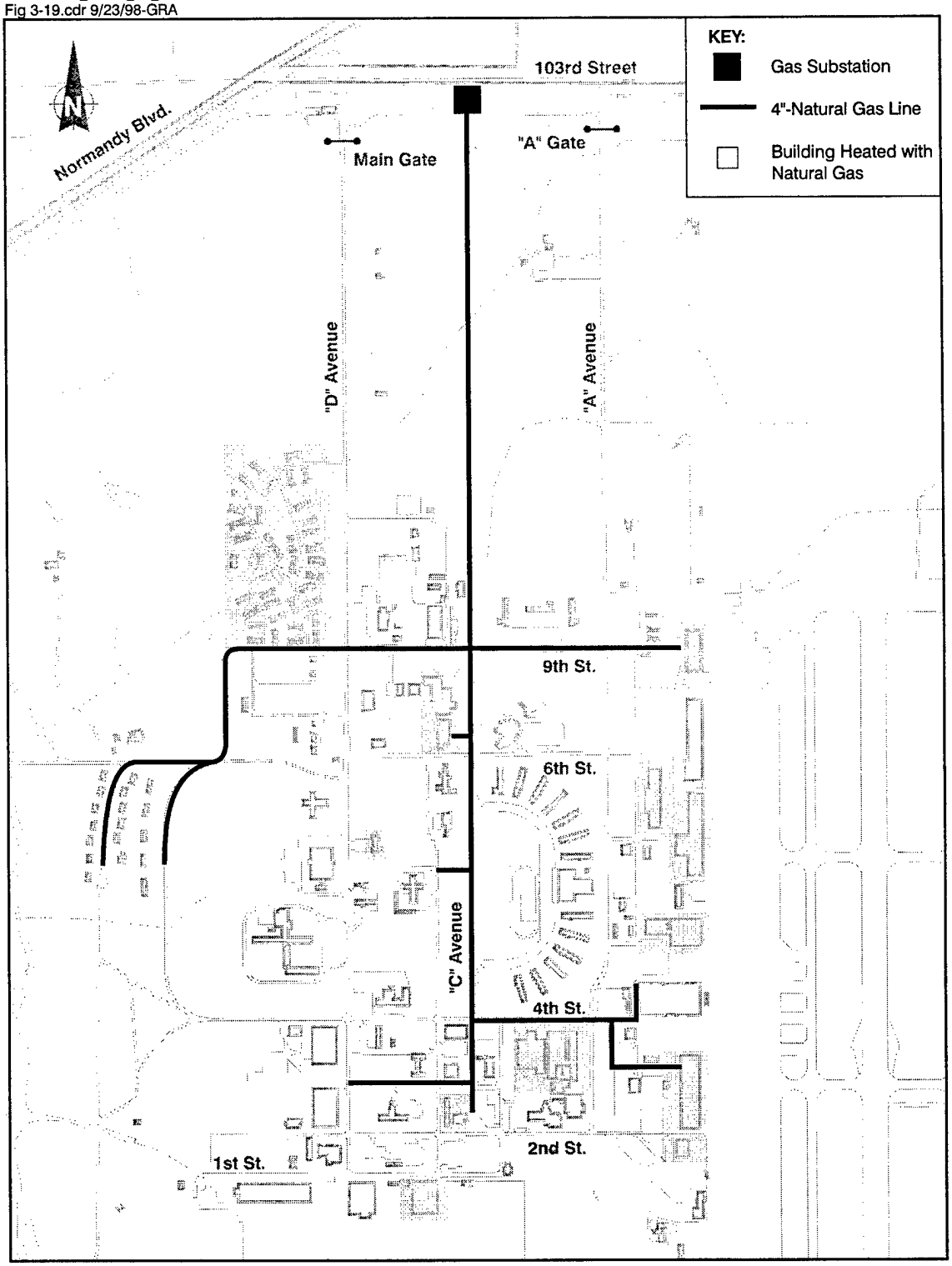
3.9.5 Electricity

Electricity is supplied to NAS Cecil Field and the Yellow Water Area by the Jacksonville Electric Authority (JEA). Two JEA 26-kilovolt (kV) system feeder lines tie into NAS Cecil Field at an electrical substation located south of 103rd Street between the "A" Gate and the Main Gate (see Figure 3-20). From the JEA tie-in point, electricity is distributed throughout the base by a series of aboveground and underground power lines. An aboveground 26-kV system line supported by concrete power poles (most power poles on base are constructed of concrete) runs along "A" Avenue and is connected to the south electrical substation located along 2nd Street near Building 294. Another 26-kV system line runs along the abandoned railroad bed and connects the north electrical substation near Building No. 356 to the south electrical substation. The old 26-kV system lines at the Main Station have been replaced with new 26-kV system lines in recent years. An aboveground 4.16-kV system provides electricity to the family housing areas. Diesel- and propane-powered electric generators located in 35 buildings provide emergency electricity for essential functions in the event of a power outage.

3.9.6 Steam

Steam is used primarily as a heating system in industrial buildings, hangars, and some other buildings and barracks. Most of the steam used at the station is generated at the central steam plant located in Building 11 near the intersection of 2nd Street and "C" Avenue. The steam is produced from a three-boiler system powered by natural gas and is distributed through aboveground steam lines (see Figure 3-21). Two boilers provide 30,000 pounds per hour (pph; 13,608 kilograms per hour) of steam; the third boiler produces 35,000 pph (15,890 kilograms per hour). Several years ago, the central steam plant was supplemented through the installation of a series of auxiliary boiler plants also powered by natural gas (Navy 1988).

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Fig 3-19.cdr 9/23/98-GRA

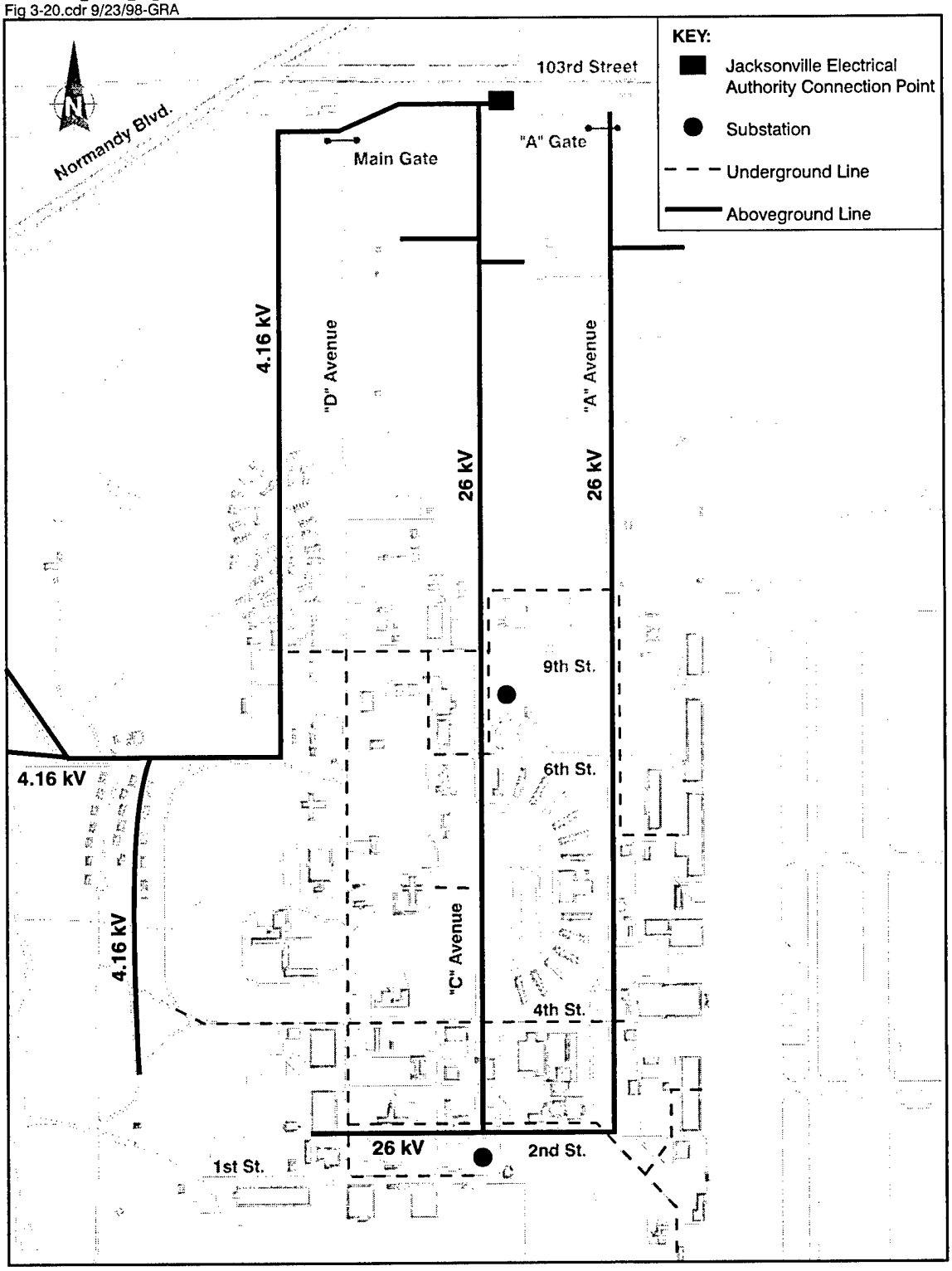


SOURCE: Navy 1988; NAS Cecil Field 1994.

SCALE
0 2,400 4,800 Feet

Figure 3-19 NATURAL GAS FACILITIES - MAIN STATION

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Fig 3-20.cdr 9/23/98-GRA



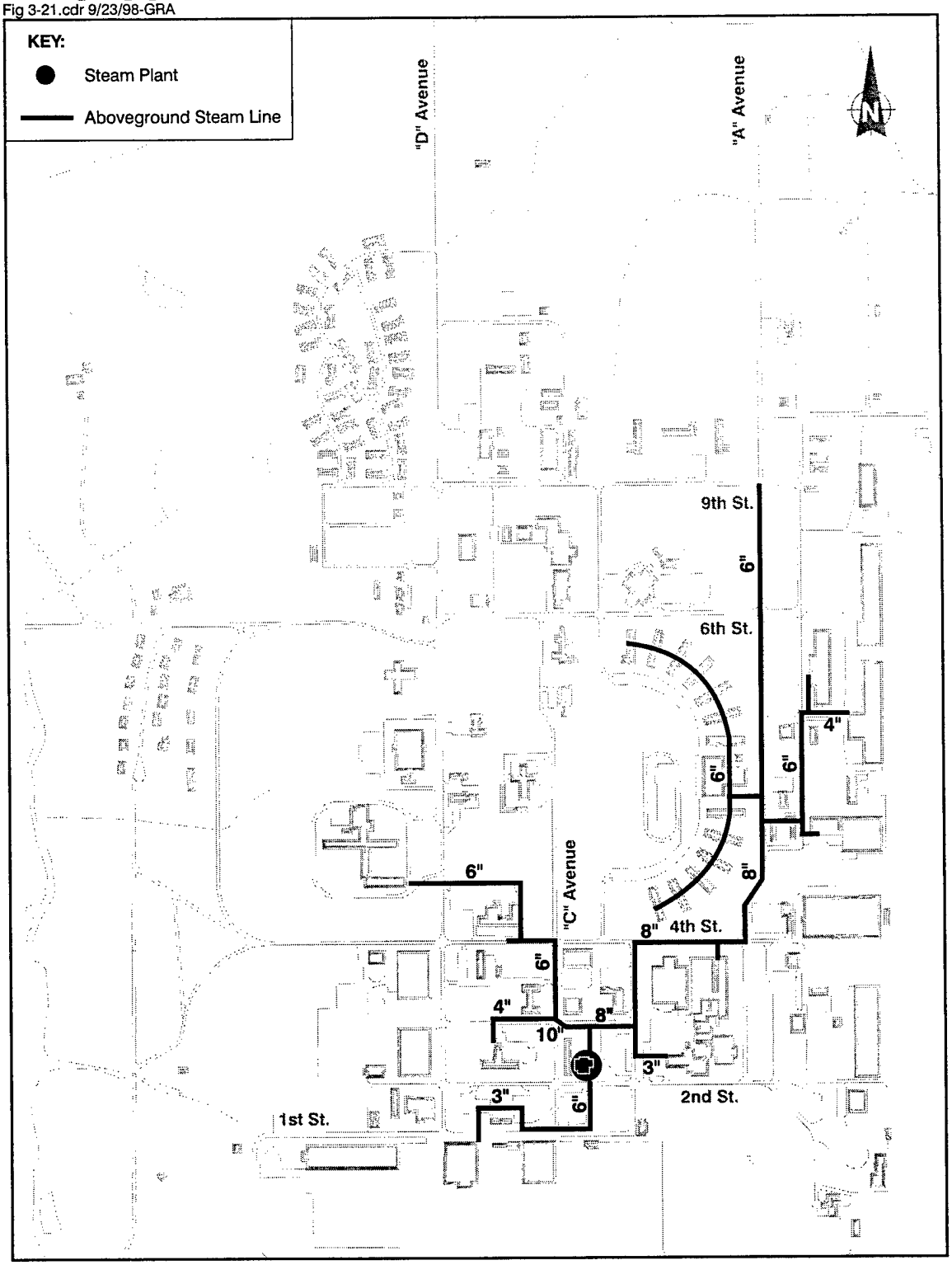
SOURCE: Navy 1988; NAS Cecil Field 1994.

SCALE

0 2,400 4,800 Feet

Figure 3-20 ELECTRICAL DISTRIBUTION - MAIN STATION

02: 000822_Vm06_00_90-B0009
Fig 3-21.cdr 9/23/98-GRA



SOURCE: Navy 1988; NAS Cecil Field 1994.

SCALE
0 1,200 2,400 Feet

Figure 3-21 STEAM FACILITIES

Auxiliary boilers were implemented in the 1980s after NAS Cecil Field public works personnel determined that, in some cases, it would be less expensive to run a new gas lateral to an auxiliary boiler than to reroute existing steam lines and place additional demand on the central steam plant. Many auxiliary boilers served by natural gas also have a back-up fuel oil system. Auxiliary boilers are generally used when a proposed activity requiring steam is not in the vicinity of steam line (Navy 1988). On-station boilers receive annual testing and certification (Willi 1994).

3.9.7 Compressed Air

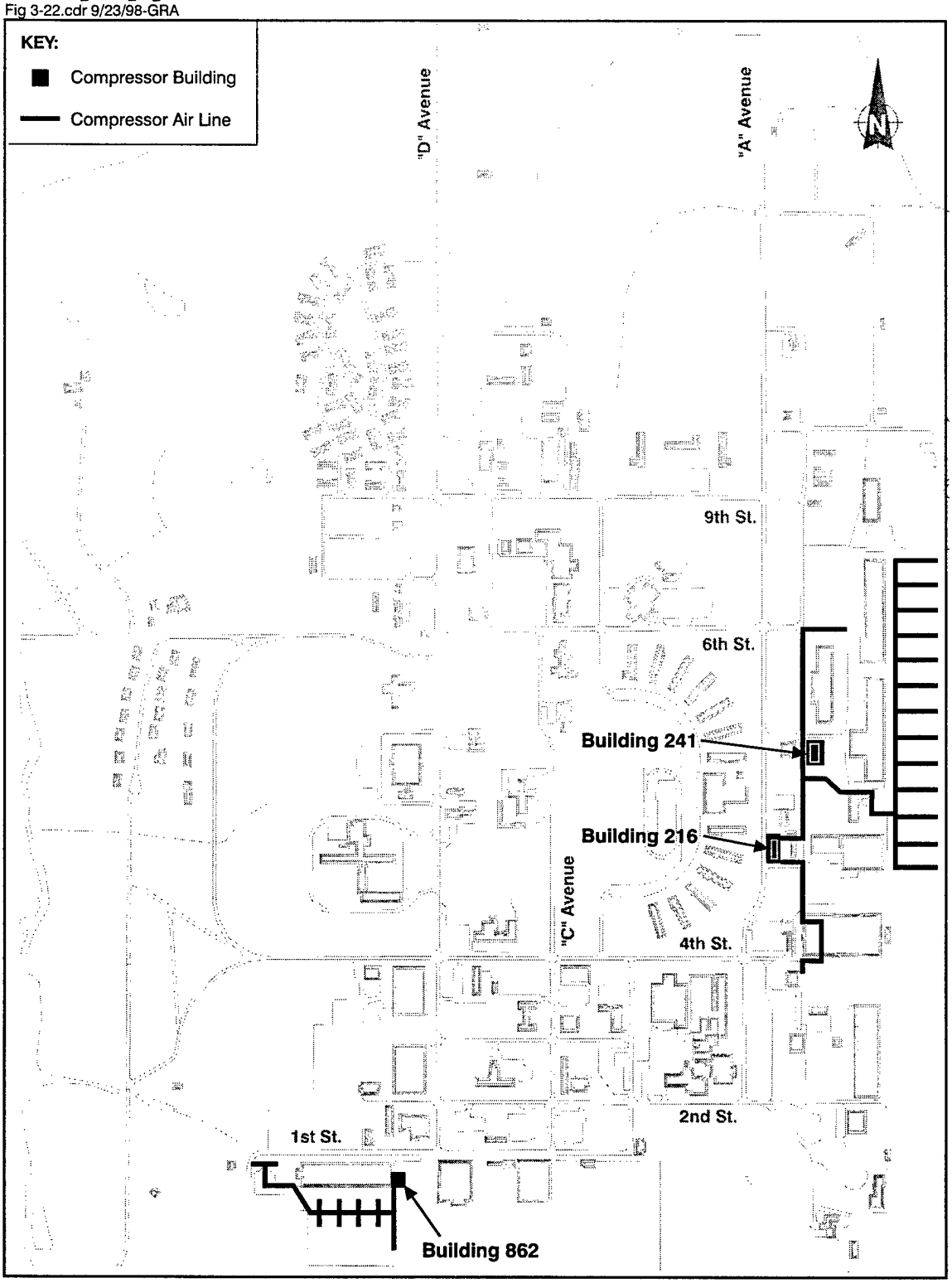
Production, distribution, and use of compressed air at NAS Cecil Field are confined to the air operation area and are used primarily in aircraft shops; compressed air was used previously in engine-starting modules. Compressed air is produced in Buildings 216, 241, and 862 and distributed on base by a series of 1.25-, 2-, 3-, 4-, 6-, and 8-in (3.2-, 5-, 7.6-, 10.1-, and 20.3-cm) pipes (see Figure 3-22). Building 216 houses two 200-horsepower (149.14-kilowatt), two-stage, lubricated, reciprocating compressors operating at an output of 125 pounds per square in (psi; 56.7 kilograms per 6.45 square cm). The compressors generate 1,040 cubic ft per minute (cfm; 29.4 m^3 per minute) and 1,023 cfm (28.9 m^3 per minute) of compressed air, and are connected to one 150-cubic-ft (cf; 4.3-m^3) receiver and one 250-cf (7-m^3) receiver.

Building 241 houses two 200-horsepower (149.14-kilowatt) compressors that generate the required compressed air for the F/A-18 and S-3 aircraft support shops along the north-south flight line. Each compressor in Building 241 is a 590-cfm (16.7-cubic-m-per-minute), two-stage, lubricated, reciprocating compressor operating at 300 psi (136 kilograms per 6.45 square cm) with a 500-psi (227-kilogram-per-6.45-square-cm) rating. Three 115-cf (3.3-cubic-m) receivers and seven 105-cf (2.9-cubic-m) receivers are connected to the system.

Building 862 houses two 125-horsepower (93.2-kilowatt) compressors operating at 300 psi (136 kilograms per 6.45 square cm). Each compressor is a 286-cfm (8.1-cubic-m), two-stage, lubricated reciprocating unit rated at 500 psi (227 kilograms per 6.45 square cm). The compressors are connected to twelve 114-cf (3.2-cubic-m) receivers. The two compressors produce the air required by the S-3 hangar.

It should be noted that aircraft previously stationed at NAS Cecil Field required air-start systems. Although no longer in use, the air-start systems are still in place. However, several lines have been abandoned because of leaks. Some of the compressed air previously used by the air-start system has been diverted to the aircraft support shops (Willi 1994).

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Fig 3-22.cdr 9/23/98-GRA



SOURCE: Navy 1988; NAS Cecil Field 1994.

SCALE
0 1,200 2,400 Feet

Figure 3-22 COMPRESSED AIR FACILITIES

3.9.8 Aviation Fuel

NAS Jacksonville, which is approximately 15 mi (24.1 km) east of the station, provides NAS Cecil Field with jet fuel through a pipeline. The pipeline enters NAS Cecil Field at the "A" Gate and runs south along "A" Avenue to the station's North Fuel Farm (NFF). Facilities at the NFF include six 595,000-gallon (2,252,075-liter), steel-welded, earth-covered tanks, an administration building, four support structures, and a dispensing-truck filling area. The jet fuel is transported south along "A" Avenue by a 10-in (25.4-cm) pipeline to two 210,000-gallon (794,850-liter) day tanks located in the air operation area (see Figure 3-23) (NAS Cecil Field 1994; Navy 1988). From the day tanks, fuel is circulated in a continuous loop to the two high-speed refueling facilities along the aircraft parking aprons (ABB-ES 1994). The high-speed refueling offices are located in Buildings 293 and 341. Current plans call for the closure of the pipeline and NFF; these facilities would not be transferred to other entities for reuse.

3.9.9 Solid Waste

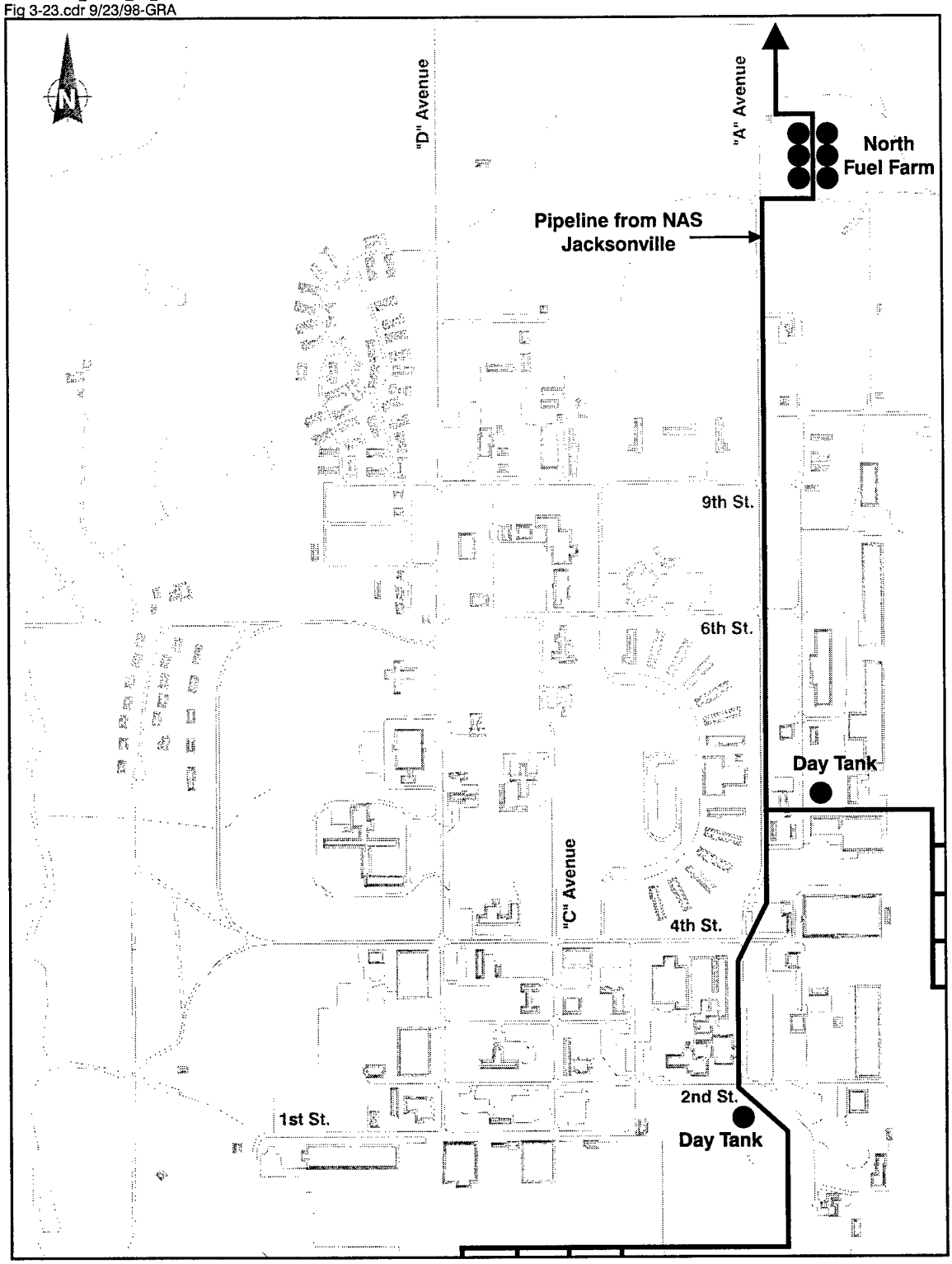
Approximately 380,000 tons of waste are generated at NAS Cecil Field annually. Solid waste generated at the station is delivered by a private contractor to the Trail Ridge Landfill located in Baldwin, off SR 301. This landfill has a projected capacity of approximately 17 years (Perkins 1996).

3.9.10 Regional Infrastructure Issues

Following transfer of NAS Cecil Field property from the federal government to another entity, future infrastructure issues and developments will be subject to the policies set forth in the potable water, sanitary sewer, drainage, and capital improvement elements of the local comprehensive plan. The Jacksonville/Duval County Comprehensive Plan currently identifies the eastern boundary of NAS Cecil Field (i.e., the Main Station and the Yellow Water Area) as the western extension of its urban service area. This indicates that Duval County intends to extend urban services (e.g., water and sewer lines) to the eastern property boundary of NAS Cecil Field but does not intend to extend services onto the property within the 2010 planning period. It should be noted that the urban service area is subject to modification through a comprehensive plan amendment.

The JEA administers existing infrastructure facilities in the vicinity of NAS Cecil Field and has developed preliminary plans that show water and sewer line extensions to NAS Cecil Field. The existing JEA infrastructure includes a 16-in (41-cm) sanitary sewer force main that runs along 103rd Street and is connected to a 10-in (25.4-cm) force main serving the Bent Creek

02: 000822_Vm06_00_90-B0009
Fig 3-23.cdr 9/23/98-GRA



SOURCE: Navy 1988; NAS Cecil Field 1994.

SCALE
0 1,200 2,400 Feet

Figure 3-23 AVIATION FUEL FACILITIES

subdivision, which is approximately 0.5 mi (0.8 km) east of the Main Station (Williams 1994). These sanitary sewer lines are part of JEA's Sewer District 3 (southwest district), which covers approximately 71 square mi (184 square km) (Jacksonville Planning and Development Department 1990). The wastewater treatment plant that serves District 3 was expanded to 10.0 mgd (37.8 million liters per day) in 1988 and currently handles 6.5 mgd (24.6 million liters per day) (Land 1994).

A 16-in (40.6-cm) potable water main also exists in the vicinity of the station. The main runs parallel to 103rd Street and is connected to a 12-in (30.5-cm) water main that serves the Bent Creek subdivision (Land 1994). These water mains are part of JEA's North Grid water district and consist of approximately 206 square mi (533.5 square km). The northern district is served by the Floridan aquifer system (Jacksonville Planning and Development Department 1990).

3.10 Cultural Resources

In accordance with Navy's documentation requirements under the National Historic Preservation Act (NHPA), 16 U.S.C. §§ 470h-2(a)(2) and (b) *et seq.* (1997), a cultural resource assessment for NAS Cecil Field was conducted and submitted to the FDHR in 1995 (E & E 1995). This assessment consisted of two components:

- An archaeological sensitivity assessment, which included documentation and background research, field reconnaissance, and development of a predictive model for identifying potentially archaeologically sensitive areas at the station; and
- A comprehensive building survey, which included photo-documentation, development of the historic context for station development, and assessment of the station buildings' eligibility for inclusion on the National Register of Historic Places (NRHP).

The FDHR concurred with the findings of this assessment in August 1995 (see Appendix C). The following sections provide a brief summary of these findings.

3.10.1 Archaeological Resources

Examination of site files at the FDHR has demonstrated that no prehistoric archaeological sites are known to exist at NAS Cecil Field. One historic site, a cemetery dating to 1881, is located in the northwest portion of the Main Station. This property is not part of the station; however, Navy is responsible for providing access to the area.

The facility lies within the coastal lowlands of Florida and incorporates low-lying swampy terrain and pine flatwoods. It corresponds to a prehistorically marginal environment between St. Johns Valley to the east, which was extensively used by Native American groups, and upland areas to the west. Prehistoric land use in the area of the station was likely to be limited to occasional hunting forays (E & E 1995).

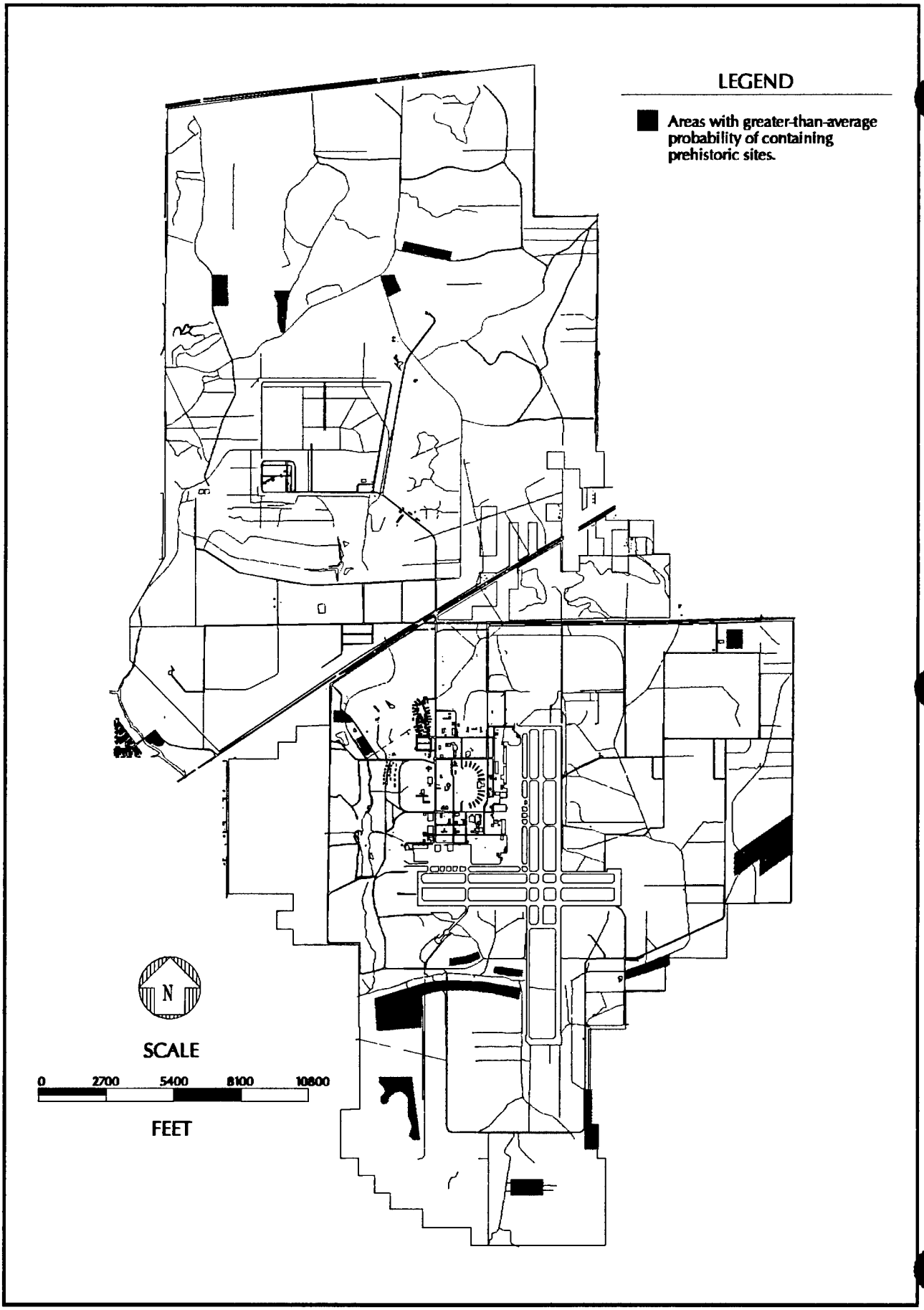
Substantial portions of the surface of the facility (approximately 3,900 ac [1,578 ha]) underwent extensive disturbance during the course of Navy's land-moving operations. These operations included grading, logging, sediment borrowing, fill deposition, stream rechanneling, and excavation of trenches for subsurface utilities. These disturbed portions of NAS Cecil Field are not likely to contain intact archaeological resources. The archaeological sensitivity assessment of the station indicated that 15 areas with higher than average potential to contain archaeological sites are located within that portion of the NAS Cecil Field that is slated for disposal and reuse. These are Areas 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 13, 14, 18, and 19; their total surface is 466 ac. One area of high archaeological potential (Area 11; 9 ac) is located in the Yellow Water Housing Area. Three archaeologically sensitive areas (Areas 15, 16, 17; 171 ac) are found in the OLF Whitehouse portion of NAS Cecil Field (E & E 1995). Figure 3-24 depicts potential archaeologically sensitive areas at the Main Station and in the Yellow Water Area.

3.10.2 Architectural Resources

NAS Cecil Field contains 457 structures including those pertaining to administration, aviation support, operations, ordnance, facility support, and recreation. Most buildings were built in the 1940s and 1950s. As part of the cultural resources assessment, these structures were evaluated as to eligibility for listing on the NRHP according to criteria promulgated in 36 C.F.R. 800 (1997). It has been determined that existing structures do not meet NRHP eligibility criteria (E & E 1995).

3.11 Hazardous Materials Management and Environmental Contamination

The following section summarizes the analysis and results of the *BRAC Environmental Baseline Survey (EBS) Report* (ABB-ES 1994). This report was prepared in compliance with the DoD *BRAC Cleanup Plan Guidebook* (DoD 1993) (which supersedes OPNAVINST 5090.1B Chapter 15). The *EBS Report* is a compilation of all existing information related to storage, release, treatment, and disposal of hazardous substances or petroleum products at NAS Cecil



Source: Ecology and Environment, Inc. 1995

Figure 3-24 ARCHAEOLOGICALLY SENSITIVE AREAS
MAIN STATION / YELLOW WATER AREA

Field under all environmental regulatory programs (e.g., CERCLA; RCRA; TSCA), as well as information on the status of compliance, removal, closure, and remediation activities.

The *EBS Report* was completed in 1994 in compliance with the Community Environmental Response Facilitation Act (CERFA), 42 U.S.C. § 9620(h)(4). CERFA was enacted in 1992 to facilitate the transfer of real property at closed military installations. According to CERFA requirements, uncontaminated properties at closed military installations must be identified to facilitate early transfer and reuse of those properties. To identify uncontaminated properties, the following areas of potential environmental contamination were investigated: hazardous materials and waste management areas, Installation Restoration Program (IRP) sites, petroleum storage tanks, drinking water (for lead), oil/water separators, asbestos, lead-based paint, PCBs, pesticides, medical and biohazardous waste, ordnance, radioactive materials and mixed waste, and radon. Air emissions and wastewater treatment plant operations were also investigated. The investigation covered 617 buildings, 21 open areas, 19 IRP sites, 16 areas of interest, and two crash sites.

Each building and parcel was classified according to a color-code scheme to indicate its suitability for transfer. The color classification scheme is shown in Table 3-23. Buildings or parcels under the first four color classifications (white, blue, light green, and dark green) are suitable for transfer. Buildings or parcels that are not suitable for transfer are addressed under the BRAC Cleanup Plan, which outlines the strategy and schedule for selecting and implementing response actions. These properties were color-coded yellow, red, or gray (ABB-ES 1995). Categorization of the buildings and parcels covered in the EBS Report are shown on Figure 3-25. Color codes are updated annually based on the status of investigations and remedial actions, if applicable.

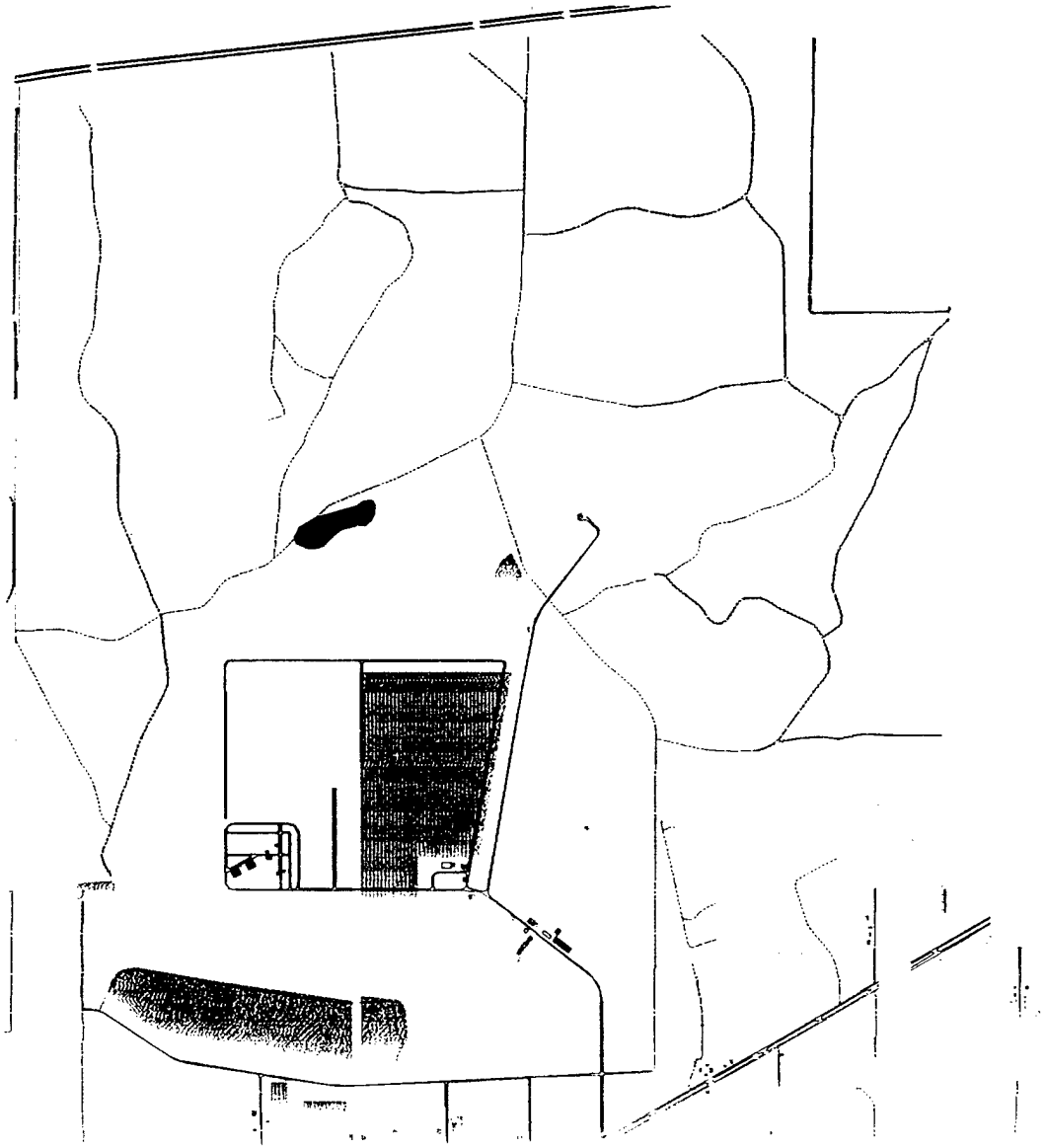
Based on the EBS Report, approximately 93% of the land area at NAS Cecil Field is classified as suitable for transfer (see Table 3-24).

Table 3-23

COLOR CLASSIFICATION SYSTEM FOR ENVIRONMENTAL CONDITIONS AT NAS CECIL FIELD

1	White: Areas where no storage, release, or disposal of hazardous substances or petroleum products has occurred (including migration of these substances from adjacent areas).
2	Blue: Areas where only storage of hazardous substances or petroleum products has occurred (but no release, disposal, or migration from adjacent areas).
3	Light Green: Areas where storage, release, disposal, and/or migration of hazardous substances or petroleum products has occurred, but at concentrations that do not require removal or remedial action.
4	Dark Green: Areas where storage, release, disposal, and/or migration of hazardous substances or petroleum products has occurred, and all remedial actions necessary to protect human health and the environment have been taken.
5	Yellow: Areas where storage, release, disposal, and/or migration of hazardous substances or petroleum products has occurred, and removal and/or remedial actions are underway, but all required remedial actions have not yet been taken.
6	Red: Areas where storage, release, disposal, and/or migration of hazardous substances or petroleum products has occurred, but required response actions have not been implemented.
7	Grey: Areas that have not been evaluated or require additional evaluation.

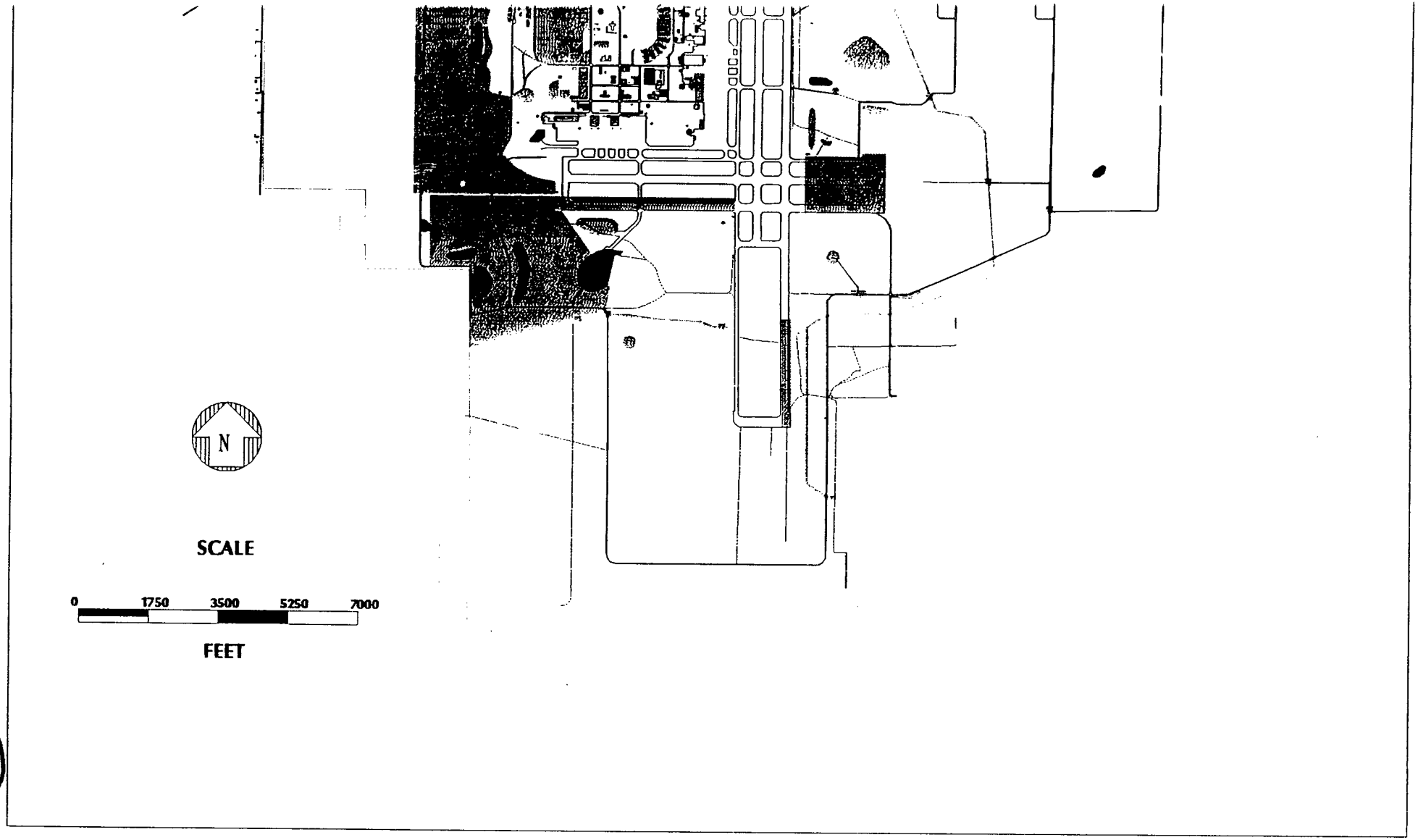
Source: ABB-ES 1994.



LEGEND

- Classification - 1
- Classification - 2
- Classification - 3
- Classification - 5
- Classification - 6
- Classification - 7

N



Source: ABB-ES 1995

Figure 3-25 HAZARDOUS WASTE AREAS - MAIN STATION / YELLOW WATER AREA

Table 3-24

SUITABILITY OF PROPERTY AT NAS CECIL FIELD FOR TRANSFER

Color Classification[a]	Suitability for Transfer	Acreage (hectares) at NAS Cecil Field[b]
White	Suitable	18,722 (7,580)
Blue	Suitable	10 (4)
Light Green	Suitable	26 (11)
Dark Green	Suitable	0
Yellow	Not suitable	22 (9)
Red	Not suitable	96 (39)
Grey	Not suitable	1,300 (526)

[a] For definitions of color codes, see Figure 3-24 and Table 3-23.

[b] Acreages include OLF Whitehouse, which is not proposed for disposal.

Source: ABB-ES 1995.

3.11.1 Hazardous Materials and Waste Management

Operations at NAS Cecil Field, including engine repair, aircraft maintenance, and engine testing generate hazardous wastes. In FY 1994, a total of 105,640 pounds (47,855 kilograms) of hazardous waste were generated (ABB-ES 1995). Typical wastes included paints and paint thinners, hydraulic fluids, waste oils, solvents, metals, and batteries (ABB-ES 1995).

NAS Cecil Field is a permitted large-quantity generator with interim status under RCRA, 42 U.S.C. § 6925(e), for hazardous waste storage through 1998. Thirty-one temporary collection points (i.e., operational sites where hazardous waste is generated) and three satellite accumulation areas are located throughout the facility. Hazardous waste is collected from the satellite accumulation areas and taken to Building 610 in the Yellow Water Area for storage prior to off-site disposal.

All process units at NAS Cecil Field, including the 31 temporary collection points and three satellite accumulation areas, will be decontaminated and/or closed within 90 days of process shutdown, in compliance with regulations implementing RCRA, 40 C.F.R. Part 265 subpart G.

The hazardous waste storage facility, Building No. 610, will be closed in compliance with the RCRA, 40 C.F.R. 265 Subpart G, consistent with the RCRA permit.

3.11.2 Environmental Contamination and Environmental Hazards

Installation Restoration Program Status

The Navy initiated the IRP pursuant to CERCLA to identify, assess, and remediate contaminated sites on DoD property. An Initial Assessment Study completed by Navy in 1985 identified 18 hazardous waste sites at NAS Cecil Field. Site 19 was added in 1988, and one of the original sites was transferred to the Tank Management Program (discussed in Section 3.11.3). NAS Cecil Field is listed on EPA's National Priorities List (NPL), and remediation of IRP sites is governed by a Federal Facilities Agreement (FFA) involving Navy, EPA, and FDEP (ABB-ES 1995). A description of the IRP sites is presented in Table 3-25 and site locations are shown on Figure 3-26.

Table 3-25

NAS CECIL FIELD SITE DESCRIPTION CHART

Site Number	Operable Unit	Site Name/Size	Period of Operation	Waste Type	Sources	Description of Activity	Previous Reports
1	OU 1	Old Landfill (9 acres)	1950s-1965	Solid waste, oils, fuels, paints, paint stripper, solvents, municipal solid waste	Municipal solid waste, industrial operations	Trench-and-fill landfill for commercial and residential wastes (solid and liquid).	1, 2, 5, 10, 12, 14, 15, 16, 19, 20, 35, 36, 37, 48, 49, 50, 59, 60, 72, 79, 81
	Current Investigative Status: Final Remedial Investigation (RI), Baseline Risk Assessment (BRA), and Feasibility Study (FS) reports submitted in December 1994. Data indicate a potential risk to benthic macroinvertebrates in drainage ditch at Site 2. Final Record of Decision (ROD) submitted in September 1995. The selected remedial alternative is site closure, a source-control alternative. The source-control alternative includes landfill gas, radiological, and unexploded ordnance surveys, surface debris removal, groundwater monitoring, post-closure care, and a 5-year review. Final design submitted in April 1996. Remedial action was initiated by Brown and Root Environmental in May 1997. Landfill gas survey and surface water, groundwater, and sediment sampling were completed in May/June 1997. The second-quarter groundwater sampling event was completed in September 1997. The third-quarter sampling event was completed in January 1998.						
2	OU 1	Recent Landfill (5 acres)	1965-1975	Solid waste, oils, fuels, paints, paint stripper, solvents	Industrial operations and shops	Trench-and-fill landfill for commercial and residential wastes (solid and liquid).	1, 2, 5, 10, 12, 14, 15, 16, 19, 20, 35, 36, 37, 48, 49, 50, 59, 60, 72, 79, 81
	Current Investigative Status: Final RI, BRA, and FS reports submitted in December 1994. Data indicate a potential risk to benthic macroinvertebrates in drainage ditch at Site 2. Final Record of Decision (ROD) submitted in September 1995. Remedial alternatives include site closure (source- control alternative) and biomonitoring in the wetlands area (risk-reduction alternative). Final design submitted in April 1996. Remedial action was initiated by Brown and Root Environmental in May 1997. Landfill gas survey and surface water, groundwater, and sediment sampling were completed in May/June 1997. The second-quarter groundwater sampling event was completed in September 1997. The third-quarter sampling event was completed in January 1998.						
3	OU 8	Oil/Sludge Disposal Pit (50-100 feet in diameter and 3 to 5 feet deep)	1950s-1975	Waste fuels, oils, paints, paint strippers, solvents	Fuel farm, AIMD, squadrons, public works shops	At least four shallow pits were used to dispose of liquid wastes and sludge. Extent of contamination is much greater than originally anticipated.	2, 5, 10, 12, 14, 15, 16, 19, 27, 62, 63, 65, 82
	Current Investigative Status: Remedial investigation complete. Draft RI and BRA submitted in April 1995; Draft FS submitted in May 1995. Final RI report submitted in February 1996. Agencies reviewing Navy responses to their comments on the BRA and FS reports. Agencies have recommended additional sample collection at Rowell Creek and resampling some of the monitoring wells for chemical and biological parameter analysis. Supplemental sampling was completed in June 1997. A total of 24 wells were sampled for VOCs and selected biological parameters to assess natural attenuation potential. The final BRA and FS reports were submitted in September 1997 and October 1997, respectively. The preliminary draft proposed plan was presented to the BCT in December 1997.						
4	--	Grease Pits (9 acres)	1950s-1983	Waste oils, mess greases	Installation dining facilities and facility oil/water separators	Multiple shallow pits excavated to dispose of liquid wastes (grease from dining facilities and waste oils from oil/water separators) and then covered with fill. Extent of contamination may be greater than anticipated (22 acres).	2, 5, 8, 10, 12, 14, 15, 16, 19, 27, 31, 42, 56
	Current Investigative Status: Field Investigation Workplan submitted in March 1995. Field screening activities (includes surface and subsurface soil sampling and monitoring well installation) were completed in June 1997. Groundwater sampling was completed in August 1997. A draft Technical Memorandum presenting investigation results and findings was submitted in November 1997. Review comments were discussed at the January 1998 BCT meeting.						

Table 3-25

NAS CECIL FIELD SITE DESCRIPTION CHART

Site Number	Operable Unit	Site Name/Size	Period of Operation	Waste Type	Sources	Description of Activity	Previous Reports
5	OU 2	Oil Disposal Area Northwest (100 feet in diameter)	1950s	Oil, fuel	Fuel farms	Shallow, unlined pit where liquid wastes were disposed of (petroleum products present).	2, 5, 10, 12, 14, 15, 16, 19, 27, 28, 32, 45, 66, 67, 70, 71, 80, 85
	Current Investigative Status: Final RI and RA submitted in May 1995; Final FS submitted in July 1995. Final ROD submitted in September 1995. Risk reduction remedial alternatives include excavation and treatment of sediment in a drainage ditch, on-site treatment of contaminated groundwater, and restriction of all use of groundwater from the surficial aquifer. Due to discontinuation of the interim action, the ROD may need to be amended. Awaiting guidance from the regulatory agencies and the partnering team. The pilot study workplan for evaluating feasibility of air sparging and *in situ* air stripping to treat groundwater was submitted on April 15, 1997. The air sparging pilot study was completed during the week of May 26, 1997. The final pilot study report was submitted in August 1997. The draft Site 5 sediment remedial design was submitted on June 3, 1997. Submitted the draft groundwater design on December 31, 1997. Interim Action: Interim ROD (IROD) signed in September 1994. Interim remedial action (IRA) initiated in March 1995 for source removal. IRA includes removal and disposal of free petroleum product and removal and treatment of contaminated soil using bioremediation. Per partnering team recommendations, the IRA (bioremediation) activities were discontinued in June 1996. The partnering team is investigating the need for amending the IROD.						
6	--	Lake Fretwell Rubble Disposal Area (3.5 acres)	1950s-1984	Inert rubble	Concrete/asphalt from demolition of runway, construction debris, lumber, scrap metal, cut foliage	Rubble disposed of along banks of a low-lying marsh area by public works; some of the rubble has been overlain with soil and sod; additional rubble is uncovered.	2, 5, 21, 56
	Current Investigative Status: Field Investigation Plan submitted in March 1995. Field screening activities (geophysical surveys, monitoring well installation, surface and subsurface soil sampling, surface water and sediment sampling) were completed in June 1997. Groundwater sampling was completed in August 1997. Initiated preparation of the draft Technical Memorandum in January 1998.						
7	OU 3	Old Fire-Fighting Training Area (1/3 acre)	1950s-1975	Waste fuels, oil, solvents, paint, paint strippers	Fuel farm, AIMD, squadrons, public works shops	Burnable liquid wastes were poured onto metal objects (jets) in shallow, unlined pits and ignited for fire-fighting training	2, 5, 25
	Current Investigative Status: RI field investigation as defined in workplan completed in summer 1995. RI report submitted in September 1996. Per agreements with the regulatory agencies, the risk assessment was included as a chapter in the RI report. Based on data gaps identified by the agencies, additional surface soil samples were collected in March 1997. The RI report will be finalized upon acceptance of this data. The draft FS report was submitted in December 1996. USEPA review comments for the draft FS report were received in March 1997. Responses to these comments were submitted in April 1997. The RI and FS reports were finalized in August 1997. The final proposed plan was submitted on October 29, 1997, and the draft ROD was submitted on December 11, 1997.						

Table 3-25

NAS CECIL FIELD SITE DESCRIPTION CHART

Site Number	Operable Unit	Site Name/Size	Period of Operation	Waste Type	Sources	Description of Activity	Previous Reports
8	OU 3	Bore Site Range/ Hazardous Waste Storage Area/Fire-Fighting Training (6 acres)	1975-1984	Waste fuels, oil, solvents, paint, paint strippers, lead	Fuel farm, AIMD, squadrons, public works shops	Burnable liquid wastes were poured onto metal objects (jets) in shallow, unlined pits and ignited for fire-fighting training. Bore site range was used for machine gun and small arms practice. 55-gallon drums of waste were stored at the site and used for target practice.	2, 5, 25
	Current Investigative Status: RI field investigation as defined in workplan completed in summer 1995. RI report submitted in September 1996. Per agreements with the regulatory agencies, the risk assessment was included as a chapter in the RI report. USEPA review comments for the draft FS report were received in March 1997. Responses to these comments were submitted in April 1997. Approximately 22 monitoring wells were sampled for natural attenuation parameters in June 1997. The final RI and FS reports were submitted in August 1997. The draft proposed plan was submitted on November 24, 1997, and the draft ROD was submitted on December 30, 1997.						
9	--	Recent Grease Pits (0.5 acre)	1983-1984	Grease mixed with water	Installation messes	Three shallow pits were used to dispose of kitchen grease; pits were used until full and then a new pit was excavated.	2, 5, 56
	Current Investigative Status: Field Investigation Workplan submitted in March 1995. Field screening activities, except for groundwater sampling, were completed in June 1997 (includes geophysical survey, hydrological assessment, monitoring well installation, surface and subsurface soil, surface water and sediment sampling). Groundwater sampling was completed in July 1997. A draft Technical Memorandum presenting investigation results and conclusions was submitted in December 1997.						
10	OU 4	Rubble Disposal Area (6.5 acres)	1950s-1960s	Inert Rubble	Building demolition debris, runway debris	Surface disposal area with debris (demolition, roadway, metal); information is limited	2, 12, 25, 87
	Current Investigative Status: Final RI/FS workplan submitted in November 1994. RI field investigation as defined in workplan completed in summer 1995. Draft RI/RA report submitted on June 7, 1996, for regulatory review. The final RI report was submitted in November 1996. The RI report presented a no-further-action recommendation with a proposal to prepare an NFA ROD. The draft proposed plan was submitted on June 24, 1997. The final ROD was submitted in August 1997.						
11	OU 6	Golf Course Pesticide Disposal Area	1970s-1978	Pesticides, fungicides, and herbicide containers, vehicles, metal debris	Golf course maintenance area	Reportedly, between 200 and 400 empty 5-gallon cans containing pesticides were buried at the site; a limited number of full containers of pesticides were buried in 1978.	2, 5, 25, 26, 30, 34, 42, 75
	Current Investigative Status: Final RI/FS workplan submitted to regulatory agencies in November 1994. Confirmatory field program completed in June 1996. The draft RI report was submitted on December 30, 1996, USEPA review comments for the Draft RI were received on March 6, 1997. Responses to comments were submitted in April 1997. To address FDEP concerns about arsenic contamination in subsurface soils, one (1) shallow monitoring well was installed in the vicinity of the highest arsenic detection. The well was installed and sampled in June 1997. The RI report is being finalized and will be submitted during the next reporting period. Elevated phenol detection was also resampled for subsurface soil. The final RI report was submitted in August 1997 and the final FS was submitted in January 1998. Interim Action: Final IROD submitted to the regulatory agencies in August 1994. IRA completed in January 1996. Submitted the remedial action completion report on October 18, 1996, and revision to the remedial action report was submitted on May 16, 1997.						

Table 3-25

NAS CECIL FIELD SITE DESCRIPTION CHART

Site Number	Operable Unit	Site Name/Size	Period of Operation	Waste Type	Sources	Description of Activity	Previous Reports
12	--	Public Works Rubble Disposal Area (0.5 acre)	1970s-1984	Inert rubble, lumber, concrete, wire, cable, scrap metal, drums	Public works	Majority of rubble has been buried approximately 3 feet below surface, some rubble is above ground.	2, 5, 56
	Current Investigative Status: Field Investigation Workplan submitted in March 1995. Field screening activities (geophysical survey, hydrological assessment, monitoring well installation, surface and subsurface soil, surface water and sediment sampling) were completed in August 1997. To address data gaps prior to submitting the draft Technical Memorandum, supplemental samples were collected in December 1997.						
13	--	Day Tank 1-Fuel Spill (1.5 acres)	1981	JP-5 fuel	Day tank	Location of fuel spill in 1981; approximately 500,000 gallons of JP-5 fuel were spilled; approximately 250,000 gallons were recovered. A decision was made in 1987 to allow the fuel to naturally biodegrade.	2, 42
	Current Investigative Status: Transferred to the petroleum program.						
14	OU 5	Blue 5 Ordnance Disposal Area (4.5 acres)	1967-1977	Fuses, 100-pound bombs, large munitions, lulu fuses, other explosive materials	Installation ordnance disposal operations	Ordnance disposal by open detonation or burning.	2, 12, 25
	Current Investigative Status: Final RI/FS workplan submitted to regulatory agencies in November 1994. RI field investigation as defined in workplan completed in summer 1995. Presented preliminary data presented to partnering team in June 1996. The draft RI report was submitted on November 27, 1996. Received USEPA review comments in March 1997. Responses to comments were submitted in April 1997. The draft FS report was submitted in November 1997 and the final RI report was submitted in October 1997. The FS report will be finalized upon receipt of review comments.						
15	OU 5	Blue 10 Ordnance Disposal Area (10 acres)	1960s-1977	Small arms, parachute/distress flares, Mark IV signal cartridges, rocket ignitors, CADS, 5- and 2.75-inch rockets	Installation ordnance disposal operations	Ordnance disposal by combustion in a chamber with ashes being spread over the site.	2, 12, 25, 53
	Current Investigative Status: Final RI/FS workplan submitted to regulatory agencies in November 1994. RI field investigation as defined in workplan completed in summer 1995. Preliminary data presented to partnering team in June 1996. The draft RI report was submitted on November 27, 1996. Received USEPA review comments in March 1997. Responses to comments were submitted in April 1997. Continued preparation of the draft FS report. Supplemental samples to address data gaps identified by the partnering team were collected in May 1997. The final RI report was submitted in October 1997 and the draft FS report was submitted in November 1997. The FS report will be finalized upon receipt of review comments.						

Table 3-25

NAS CECIL FIELD SITE DESCRIPTION CHART

Site Number	Operable Unit	Site Name/Size	Period of Operation	Waste Type	Sources	Description of Activity	Previous Reports
16	OU 7	AIMD Seepage Pit (40 x 3 x 10 feet)	1960-1980	Solvents, heavy metals, acids, blasting grit, paint residue, photo wastes	Building 313, jet engine maintenance shop	Seepage pit used to drain wastewater (containing solvents, paint, grease, metals) generated from Building 313 operations into area soils; RCRA holding tank for wastewater is also located at Site 16; glass bead separator and associated piping also present.	2, 10, 12, 14, 15, 16, 19, 23, 24, 29, 38, 40, 41, 43, 58, 73, 74, 83, 84, 86
	Current Investigative Status: Final RI submitted in July 1995; FS submitted in August 1995. Final BRA submitted in January 1996. Proposed plan submitted on March 19, 1996. A public meeting was held on March 21, 1996. The final ROD was submitted in August 1996. A conceptual design package was submitted on December 16, 1996. Initiated preparation of the pilot study workplan and remedial design (source area). Interim Action: Focused Feasibility Study and Remedial Design completed. Proposed Plan and public comment period completed. Final responsiveness summary and IROD submitted in March 1994. Removal and closure of the NDI holding tank were completed in June 1994. Final NDI Holding Tank Closure Certification and Report submitted in September 1994.						
17	OU 2	Oil/Sludge Disposal Pit Southwest (2 acres)	Late 1960s - early 1970s	Waste fuels/oils	Fuel farm	Unlined shallow disposal pit	2, 5, 10, 12, 14, 15, 16, 19, 27, 33, 39, 46, 66, 67, 70, 71, 80
	Current Investigative Status: Final RI and RA submitted in May 1995; Final FS submitted in July 1995. Data indicate a potential human health risk if the groundwater of the surficial aquifer were used as a potable water source. Final ROD submitted in September 1995. Risk-reduction remedial alternative is intrinsic bioremediation with an aggressive monitoring program. Draft remedial design workplan was submitted in July 1996 and review comments were received in September 1996. The final remedial design workplan was submitted in January 1997. The first-round samples for monitoring natural attenuation were collected in May 1997. Completed the second- and third-quarter sampling in August 1997 and November 1997. Interim Action: IROD signed in September 1994. IRA initiated in February 1995 for source removal, which is contaminated soil. IRA includes removal and on-site treatment of contaminated soil. A remedial action completion report was submitted in September 1996.						
18	--	Ammunition Disposal Area (0.1 acre)	1950s	Ammunition crates, miscellaneous ordnance	Magazine area	Waste materials from a nearby magazine area were trucked in and dumped over the site during the 1940s until 1950. Reportedly, all munitions were removed. As of 7/93, live munitions were still present at the site according to EOD personnel.	2, 5, 56
	Current Investigative Status: Field Investigation Workplan submitted in March 1995. Field screening activities (monitoring well installation, surface and subsurface soil, surface water and sediment sampling) were completed in August 1997. Supplemental samples were collected in December 1997.						
19	--	Rowell Creek Rubble Disposal Area (3 acres)	Section until 1991	Concrete, construction debris, asphalt, wood debris, trash	Construction and operations	Limited information on disposal practices	5, 8, 56

Table 3-25

NAS CECIL FIELD SITE DESCRIPTION CHART

Site Number	Operable Unit	Site Name/Size	Period of Operation	Waste Type	Sources	Description of Activity	Previous Reports
	Current Investigative Status: Field Investigation Workplan submitted in March 1995. Field screening activities (records and document search, geophysical surveys, monitoring well installation, surface and subsurface soil, surface water and sediment sampling) were completed in August 1997. Submitted the draft Technical Memorandum in December 1997.						

Notes: -- = not currently identified as an operable unit.

1. Hydrogeologic assessment, G&M, 1983.
2. IAS, Envirodyne Engineers/NEESA, July 1985.
3. NAS Cecil Field Stormwater Master Plan, Southern Division, August 1986.
4. Sampling of potable water wells, G&M, 1986.
5. RCRA Facility Investigation, Harding and Lawson, March 1988.
6. Federal Facility Agreement, no date.
7. NAS Cecil Field Master Plan, Southern Division, August 1989.
8. PSC Screening Work Plan, ABB-ES, February 1991.
9. Community Relations Plan, ABB-ES, July 1991.
10. Work Plan for OUs 1, 2, and 7, ABB-ES, September 1991.
11. Aquatic Sampling Report, ECT, February 1992.
12. Work Plan for OUs 1, 2, and 7, ABB-ES, February 1992.
13. RI/FS Data Validation Report, no date included.
14. Preliminary Risk Assessment OUs 1, 2, 7, ABB-ES, May 1992.
15. TM for Supplemental Sampling OUs 1, 2, 7, ABB-ES, September 1992.
16. Human Health RA Methodology TM OUs 1, 2, 7, ABB-ES, September 1992.
17. Site Management Plan, ABB-ES, October 1992.
18. ARARs Handbook, ABB-ES, October 1992.
19. Ecological RA Methodology TM OUs 1, 2, 7, ABB-ES, December 1992 .
20. Alternative Screening Report for OU 1, ABB-ES, February 1993.
21. Letter Report to Cliff Casey, ABB-ES, May 1993 (Site 6).
22. Letter Report to Cliff Casey, ABB-ES, (Sites 21 and 22 - date not available).
23. Focused Feasibility Study for Source Control at OU 7, ABB-ES, August 1993.
24. Remedial Design for Source Control at OU 7, ABB-ES, August 1993.
25. Draft RI/FS Work Plan for OUs 3, 4, 5, 6, ABB-ES, May 1994.
26. Focused Feasibility Study for Source Control at Site 11, OU 6, ABB-ES, October 1993.
27. Treatability Study Workplan, Operable Unit 2, Sites 3, 5, 17 (includes Site 4), ABB-ES, December 1993.
28. Letter from City of Jacksonville, Site 5 free-product analyses, Jerry Young, October 1993.
29. Final Design, Site 16, Interim Remedial Action, ABB-ES, November 1993.
30. Final Design, Site 11, Interim Remedial Action, ABB-ES, April 1994.
31. Petrex Soil Gas Survey, NAS Cecil Field, Site 4, Northeast Research Institute, Inc., June 1993.
32. Draft Focused Feasibility Study Report, OU 2, Site 5, ABB-ES, April 1994.
33. Final Focused Feasibility Study Report, OU 2, Site 17, ABB-ES, June 1994.
34. Final Draft Interim Record of Decision, OU 6, Site 11, ABB-ES, May 1994.
35. Draft Remedial Investigation Report, OU 1, Sites 1 and 2, ABB-ES, March 1994.

Table 3-25 (Cont.)

36. Draft Baseline Risk Assessment Report, OU 1, Sites 1 and 2, ABB-ES, March 1994.
37. Draft Feasibility Study Report, OU 1, Sites 1 and 2, ABB-ES, March 1994.
38. Draft NDI Holding Tank Closure Certification and Report, OU 7, Site 16, ABB-ES, June 1994.
39. Draft Proposed Plan, OU 2, Site 17, ABB-ES, June 1994.
40. Final IROD and Responsiveness Summary, OU 7, Site 16, ABB-ES, March 1994.
41. Technical Memorandum, Selection of Monitoring Well Locations, OU 7, Site 16, ABB-ES, April 1994.
42. Draft Environmental Baseline Survey, ABB-ES, June 1994.
43. Feasibility Study, OU 7, ABB-ES, August 1994.
44. Final NDI Holding Tank Closure Certification and Report, ABB-ES, September 1994.
45. Interim Record of Decision, Site 5, OU2, ABB-ES, September 1994.
46. Interim Record of Decision, Site 17, OU 2, ABB-ES, September 1994.
47. BRAC Environmental Baseline Survey, ABB-ES, November 1994.
48. Final Remedial Investigation, OU 1, ABB-ES, December 1994.
49. Final Risk Assessment, OU 1, ABB-ES, December 1994.
50. Final Feasibility Study, OU 1, ABB-ES, December 1994.
51. Draft Feasibility Study, OU 2, ABB-ES, December 1994.
52. Final Environmental Baseline Study, ABB-ES, January 1995.
53. Technical Memorandum, OU 5 Confirmatory Sampling, ABB-ES, January 1995.
54. BRAC Cleanup Plan, ABB-ES, March 1995.
55. Draft EBS Addenda to the BCT for OLF Whitehouse, Palatka Radar Site, and the Jet Fuel Pipeline, ABB-ES, March 1995.
56. Field Investigation Plan, Potential Sources of Contamination (PSC), ABB-ES, March 1995.
57. Draft Remedial Investigation, Operable Unit 7, ABB-ES, March 1995.
58. Draft Baseline Risk Assessment, Operable Unit 7, ABB-ES, March 1995.
59. Draft Proposed Plan for Remedial Action, Naval Air Station Cecil Field Operable Unit 1, Old and Recent Landfills, ABB-ES, March 1995.
60. Proposed Plan for Remedial Action, Operable Unit 1, Old and Recent Landfills, April 1995.
61. Draft Feasibility Study Operable Unit 7, ABB-ES, April 1995.
62. Draft Remedial Investigation, Operable Unit 8, ABB-ES, April 1995.
63. Draft Baseline Risk Assessment, Operable Unit 8, ABB-ES, April 1995.
64. Final Design, Site 5 Bioremediation, ABB-ES, April 1995.
65. Draft Feasibility Study, Operable Unit 8, ABB-ES, May 1995.
66. Final Remedial Investigation, Operable Unit 2, ABB-ES, May 1995.
67. Final Baseline Risk Assessment, Operable Unit 2, ABB-ES, May 1995.
68. Technical Memorandum, Operable Unit 5 Confirmatory Sampling, ABB-ES, June 1995.
69. Draft Proposed Plan for Remedial Action, Operable Unit 2, June 1995.
70. Final Feasibility Study, Operable Unit 2, ABB-ES, July 1995.
71. Proposed Plan for Remedial Action for Operable Unit 2, July 1995.
72. Draft Record of Decision, Operable Unit 1, ABB-ES, July 1995.
73. Final Remedial Investigation Report, Operable Unit 7, ABB-ES, July 1995.
74. Feasibility Study Operable Unit 7, ABB-ES, August 1995.
75. Technical Memorandum, Operable Unit 6, Site 11 Revisions to Sample Locations, ABB-ES, August 1995.
76. BRAC Environmental Baseline Survey Report, Addendum A, Outlying Landing Field Whitehouse, ABB-ES, August 1995.

76a. BRAC Environmental Baseline Survey Report, Addendum B, Palatka Radar Site, ABB-ES, August, 1995.

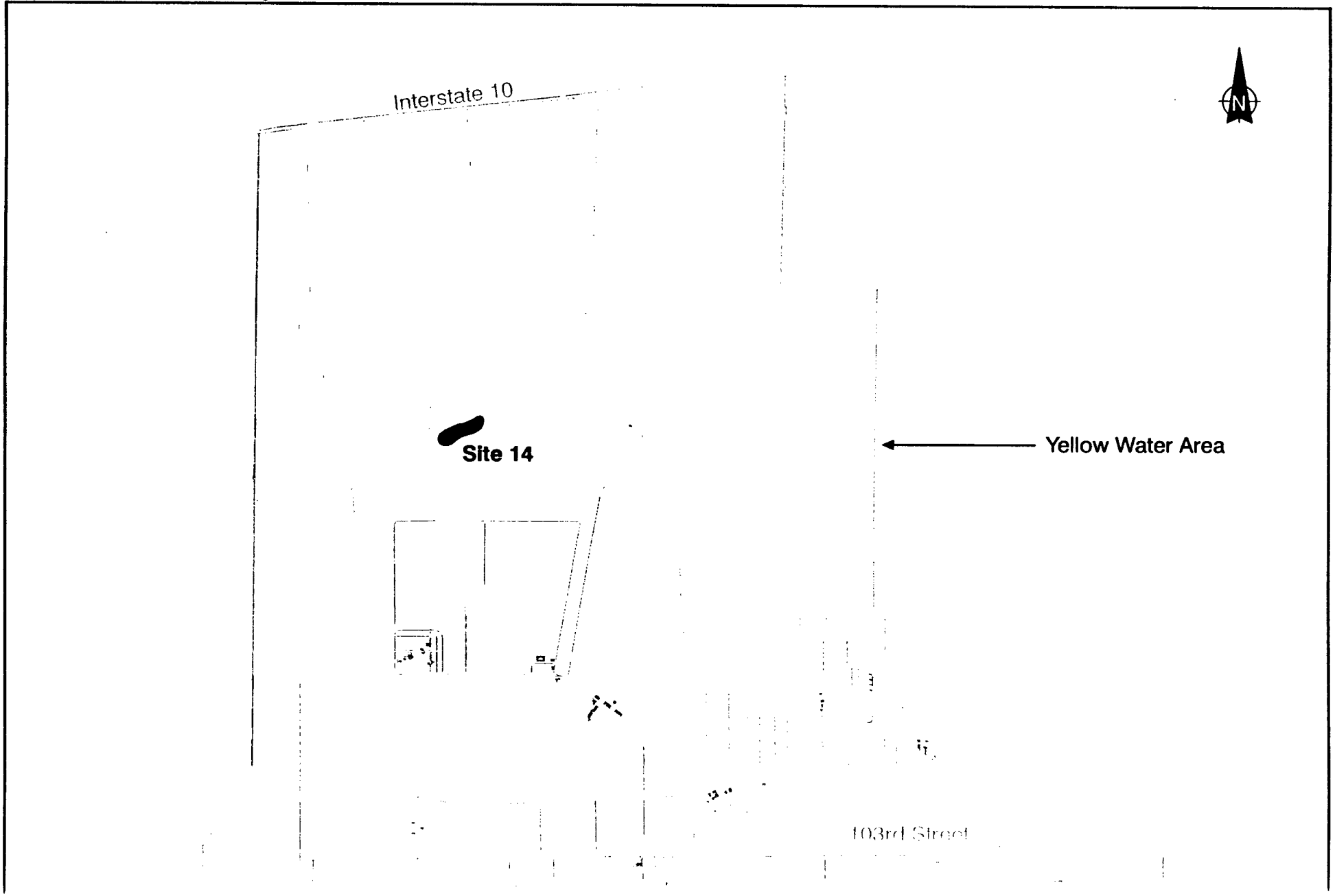
77. BRAC Environmental Baseline Survey Report, Addendum C, 103rd Street Jet Fuel Pipeline, ABB-ES, August 1995.
78. Draft Record of Decision, OU 2, ABB-ES, August 1995.
79. Final Record of Decision, OU 1, ABB-ES, September 1995.
80. Final Record of Decision, OU 2, ABB-ES, September 1995.
81. Final design, OU 1, April 1996.

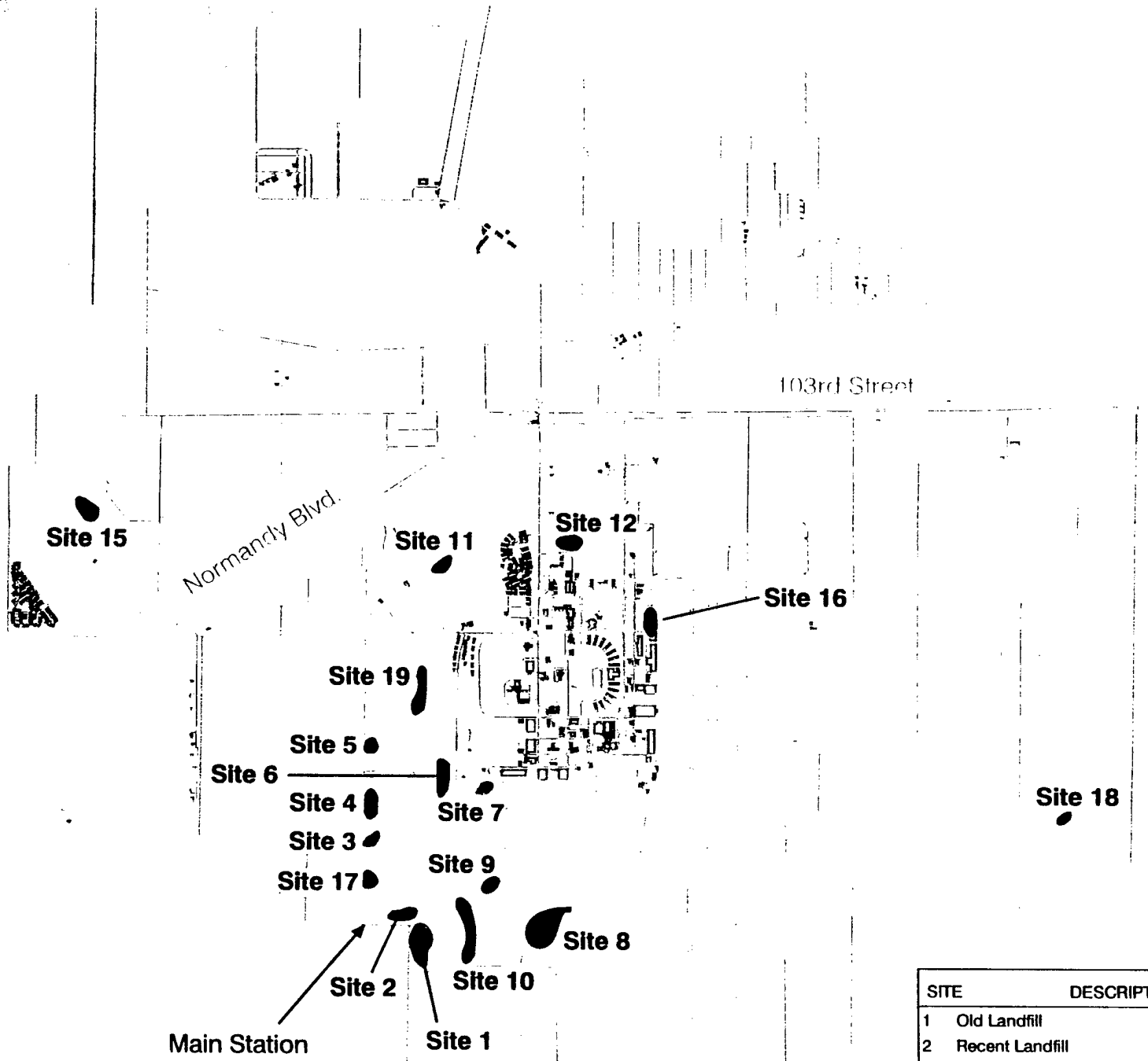
Table 3-25 (Cont.)

82. Final RI Report, OU 8, February 1996.
83. Final Risk Assessment Report, OU 7 (Site 16), January 1996.
84. Final Proposed Plan, OU 7, Site 16, March 1996.
85. Treatability Study Report, Site 5, March 1996.
86. Draft OU 7 Record of Decision, May 1996.
87. Draft OU 4 RI Report, June 1996.

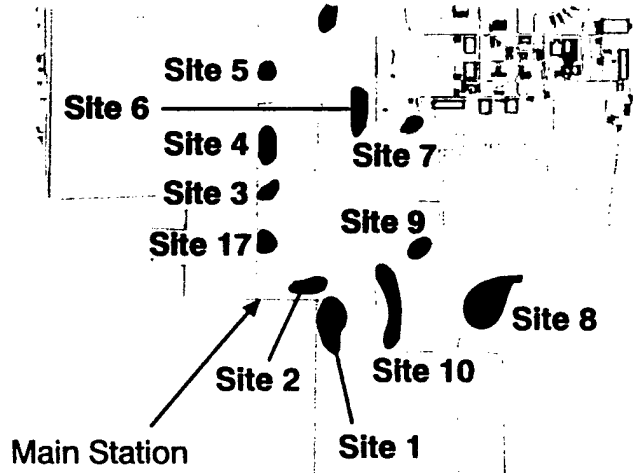
Source: Davidson 1998.

02: 000822_VM06_00_90-0009
Fig 3-26.cdr 9/22/98-GRA





SITE	DESCRIPTION
1	Old Landfill
2	Recent Landfill
3	Oil/Sludge Disposal Pit
4	Grease Pits
5	Oil Disposal Area, Northwest
6	Lake Fretwell Rubble Disposal Area
7	Old Firefighting Training Area
8	Bore Site Range/Hazardous Waste Firefighting Storage/Firefighting Training Area



SITE	DESCRIPTION
1	Old Landfill
2	Recent Landfill
3	Oil/Sludge Disposal Pit
4	Grease Pits
5	Oil Disposal Area, Northwest
6	Lake Fretwell Rubble Disposal Area
7	Old Firefighting Training Area
8	Bore Site Range/Hazardous Waste Firefighting Storage/Firefighting Training Area
9	Recent Grease Pits
10	Rubble Disposal Area
11	Golf Course Pesticide Disposal Area
12	Public Works Rubble Disposal Area
14	Blue 5 Ordnance Disposal Area
15	Blue 10 Ordnance Disposal Area
16	AIMD Seepage Pit
17	Oil/Sludge Disposal Pit, Southwest
18	Ammunition Disposal Area
19	Rowell Creek Rubble Disposal Area

NOTE: Site 13 is now included in the FDEP Petroleum UST Program.

KEY:

Waste Disposal Site

SOURCE: NAS Cecil Field, 1993

SCALE

0 3,500 7,000 Feet

Figure 3-26 IRP SITES AT NAS CECIL FIELD

Sixteen Areas of Interest were discovered by the Environmental Coordinator at NAS Cecil Field subsequent to the FFA. These Areas of Interest are listed and described in Table 3-26.

The EBS identified additional Areas of Interest (i.e, areas color-coded yellow, red, or grey). All Areas of Interest will be addressed through the BRAC Cleanup Plan.

As of January 1995, 33 buildings and parcels at NAS Cecil Field were coded yellow; 48 were coded red; and 217 were coded grey. (Areas of Interest identified through the EBS are presented in Appendix E.) However, the total land area occupied by these Areas of Interest represents only 7% of the land area at NAS Cecil Field.

Storage Tanks and Pipelines

Petroleum products used at NAS Cecil Field include aviation fuels, motor fuels, oils, heating fuel, lubricants, and hydraulic fluids. The most commonly used petroleum product is aviation fuel, which is brought to NAS Cecil Field through a 15-mi-long (24.1-km-long) pipeline running parallel to 103rd Street from NAS Jacksonville and stored at the North Fuel Farm (NFF), which consists of six 595,000-gallon (2,252,075-liter) bulk storage tanks. The pipeline system extends from the NFF to the operations area near the flightline, where fuel is stored in two 210,000-gallon (794,850-liter) day tanks, two high-speed refueling pits, and an underground storage tank (UST) serving the Jet Engine Test Cell (ABB-ES 1994). This aviation fuel pipeline and storage system is scheduled to be closed as part of station closure; however, it will not be discharged to other entities for reuse. Contamination associated with these facilities is currently being investigated and further actions, if necessary, will be the subject of BRAC cleanup activities at the station.

The 103rd Street pipeline was the subject of an EBS completed in 1995. The pipeline has undergone previous testing for structural integrity. A pig, a device that determines pipe wall thickness, was run through the entire line and indicated a number of anomalies (i.e., areas where the pipe wall thickness was below a minimum required thickness). The only known release from the pipeline occurred at a single off-station property along the pipeline route. This property was acquired by Navy in 1996 and the residents were relocated. The property was transferred to NAS Jacksonville to facilitate remediation activities and future monitoring. A single-family home on site was razed and soil remediation has been completed. Groundwater at the site will be monitored.

Table 3-26

ORIGINAL 16 AREAS OF INTEREST DESCRIPTIONS
NAS CECIL FIELD

AOI Number	Site Name	Period of Operation	Waste Type	Sources	Description of Activity	Current Investigative Status
AOI-20	Hazardous Waste Storage Facility	1981-1985	Hazardous waste drums	Facility	Concrete pad used to store drums. Pad full of cracks. No documented spills.	Facility is RCRA permitted. Closure of the facility will be per the Closure Plan contained in the RCRA permit. The Closure Plan is currently being reviewed by the regulatory agencies.
AOI-21	Golf Course Maintenance Area, near Building 238	Unknown	Pesticides	Golf Course Maintenance Department	Trucks and spray equipment for the distribution of pesticides on the golf course were rinsed on a concrete pad. Wash- water was allowed to drain into the golf course tributary of Rowell Creek.	Site screening completed. Data evaluation in progress.
AOI-22	Golf Course Fairway 7 Area	Unknown	Pesticides and solid waste	Golf Course Maintenance Department and other unknown sources.	Debris such as 30- and 55-gallon drums, scrap metal, concrete rubble, and tin cans is visible on the surface.	Geophysical investigation completed. Test pitting of anomalies scheduled for FY98 to positively identify buried material.
AOI-23	Aviation Ordnance Area (AVORD) Site	Unknown	Ordnance	—	—	Field activities completed. Data evaluation does not indicate any concerns.
AOI-24	AVORD Pistol Range site	Unknown	Unknown	—	Partially full hazardous waste drums found and removed.	Field activities will commence upon closure of pistol range.
AOI-25	Building 81 Transformer Storage Yard	Unknown	PCB oils	—	Several hundred transformers are currently stored on the ground surface at this site. Some 55-gallon drums labeled "PCB solids" are present.	Site screening completed. Data evaluation does not indicate any concerns.
AOI-26	Building 81 Dichlorodiphenyl-trichloroethene (DDT) Site	Unknown	DDT and pesticides	Building 81 operations	Building 81 is a pesticide storage building. Very little DDT mixing done at site.	Site screening completed. Data evaluation does not indicate any concerns.
AOI-27	Building 81 HAZMAT shed	Unknown	Unknown	Unknown	Site consists of a concrete pad with a roof constructed to facilitate runoff.	Site screening completed. Data evaluation does not indicate any concerns.
AOI-28	North TCP Site	Unknown	Solvents	Hazardous material storage	Storage of hazardous materials and evidence of stressed vegetation.	Site screening completed. A small quantity of soil is required to be removed. This task is scheduled for completion in FY98.

Table 3-26

ORIGINAL 16 AREAS OF INTEREST DESCRIPTIONS
NAS CECIL FIELD

AOI Number	Site Name	Period of Operation	Waste Type	Sources	Description of Activity	Current Investigative Status
AOI-29	Building 313 TCP Site	Unknown	Solvents, arsenic	Hazardous material storage	Storage of hazardous materials and evidence of stressed vegetation.	Site screening completed. Data evaluation dictates additional screening be performed.
AOI-30	Building 313 (East by Power Plant)	Unknown	Solvents	Suspect dumping	Stressed vegetation found, suspect solvent dumping over fence and behind buildings and lockers.	Site screening completed. A small quantity of soil is required to be removed. This task is scheduled for completion in FY98.
AOI-31	South TCP Site	Unknown	Solvents	Hazardous material storage	Temporary collection point at west end of east to west flightline.	Site screening completed. Data evaluation does not indicate any concerns.
AOI-32	Supply Building 335 HAZMAT Storage Area	Unknown	Solvents	Hazardous material storage	Used for new material storage. Part grassy area, part asphalt. Found empty solvent drums.	Site screening completed Metals are present below the asphalt. Under current use scenario, no further action is appropriate as long as asphalt is intact.
AOI-33	DRMO Storage Area	Unknown	Solvents, paints, pesticides, and metals	Storage	Storage of materials prior to disposal or resale.	Site screening completed A small quantity of soil is required to be removed. This task is scheduled for completion in FY98.
AOI-34	Rowell Creek Ordnance Disposal Area	Unknown	Ordnance	Dumping	Suspect ordnance thrown off each side of Perimeter Road bridge between Sites 1 and 10.	Unexploded ordnance survey and excavation completed in summer 1995.
AOI-35	PCBs on Perimeter Road	Unknown	PCBs	—	PCB-contaminated oil was reportedly used to keep the dust down on Perimeter Road.	Site screening completed. Data evaluation does not indicate any concerns.

Key:

AOI = Area of interest.
DDT = Dichlorodiphenyl trichloroethene.
DRMO = Defense Reutilization and Marketing Office.
HAZMAT = Hazardous materials.
PCBs = Polychlorinated biphenyls.
TCP = Temporary Collection Point.

Source: Davidson 1998.

In 1981, Day Tank 1 ruptured and 500,000 gallons (1,892,500 liters) were lost. In addition, the UST serving the Jet Engine Test Cell was discovered to be leaking in 1989. Repairs were made to each tank and both are now sites requiring soil and groundwater cleanup. Soil and groundwater remediation will be initiated after tank decommissioning has been completed.

A total of 162 USTs and 54 ASTs were assessed at NAS Cecil Field during the EBS and subsequently in the Tank Management Plan. Of the 162 USTs, 120 have been removed; of the 54 ASTs, 15 have been removed (Routhier 1995). The EBS determined the compliance status of each tank and whether there was any evidence of petroleum product release. Sites under investigation as a result of known releases are shown in Table 3-27. The Tank Management Plan outlines the timetable for investigation, removal and cleanup, or upgrade to achieve regulatory compliance.

EPA has delegated the responsibility for USTs/ASTs to FDEP; therefore, UST/AST compliance and closure activities at NAS Cecil Field are being conducted in compliance with Fla. Admin. Code Ann. Ch. 62-770. The Navy and the state of Florida have signed an agreement extending until 1999 the regulatory deadline for bringing all USTs and ASTs at NAS Cecil Field into compliance (ABB-ES 1995).

Lead and Copper in Drinking Water

In 1993, Navy performed a survey of the NAS Cecil Field potable water distribution system and a statistical selection of facility taps was sampled. The samples were analyzed for lead and copper. Lead concentrations ranging from 0.000504 milligrams per liter (mg/L) to 0.01101 mg/L were detected, as were copper concentrations ranging from 0.030 mg/L to 1.158 mg/L. All of the samples fall below EPA and FDEP action levels for lead (0.015 mg/L) and copper (1.3 mg/L) (ABB-ES 1994).

Oil/Water Separators

Oil/water separators are process units located in various maintenance and fueling areas at the base. The separators are designed to remove oil, fuel, and grease from the wastewater effluent. Petroleum waste products are collected and disposed of off site, and wastewater is discharged to the sanitary sewer system and wastewater treatment plant (ABB-ES 1994). Fifteen oil/water separators were identified during the EBS and classified as "grey." Further investigations are planned for these units (ABB-ES 1995).

Table 3-27

TANK INVESTIGATION PROGRAM SITES
NAS CECIL FIELD

Location	Year of Release	Release Quantity (gallons [liters])	Type of Fuel	Actions to Date
North Fuel Farm	1985	2,200 (8,328)	JP-5	See North Fuel Farm, Tank 76-E.
North Fuel Farm	August 1987	22,772 (86,199)	JP-5	See North Fuel Farm, Tank 76-E.
North Fuel Farm	February 1991	913,000 (3,455,979)	JP-5	See North Fuel Farm, Tank 76-E.
North Fuel Farm, Tank 76-E	November 1993	1,800 (6,814)	JP-5	CA completed at the site. RAP completed in FY 1997. Revision to RAP December 1997. Free product will continue to be collected as long as tanks remain in an operational status. Soil remediation and groundwater remediation will be initiated upon tank decommissioning.
Sal Taylor Creek Containment Area	February 1991		Spill from North Fuel Farm	CAR 1994, CAR Addendum 1996. CAR Addendum 1997 recommending NFA except at Possum Dam. One sample collected for TRPH testing at Possum Dam in December 1997.
Truck Stand (Facility 372)	December 1990	—	JP-5	CA completed. CAR completed. CAR addendum submitted July 1994. IRA completed (soil removal). CAR addendum submitted July 1994. Monitoring Only Plan (MOP) has been implemented for groundwater.
South Fuel Farm	July 1991	—	—	All tanks removed. CA completed. CAR completed. CAR addendum completed. RAP completed. RAP implementation to begin in early FY98.
Jet Engine Test Cell Facility (Facilities 334, 339, 328, and 811)	October 1989	Failed precision fitness testing	JP-5	CA completed. CAR completed. CAR addendum completed. RAP completed. Tank removed and RAP implemented in FY97. Remedial Action Completion Report submitted in October 1997.
NAS Jacksonville - NAS Cecil Field Jet Fuel Pipeline	July 1989	Unknown	JP-5	CA completed. RAP completed. RAP implemented (soil removed and groundwater being monitored). Site transferred to NAS Jacksonville.
NAS Jacksonville - NAS Cecil Field Jet Fuel Pipeline	July 1997	6,100 (23,090)	JP-5	Contaminated soil removed under emergency response. CA to be initiated by end of FY97.
Helicopter Crash Site	February 1992	1,800 (6,814)	JP-5	PCAR submitted in January 1994. CAR submitted in FY 95. S-3 Crash Site: IRA completed in August 1994. No further action required.
S-3 Crash Site	December 1991	Unknown	—	IRA completed in August 1994.

Table 3-27

TANK INVESTIGATION PROGRAM SITES
NAS CECIL FIELD

Location	Year of Release	Release Quantity (gallons [liters])	Type of Fuel	Actions to Date
Day Tank 1	1981	497,000 (1,881,294)	JP-5	CA completed. CAR completed. RAP completed. Free product will continue to be collected as long as tank remains in an operational status. Soil remediation and groundwater remediation will be initiated upon tank decommissioning.
Day Tank 2	1996	Unknown (29,000 gal. [109,773.9 liters] free product recovered)	JP-5	Tank was taken out of service and removed in August 1997. IRA completed in August 1997. CA initiated.
Tank 199		Unknown	Heating oil	CA completed. CAR completed in June 1997. Monitoring only required.

Key:

CA = Contamination assessment.
CAR = Contamination Assessment Report.
FY = Fiscal year.
IRA = Interim Remedial Action.
NFA = No further action.
PCAR = Preliminary Contamination Assessment Report.
RAP = Remedial Action Plan.
UST = Underground storage tank.
— = Unknown.

Source: Davidson 1998.

Oil/water separators will be closed as RCRA-regulated process units. The area surrounding the oil/water separators will be screened for constituents of concern. If contamination is identified, these sites will be addressed under the IRP (if non-petroleum related) or the Tank Management Program (if petroleum related).

Asbestos

Three asbestos surveys were performed at NAS Cecil Field between 1989 and 1993. A total of 342 buildings (including operational, support, and residential housing units) were surveyed, representing approximately 66% of the buildings on base. Of the 342 buildings surveyed, 78 held asbestos-containing material (ACM), primarily as thermal system insulation. The surveys also documented whether the ACM was friable or nonfriable and noted the condition of the material as damaged or undamaged (ABB-ES 1994). An Asbestos Management Plan has been prepared for the removal and repair of damaged, friable ACM.

Lead-Based Paint

A Lead-Based Paint (LBP) Management Plan was prepared for NAS Cecil Field in October 1995. The LBP Management Plan contains findings, observations, and a composite of information collected during a site investigation performed at NAS Cecil Field in November and December 1994. Fieldwork was performed on a Phase I, or observational (nonintrusive) basis. In addition to the Phase I survey, a comprehensive surface-by-surface LBP investigation of target housing and community facilities was conducted in April and May 1995. Results of the comprehensive investigation are included in an Addendum to the LBP Management Plan (Navy 1995).

The objectives of the LBP Management Plan were:

- To offer a comprehensive and well-documented assessment of potential LBP usage at selected facilities;
- To collect the information needed to provide an accurate estimate for a recommended in-place LBP management program;
- To qualify and quantify potentially affected surface areas to aid in development of the cost estimation on a surface-by-surface basis, in the event that encapsulation or abatement is necessary;
- To identify areas of immediate risk to human health from exposure to LBP;

- To offer recommendations for establishing appropriate corrective actions to reduce existing hazards; and
- To offer a management plan for the inspected surfaces, with respect to federal, state, and local regulations.

The Residential Lead-Based Paint Hazard Reduction Act, 42 U.S.C. § 4822(a), requires that target housing be physically tested for LBP hazard identification. Other facilities, such as community and recreational areas likely to be used by children, were also included in the survey. A total of 173 pre-1978 facilities were selected for physical testing. Results of the investigation are presented in the Addendum to the LBP Management Plan on a building-by-building basis.

Polychlorinated Biphenyls

Transformers known to contain dielectric fluids with polychlorinated biphenyl (PCB) concentrations exceeding 500 parts per million (ppm) have either been removed or drained and refilled by the Public Works Center at NAS Jacksonville under a program begun in 1986. All removals and replacements were completed in FY 1995 (ABB-ES 1995).

Two Areas of Interest involving PCBs have been identified at NAS Cecil Field. Area of Interest 25, the Building 81 Transformer Storage Yard, contains abandoned transformers and electrical equipment and may contain PCB-laden dielectric fluid. Area of Interest 35 is Perimeter Road. Oil that may have contained PCBs was reportedly applied to unimproved sections of Perimeter Road to control dust emissions (ABB-ES 1994). Information on these sites is provided in Table 3-25.

Pesticides

Pesticides have reportedly been used throughout NAS Cecil Field since its construction in 1941. The most concentrated use of pesticides occurred at the golf course. This resulted in the discovery of one IRP site (IRP Site 11), where pesticide containers were buried, and of two Areas of Interest. Area of Interest 21 is an area for rinsing pesticide applicators, and Area of Interest 22 is a disposal site (ABB-ES 1994).

Another Area of Interest (Area of Interest 26) has been identified surrounding the former pesticide storage building. Pesticides, including DDT, were reportedly stored in this room until the construction of Building 101 in 1975 (ABB-ES 1994). Information on the IRP sites and AOIs is provided in Tables 3-24 and 3-25, respectively.

Medical and Biohazardous Waste

The only building at the installation known to generate biohazardous waste is that housing the Dispensary, Dental Clinic, and Medical Clinic (Building 808). A certified contractor handles the biohazardous waste, shredding it and subjecting it to heat treatment prior to its disposal in sanitary landfill facilities (Routhier 1996). Over the past 10 years, biohazardous waste has been managed by various certified contractors using similar handling protocols.

An aboveground collection tank used to filter dental suction is also associated with this building. Solids and liquids in the tank and liquids are routed to the station's sanitary sewer system (ABB-ES 1994).

Ordnance

A Draft Unexploded Ordnance (UXO) Survey Report was prepared in August 1996. The Draft UXO Report documents the UXO surveys conducted at NAS Cecil Field as part of the BRAC program. Geophysical surveys were conducted at the Rowell Creek Ordnance Disposal Area, identified as Area of Interest 34, and at the Ammunition Disposal Area, identified as IRP Site 18, during November and December 1994. Between April and December 1995, 11 locations in the Yellow Water Area were surveyed for residual UXO. Excavation of suspect areas identified by the surveys was undertaken by Navy personnel.

The UXO survey at Area of Interest 34 resulted in the identification and excavation of 21 subsurface anomalies. Items recovered included chain-link fencing, reinforced concrete, scrap metal, and an assortment of construction debris. With the exception of one MK24 flare found in the creek bed, no ordnance was discovered.

The UXO survey at IRP 18 resulted in the identification and excavation of 16 subsurface anomalies. Two hundred and thirty-one ordnance items were recovered, including one hundred and fifty 20-millimeter rounds, seventy-six 2.75 rocket warheads, two unknown cartridges, one flare, one MK4 cartridge, and one 50-caliber round. The area beneath the bridge was not excavated at that time because water levels were too high. This ordnance will be excavated when the water level in the creek lowers. All ordnance items were turned over to base EOD authorities for disposal.

The UXO survey in the Yellow Water Area encompassed 11 areas totaling 333 ac (135 ha). The areas surveyed were predetermined by qualified ordnance personnel to be the areas most likely to contain residual UXO, based on historical drawings, old aerial photographs, and interviews. In general, most observed and detected items consisted of inert ordnance explosive wastes (OEWs). The OEWs were collected and disposed of off base. Eighteen UXOs were

detected, including sixteen 7.62-millimeter rounds and two 50-caliber rounds. This UXO was disposed of off base or detonated at IRP Site 14.

In August 1996, the station's BRAC cleanup team made the decision that no further UXO surveys would be conducted in the Yellow Water Area. This decision was based on the limited amount of live ordnance discovered over the 333 ac (135 ha) surveyed. Therefore, no property will be categorized as nontransferable solely due to suspicion of UXO.

Radioactive Materials and Mixed Wastes

A radiological scoping survey was initiated within the boundaries of the Yellow Water Area in the fall of 1994. The survey included the collection of surface soil samples, samples of removable contaminants, and direct radiation readings to assess the nature and level of residual radioactive contamination in and around structures in the Yellow Water Weapons Command (YWWC). The survey techniques employed were those recommended in the "Manual for Conducting Radiological Surveys in Support of License Termination" (NUREG/CR-5849) (Navy 1994).

A radiological history was obtained through interviews with Navy personnel assigned to the weapons compound within the Yellow Water Area and the Radiological Affairs Office at NAS Jacksonville. Based on interviews, the historical storage of nuclear weapons could be neither confirmed nor denied.

In 1995, a radiological scoping survey of the Yellow Water Weapons Area was completed. The results of the survey were documented in a February 1995 report. This document was reviewed by EPA Region IV's Air and Radiation Technical Branch, the State of Florida Bureau of Radiation Control, and Navy's Radiological Affairs Support Office (RASO). The scoping survey did not indicate any obvious concerns; however, there were some deficiencies in the survey. These deficiencies will be adequately addressed in the upcoming final closeout survey to be conducted in FY 98. The three aforementioned agencies are actively involved in development of the final closeout survey requirements and sampling protocols and will be involved in the fieldwork and all subsequent document reviews.

Radon

The Navy Radon Assessment and Mitigation Program (NAVRAMP) was established to systematically evaluate radon gas concerns at naval installations. In 1989, a radon assessment was performed at selected housing units in the Yellow Water Area and at the Main Station at NAS Cecil Field (ASS-ES 1994).

Seventy-one of the 122 housing units on base, or approximately 60%, were tested for radon. Results indicated that no radon levels above the EPA action level (4.0 picocuries per liter [4 pCi/L]) were present at NAS Cecil Field. The highest radon gas level in the survey was 1.0 pCi/L (one result). All other levels were lower than 1.0 pCi/L, and approximately 50% of the samples (34 results) were below the analytical detection limit of 0.5 pCi/L (ABB-ES 1994).

3.11.3 Adjacent Properties

Adjacent properties were surveyed in the EBS to determine whether any potential contaminants on those properties could impact NAS Cecil Field. Adjacent properties were classified either as having no known or suspected releases or as having known or suspected releases. A records search was conducted for all properties within a 2-mi (3.2-km) radius of NAS Cecil Field. Nineteen sites were identified based on various environmental records, such as UST notifications, hazardous waste generator permits, and designations as state-listed hazardous waste sites (ABB-ES 1994).

Five properties are known or suspected to have released contaminants to the environment. These include Sandler Road Landfill (0.8 mi [1.3 km] east of NAS Cecil Field); Shadrach Phillips (0.5 mi [0.8 km] northeast); Li'l Champ Food Store on Normandy Boulevard (0.9 mi [1.4 km] west); Li'l Champ Food Store on W. Beaver Street (1.8 mi [2.9 km] northeast); and River Bus Sales (2.0 mi [3.2 km] northeast). The Sandler Road Landfill and Shadrach Phillips are state-listed hazardous waste sites. The Li'l Champ Food Store on Normandy Boulevard and River Bus Sales are listed for potential groundwater contamination from leaking USTs, and the Li'l Champ Food Store on W. Beaver Street is listed for possible soil contamination from leaking USTs (ABB-ES 1994).

4 Environmental Consequences and Mitigative Measures

This section evaluates potential environmental impacts of the reuse of NAS Cecil Field pursuant to implementation of the Preferred Alternative and the four ARSs. In addition, mitigation measures to avoid or lessen potential environmental impacts are presented. Because most potential environmental impacts would result directly from reuse of the property by other entities, Navy will not be responsible for implementing mitigation measures following disposal of the property, other than remediation of environmental contamination associated with past station activities. Full responsibility for implementing these suggested measures would be borne primarily by the JEDC, as the ultimate receiving entity, and enforced by federal, state, and local regulatory agencies. Cumulative impacts, or those that could result from the incremental impact of the proposed action when added to other past, present, and future actions, are also identified. Descriptions of the Preferred Alternative and ARSs are presented in Section 2 of this FEIS.

4.1 Land Use and Aesthetics

The potential land use effects of the Preferred Alternative and each ARS were evaluated according to whether existing development constraints at the station would significantly impede realization of each plan; whether each plan would result in on-site conflicts arising from inconsistent/incompatible land uses; and whether each plan would result in conflicts with existing or future land uses adjacent to the station property.

On-site development constraints were derived from information presented in Section 3 and include:

- Wetlands;
- Areas within the 100-year floodplain;
- Areas of potential archaeological sensitivity;

- Habitats of species of concern (i.e., threatened, endangered, and candidate species); and

- Environmentally contaminated areas that would likely require remediation (i.e., categories 4, 5, and 6 from the Environmental Baseline Survey of the station).

The Preferred Alternative and each ARS were reviewed using GIS analysis to determine areas without significant development constraints. Within land use categories under each of the plans, acreages with no constraints were multiplied by applicable FARs to determine new development that would be permitted (i.e., in ft^2 of building area). These estimates were then compared with the CFDC's projections for new development through 2010 to determine whether each plan, at least at a macro level, could be reasonably implemented without affecting environmentally sensitive areas. It should be noted that areas containing soils with low development suitability were excluded from the analysis because they coincided with wetland areas at the station.

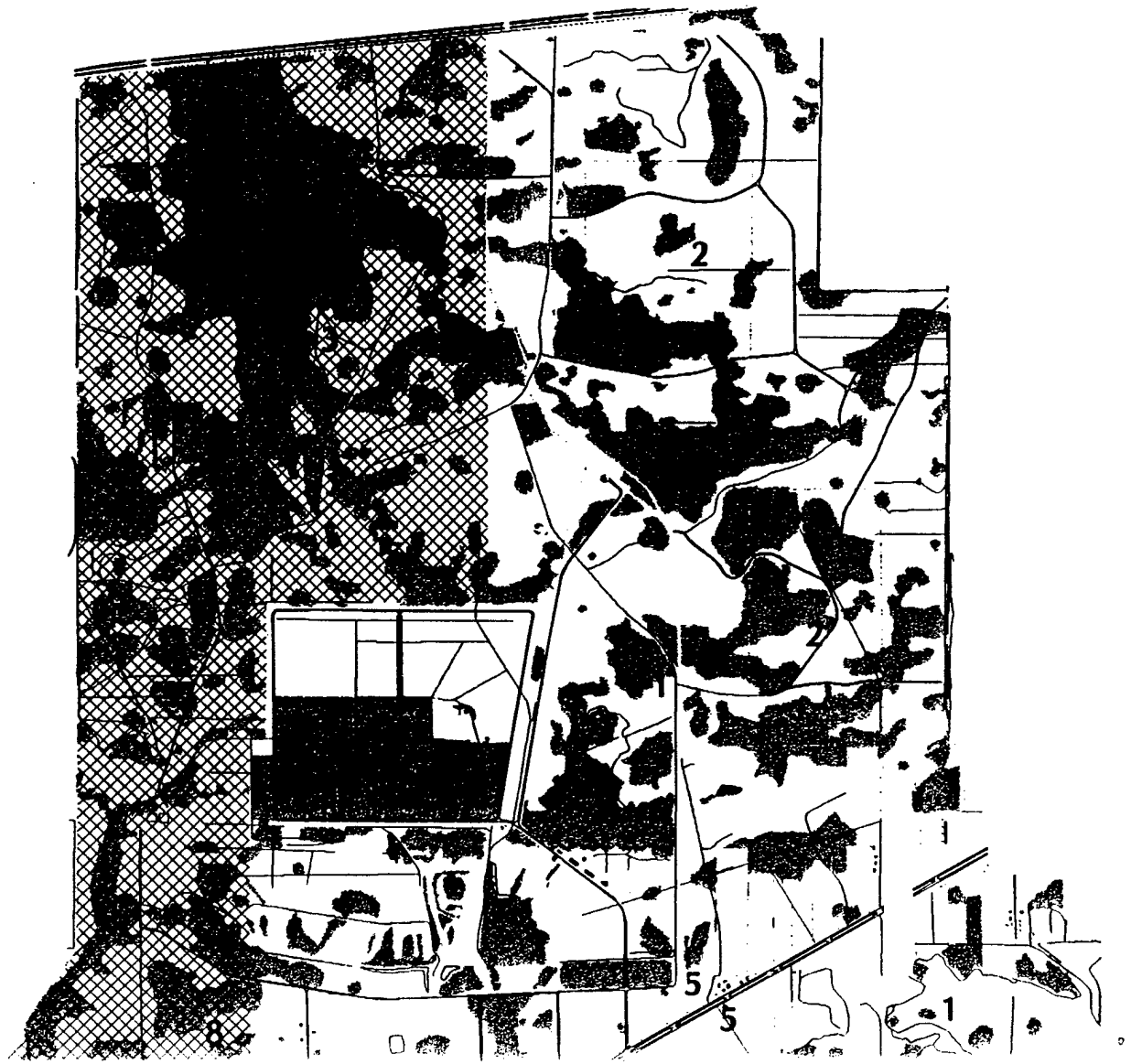
For internal and external land use consistency assessments of the Preferred Alternative and the ARSs, qualitative analysis was conducted using existing land development information and future land use projections contained in the Land Use Element of the *Jacksonville Comprehensive Plan* (Jacksonville Planning and Development Department 1990).

4.1.1 Preferred Alternative

Implementation of the Preferred Alternative will involve major, long-term changes to existing land use patterns, development controls, and ownership. This plan identifies seven major land use categories at the station, totaling 17,202 ac (6,961.4 ha). These include general aviation, aviation-related services, industrial use, forestry, commercial use, parks and recreation, and conservation. As part of the Reuse Plan, a 6,300-ac (2,549.5-ha) Natural and Recreation Corridor overlay zone is identified for the west side of the station. (The land use plan for the Preferred Alternative is illustrated in Figure 2-1.)

Development Constraint Analysis

Figure 4-1 depicts the Preferred Alternative and land areas exhibiting known development constraints. Although significant areas of the station are constrained for future development activity by features such as wetlands and habitats of species of concern, the station contains other large parcels that could reasonably support new development. In addition to the



LEGEND

1 - Light Industrial

2 - Heavy Industrial

3 - Forestry

4 - Forestry/Airport Reserve

5 - Commercial

6 - General Aviation

7 - Conservation

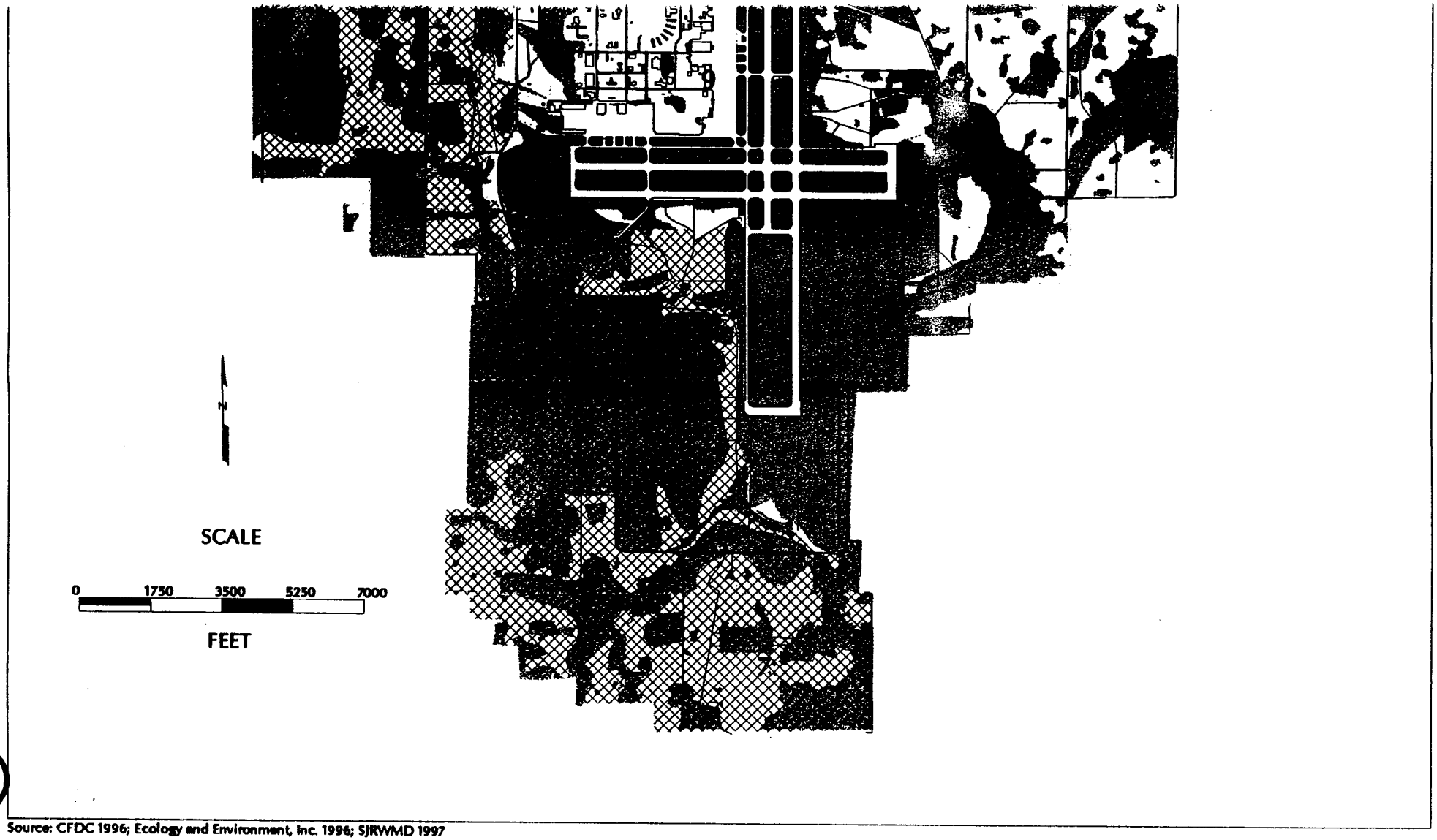
8 - Parks and Recreation

9 - Aviation-Related Services

Constrained Land Areas

Natural and Recreation Corridor

Natural and
Recreation Corridor



Source: CFDC 1996; Ecology and Environment, Inc. 1996; SJRWMD 1997

Figure 4-1 PREFERRED ALTERNATIVE : CONSTRAINED LAND AREAS

development constraints listed under Section 4.1, all land use within the proposed Natural and Recreation Corridor is considered constrained for development purposes. The only land use activities permitted in the corridor would be passive recreation and forest and wetland management. Table 4-1 presents an analysis of the station's development potential if development occurred only in areas without documented constraints, using the FAR standards established in the CFDC's Base Reuse Plan (CFDC 1996). As shown, not only can the development anticipated to 2010 be accommodated in unconstrained areas of the station, a significant amount of additional development could be realized without affecting environmentally sensitive features. Based on market analysis, the CFDC projects that approximately 3.9 million ft^2 (362,321.7 m^2) of new development could occur by 2010 under the Preferred Alternative. However, permitted development in unconstrained land areas would total over 29 million ft^2 (2,694,187 m^2) using the CFDC's FAR standards. Therefore, projected development under the Preferred Alternative could be implemented without significantly affecting constrained areas. Also, with the establishment of the Natural and Recreation Corridor, approximately 6,300 ac (2,552 ha) of the station would be set aside for the protection and enhancement of environmental features.

Nevertheless, the specific components of an individual project that would occur during the redevelopment process could still affect these resources. Site-specific assessment of these potential effects would be conducted by redevelopers as new projects are proposed and reviewed during the local development approval process.

Internal Land Use Consistency

The proposed internal land use pattern represents a mixture of land uses that are generally compatible. Within the Yellow Water Area, industrial land use activities are targeted for approximately 4,500 ac (1,821.1 ha) of land. The light-industrial land use district surrounds two areas designated for heavy-industrial activities. Because the heavy-industrial land uses are confined within the light-industrial district, other proposed uses would be buffered from the impact of the heavy-industrial activity. The proposed low FARs associated with the heavy- and light-industrial areas encourage significant open space and help ensure that natural buffers and environmentally sensitive areas are preserved. Land use activities adjacent to and west of the light-industrial district include forestry, parks and recreation, and commercial development along Normandy Boulevard. These land uses are considered compatible.

The proposed internal land uses at the Main Station are compatible, with the exception of the area in the vicinity of the existing golf course and Lake Newman/Lake Fretwell recreational areas. Although the proposed parks and recreation land use is ideal given the existing

Table 4-1

CONSTRAINED LAND AREAS AND DEVELOPMENT POTENTIAL FOR THE PREFERRED ALTERNATIVE

Land Use	Area Devoted to Land Use (acres [hectares])	Land Use with Natural and Recreation Corridor Constraint (acres [hectares])[a]	Land Use outside Natural and Recreation Corridor with Constraints (acres [hectares])[b]	Total Constrained Area (acres [hectares])	Area with No Constraints (acres [hectares])	Floor Area Ratio (FAR)[c]	Permitted Development Potential (ft^2 [m^2])[d]	Planned New Development to 2010 (ft^2 [m^2])[c]	Additional Development Potential (ft^2 [m^2])[e]
Conservation	641 (259)	634 (256)	3 (1.2)	637 (258)	3 (1.2)	NA	NA	NA	NA
Forestry	2,835 (1,147)	2,629 (1,064)	56 (23)	2,685 (1,087)	150 (61)	NA	NA	NA	NA
Forestry/Airport Reserve	4,081 (1,652)	1,381 (559)	1,741 (705)	3,122 (1,263)	959 (388)	NA	NA	NA	NA
Parks and Recreation	2,943 (1,191)	1,480 (599)	708 (287)	2,188 (885)	755 (306)	NA	NA	NA	NA
General Aviation	1,566 (634)	182 (74)	1,029 (416)	1,211 (490)	355 (144)	NA	NA	NA	NA
Aviation-Related Services	445 (180)	<1 (<1)	103 (42)	103 (42)	342 (138)	0.50	7,448,760 (692,012)	0	7,448,760 (692,012)
Commercial	207 (84)	0	25 (10)	25 (10)	182 (74)	0.30	2,378,376 (220,958)	100,000 (9,290)	2,278,376 (211,668)
Light Industrial	3,455 (1,398)	<1 (<1)	1,151 (466)	1,151 (466)	2,304 (932)	0.15	15,054,336 (1,398,593)	2,500,000 (232,258)	12,554,336 (1,166,335)
Heavy Industrial	1,029 (416)	0	313 (127)	313 (127)	716 (290)	0.15	4,678,344 (434,632)	1,250,000 (116,129)	3,428,344 (318,503)
Total	17,202 (6,961)	6,306 (2,552)	5,129 (2,077)	11,435 (4,628)	5,766 (2,334)	NA	29,559,816 (2,746,195)	3,850,000 (357,677)	25,709,816 (2,388,518)

Key at end of table.

Table 4-1 (Cont.)

[a] All land within the Natural and Recreation Corridor is considered constrained for development.
[b] Land areas containing at least one of the following constraints: wetlands, floodplains, habitats of species of concern, potentially archaeologically sensitive areas, or environmentally contaminated areas.
[c] As proposed in the *Cecil Field Final Base Reuse Plan* (CFDC 1996).
[d] Permitted development potential calculated by multiplying the floor area ratio by the land area without development constraints (i.e., converted into square feet).
[e] Additional development potential calculated by subtracting planned development to 2010 from permitted development potential.

Key:

ft^2 = Square feet.
m^2 = Square meters.
NA = Not applicable; no buildings would be developed in these areas.

Source: Ecology and Environment, Inc. 1998.

facilities, this activity is not entirely consistent with the proposed adjacent heavy-industrial areas to the east and aviation-related uses to the south.

Aviation-related uses at the Main Station would occupy approximately 2,000 ac (809.4 ha). It is anticipated that several buildings in the area would be used to support helicopter and fixed-wing aircraft operations (CFDC 1996). The undeveloped areas, designated forestry/airport reserve lands, would provide a buffer between the station's industrial land uses and the less intense surrounding land uses.

The Preferred Alternative capitalizes on several assets of the station to further the redevelopment effort. This primarily involves focusing redevelopment efforts on civilian reuse of all aviation facilities and established airspace/land use controls around the station. The plan recognizes the difficulty of replicating these assets for a new airport facility, and presents these assets as catalysts for new development on the former station property.

External Land Use Consistency

The Preferred Alternative is generally compatible with the uses adjacent to NAS Cecil Field. Recreation/open space and forestry/airport reserve land uses within the proposed Natural and Recreation Corridor overlay zone would be adjacent to the relatively undeveloped and rural areas west of NAS Cecil Field. The 641-ac (259.4-ha) area of Cecil Field in Clay County, which is designated for conservation within the overlay zone, is adjacent to recreation/preservation and open space areas in Clay County. Designated forestry/airport reserve uses in the eastern portion of the Main Station are consistent with adjacent land uses consisting of low-density, rural residential, and agricultural uses.

The light-industrial area that extends from the northern boundary of the Yellow Water Area south to Normandy Boulevard would be near mixed land uses including low-density residential and commercial areas. Although light-industrial uses adjacent to low-density residential areas may be considered incompatible, the low FAR proposed in the plan and the preservation of natural surroundings would minimize this incompatibility. The planned forestry, recreation, and open space uses within the corridor overlay zone proposed for the western portion of the Yellow Water Area are consistent with adjacent rural residential and agricultural uses. The proposed commercial land uses along Normandy Boulevard and the light-industrial land uses between Normandy Boulevard and 103rd Street do not present significant incompatibilities with adjacent uses.

Land use impacts would be gradual as specific elements of the plan are developed over the long time frame for projected buildout. As the development cycles of the plan are

implemented and infrastructure facilities are provided, off-site development would be expected to reflect more urban intensities and densities than are currently exhibited. The expansion of Jacksonville's urban service area boundary would eventually include the NAS Cecil Field property.

Because land use impacts would be gradual, all necessary facilities, such as transportation and utility infrastructure, should be in place to support the development. Overall, the redevelopment of NAS Cecil Field would influence the growth pattern in the southwest district by providing for a variety of commercial and industrial employment activities, rather than the singular use of the property as a military airfield.

Aesthetics

Development of the Preferred Alternative would change the aesthetic features of the property, but the overall character of the station would not change significantly. At the Main Station, implementation of the plan would result in improvements to the aesthetic resources. As part of the plan, less desirable and unusable structures and utilities would be removed and many of the existing positive visual environments, such as tall pine trees, which are dominant in the undeveloped areas and scattered in the developed areas, would remain within and outside of the Natural and Recreation Corridor to provide a unifying feature throughout the Main Station.

With the exceptions of a relatively small area and the munitions storage facilities, the Yellow Water Area consists primarily of forested areas and wetlands. Development of the site with heavy- and light-industrial activities would result in a slight degradation of the visual components of the natural setting.

The aesthetic impacts to the Yellow Water Area would be offset through FAR controls, establishment of the Natural and Recreation Corridor, establishment of buffers, landscaping, and sensitive design consideration in the siting of new industrial establishments.

4.1.2 Land Use Reconfiguration

While land uses proposed under the Base Reuse Plan, as depicted on Figure 2-1, are generally compatible internally and externally, the exact configuration of proposed land uses would depend on future market conditions and demand. The city of Jacksonville is proposing to adopt the land uses presented in the plan as land use activities, permitted within the zoning/future land use category Public Benefit and Facility (PBF). As such, conceptual land uses may be reconfigured based on market demand, without necessitating a Comprehensive Plan amendment. Upon implementation of any such changes, internal and external land use compatibility would be

maintained through review by the Jacksonville Planning and Development Department, the Florida Department Community Affairs, and the Northeast Florida Regional Planning Council (Newton 1998).

4.1.3 Alternative Reuse Scenario 1

Under ARS 1, the former station property would be reused primarily for recreation/forestry uses. Limited portions of the station would be reused to support Florida National Guard helicopter operations at the Main Station. The balance of the property would be reused for market-driven development. Land uses associated with market-driven development would likely be similar to but less extensive than pre-closure land uses, including office, light-industrial, and manufacturing operations.

Development Constraint Analysis

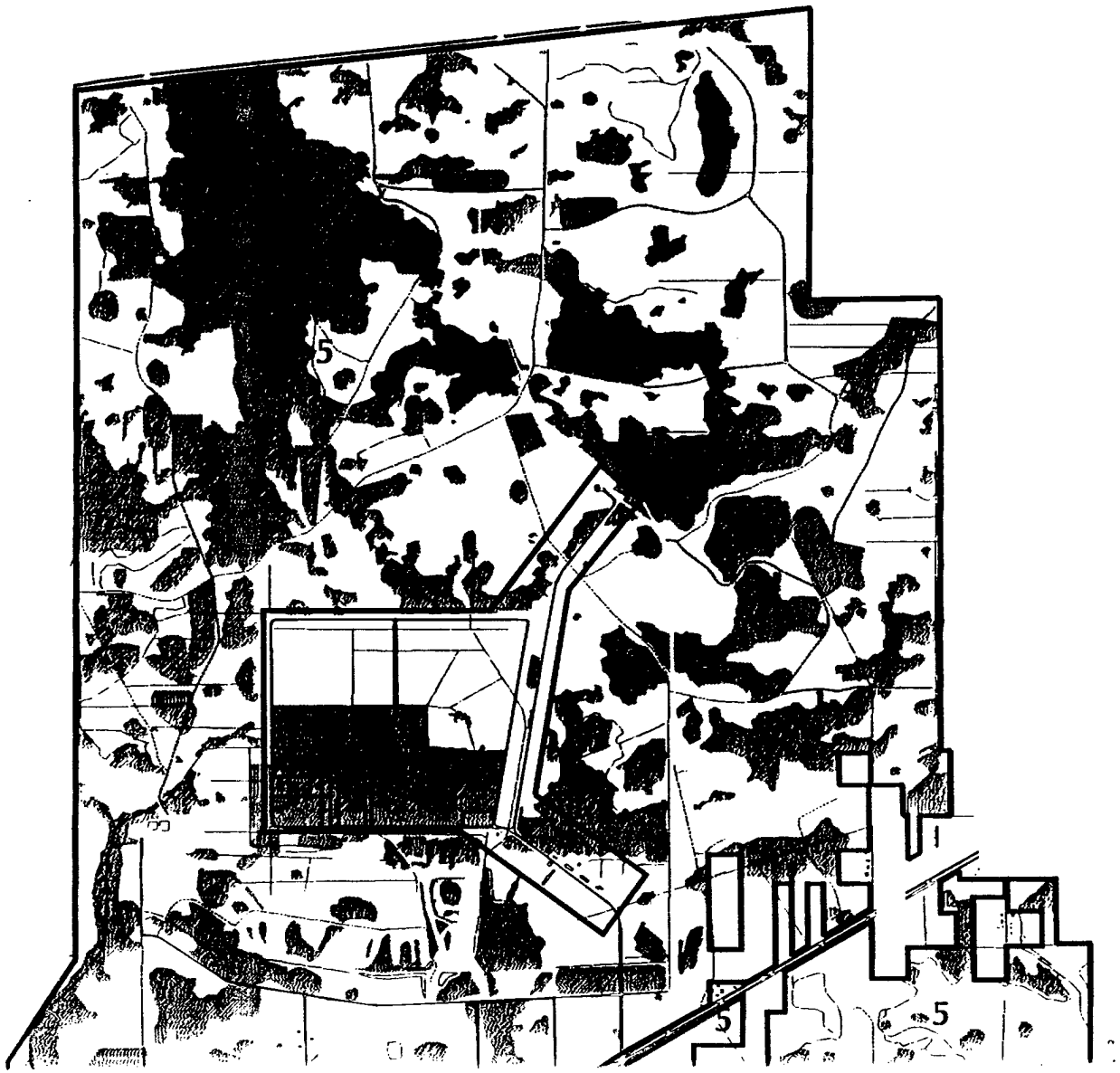
Figure 4-2 depicts ARS 1 and land areas exhibiting known development constraints; Table 4-2 presents an analysis of the development potential of the station if development occurred only in areas without documented constraints. Because development would be limited to currently developed areas of the Main Station, environmental features would not be significantly affected by this scenario.

Internal Land Use Consistency

As a result of the limited amount of development, no significant internal land use inconsistencies would result from implementing this ARS. However, while ARS 1 capitalizes on the forestry assets at the station, it does little to take advantage of the valuable aviation assets. Further, because no centralized receiving entity would oversee development of the base, there is a greater possibility for incompatible market-driven development at the Main Station.

External Land Use Consistency

No significant external land use inconsistencies would result from implementation of this plan.



LEGEND

1 - Parks and Recreation

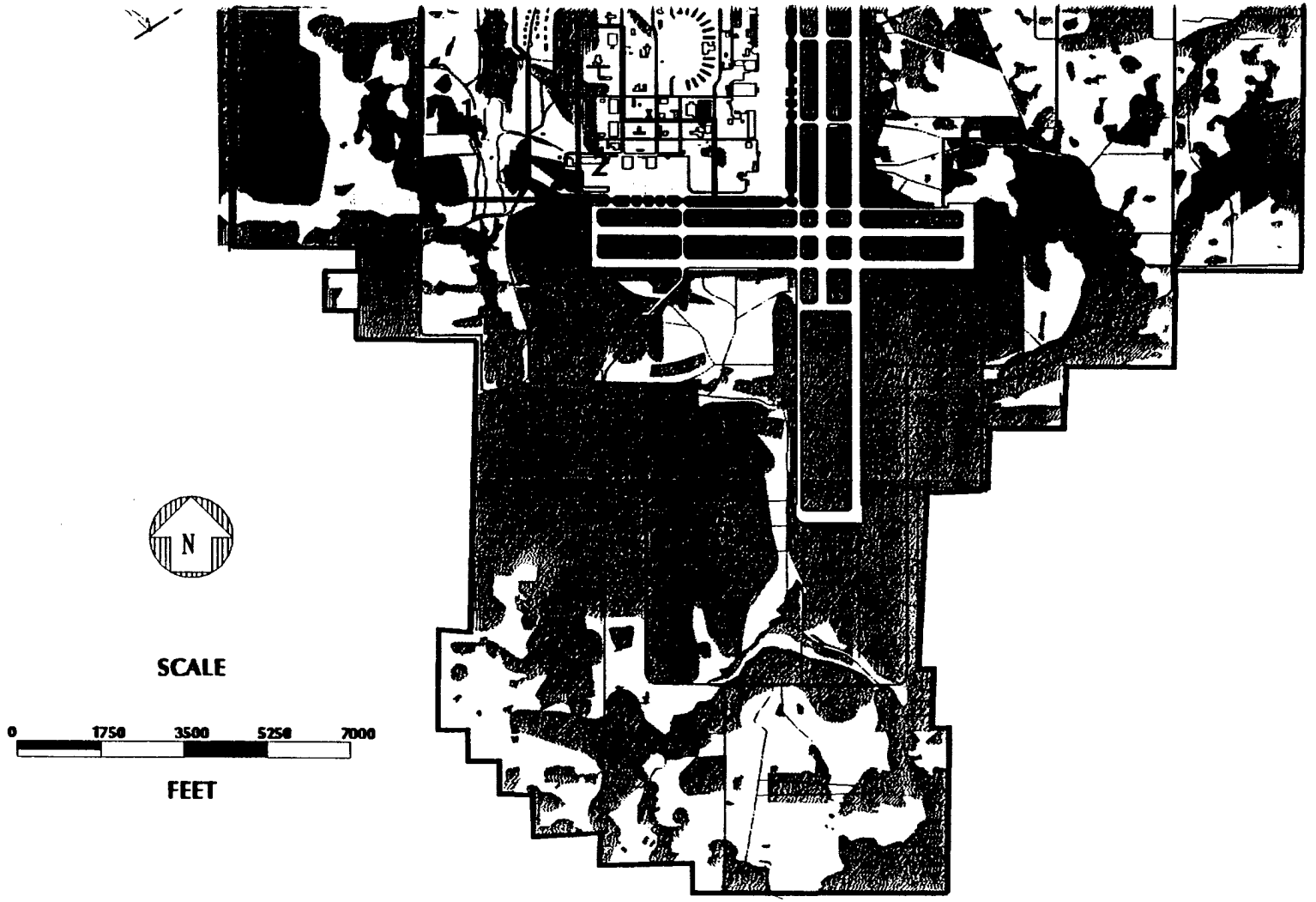
2 - Helicopter Operations

3 - Ordinance Storage

4 - Market-Driven Development

5 - Recreation/Forestry

Constrained Land Areas



Source: CFDC 1996; Ecology and Environment, Inc. 1996

Figure 4-2 ARS 1 : CONSTRAINED LAND AREAS

Table 4-2

CONSTRAINED LAND AREAS AND DEVELOPMENT POTENTIAL FOR ARS 1

Land Use	Area Devoted to Land Use (acres [hectares])	Area with Constraints (acres [hectares])[a]	Area with No Constraints (acres [hectares])	Floor Area Ratio (FAR)[b]	Permitted Development Potential (ft^2 m^2)[c]	New Development to 2010 (ft^2 m^2)[b]	Additional Development Potential (ft^2 m^2)[d]
Recreation/Forestry	15,578 (6,304)	8,128 (3,289)	7,450 (3,015)	NA	NA	NA	NA
Parks and Recreation	573 (232)	389 (157)	184 (74)	NA	NA	NA	NA
Aviation Operations	158 (64)	30 (12)	128 (52)	NA	NA	NA	NA
Market-Driven Development	893 (361)	207 (84)	686 (278)	0.50	14,941,080 (1,388,071)	500,000 (46,452)	14,441,080 (1,341,620)
Total	17,202 (6,961)	8,754 (3,542)	8,448 (3,419)	NA	14,941,080 (1,388,071)	500,000 (46,452)	14,441,080 (1,341,620)

[a] Land areas containing at least one of the following constraints: wetlands, floodplains, habitats of species of concern, potentially archaeologically sensitive areas, or environmentally contaminated areas.

[b] As proposed in the *Cecil Field Base Final Reuse Plan* (CFDC 1996).

[c] Permitted development potential calculated by multiplying the floor area ratio by the land area without development constraints (i.e., converted into square feet).

[d] Additional development potential calculated by subtracting planned development to 2010 from permitted development potential.

Key:

ARS = Alternative Reuse Scenario.
ft^2 = Square feet.
m^2 = Square meters.
NA = Not applicable; no buildings would be developed in these areas.

Source: Ecology and Environment, Inc. 1998.

Aesthetic Impacts

Implementation of this ARS could result in short- and long-term aesthetic impacts in previously developed areas of the station. It is expected that existing buildings would deteriorate and only necessary maintenance of structures consistent with a caretaker approach would occur (i.e., buildings awaiting reuse). Based on the scale of the property, it is likely that existing buildings and station grounds would become aesthetically displeasing.

4.1.4 Alternative Reuse Scenario 2

Under ARS 2, reuse of the former station property would primarily involve reuse of the existing airfield facilities for civilian aircraft and helicopter operations. However, no major investments in infrastructure or other activities to encourage redevelopment would occur. Administrative measures, such as land development regulations and the comprehensive plan process, would be the primary controls over redevelopment. Redevelopment efforts would be focused on the developed area of the Main Station. Other than market-driven development around the previously disturbed ordnance storage area, the Yellow Water Area would not realize any appreciable new development. Immediate reuse of facilities in the developed area of the Main Station would be random and driven by general aviation uses. The balance of the property would continue to be used for its forestry resources. Future reuse and development of land at NAS Cecil Field would be a result of the comprehensive planning process, land development regulation process, and private market forces. In the long term, redevelopment of properties by private interests would largely be limited to land uses that are consistent with pre-closure uses.

Development Constraint Analysis

Figure 4-3 depicts ARS 2 and land areas exhibiting known development constraints; Table 4-3 presents an analysis of the development potential of the station if development occurred only in areas without documented constraints. Environmental constraints would not significantly affect the implementation of ARS 2. The CFDC projects that approximately 500,000 ft^2 (46,451.5 m^2) of new development could be realized under ARS 2 (CFDC 1996). However, development that would be allowed using FAR standards would total over 24 million ft^2 (1,672,254 m^2). Therefore, projected development could reasonably be implemented without affecting constrained land areas.



LEGEND

1 - Parks and Recreation

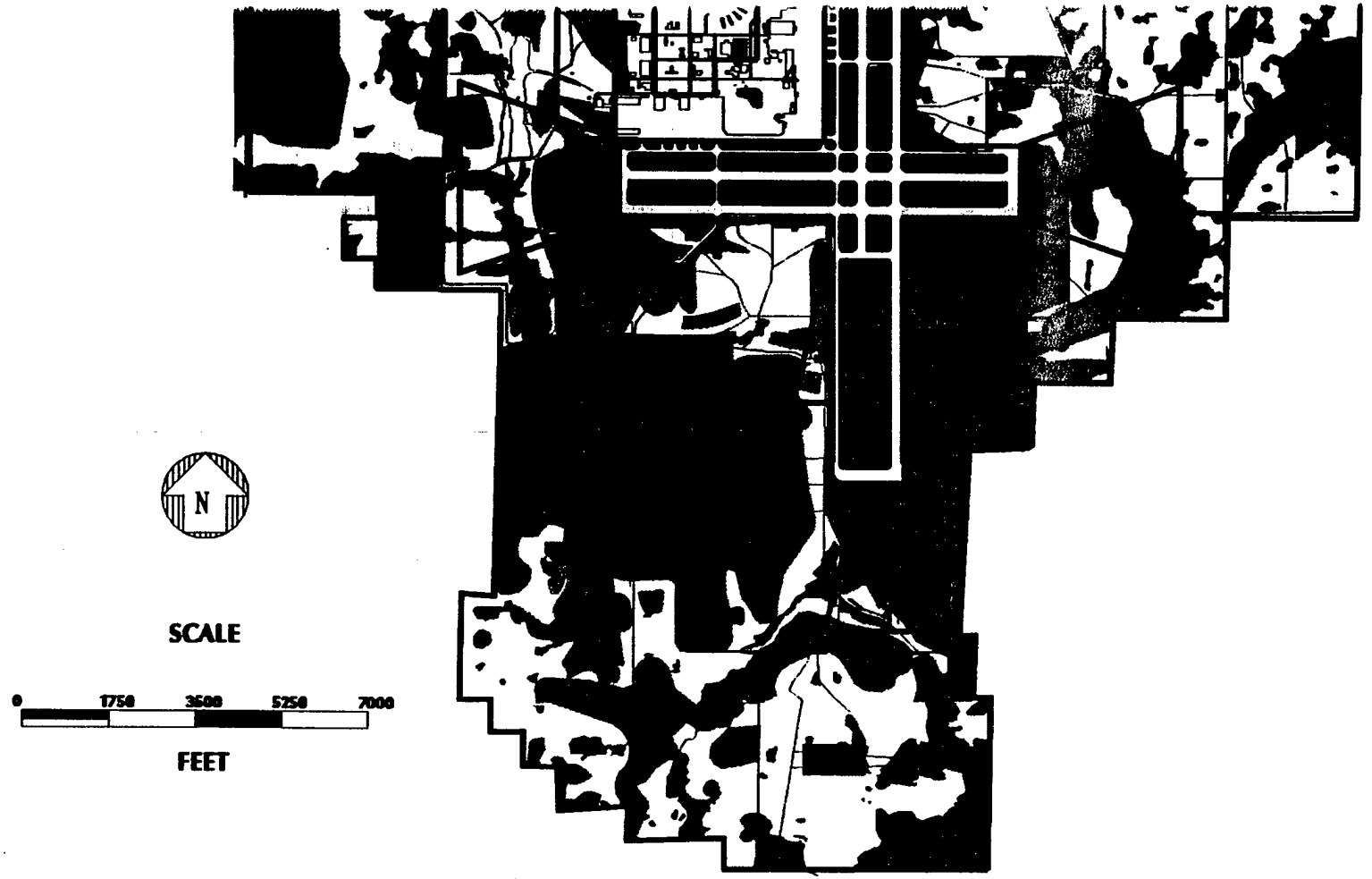
2 - Forestry

3 - Market-Driven Development

4 - General Aviation

Constrained Land Areas


N



Source: CFDC 1996; Ecology and Environment, Inc. 1996

Figure 4-3 ARS 2 : CONSTRAINED LAND AREAS

Table 4-3

CONSTRAINED LAND AREAS AND DEVELOPMENT POTENTIAL FOR ARS 2

Land Use	Area Devoted to Land Use (acres [hectares])	Area with Constraints (acres [hectares])[a]	Area with No Constraints (acres [hectares])	Floor Area Ratio (FAR)[b]	Permitted Development Potential (ft^2 [m^2])[c]	Planned New Development to 2010 (ft^2 [m^2])[b]	Additional Development Potential (ft^2 [m^2])[d]
Forestry	11,737 (4,750)	6,382 (2,583)	5,355 (2,167)	NA	NA	NA	NA
Parks and Recreation	2,332 (944)	1,265 (512)	1,067 (432)	NA	NA	NA	NA
General Aviation	1,833 (742)	670 (271)	1,163 (471)	0.50	5,815,260 (540,255)[e]	0	5,815,260 (540,255)
Market-Driven Development	1,300 (526)	437 (177)	863 (349)	0.50	18,796,140 (1,746,218)	500,000 (46,452)	18,296,140 (1,699,766)
Total	17,202 (6,962)	8,754 (3,543)	8,448 (3,419)	1	24,611,400 (2,286,473)	500,000 (46,452)	24,111,400 (2,240,021)

[a] Land areas containing at least one of the following constraints: wetlands, floodplains, habitats of species of concern, potentially archaeologically sensitive areas, or environmentally contaminated areas.
[b] As proposed in the *Cecil Field Final Base Reuse Plan* (CFDC 1996).
[c] Permitted development potential calculated by multiplying the floor area ratio by the land area without development constraints (i.e., converted into square feet).
[d] Additional development potential calculated by subtracting planned development to 2010 from permitted development potential.
[e] Excludes 1,568 acres (634.55 hectares) required for runway operations.

Key:

ARS = Alternative Reuse Scenario.
ft^2 = Square feet.
m^2 = Square meters.
NA = Not applicable; no buildings would be developed in these areas.

Source: Ecology and Environment, Inc. 1998.

Internal Land Use Consistency

No significant internal land use inconsistencies would result from implementing ARS 2. Because new development would be very limited and center on already disturbed areas, it is unlikely that internal land use conflicts would result. Depending on the ultimate mix of market-driven development in the developed portion of the Main Station, there would be a small potential for conflicts with proposed parks and recreation land. Such conflicts would be assessed by the ultimate receiving entity through the city's review process.

External Land Use Consistency

No significant external land use inconsistencies would result from implementing ARS 2. Forestry uses would abut adjacent properties under ARS 2; therefore, there would be no change from current conditions.

Aesthetic Impacts

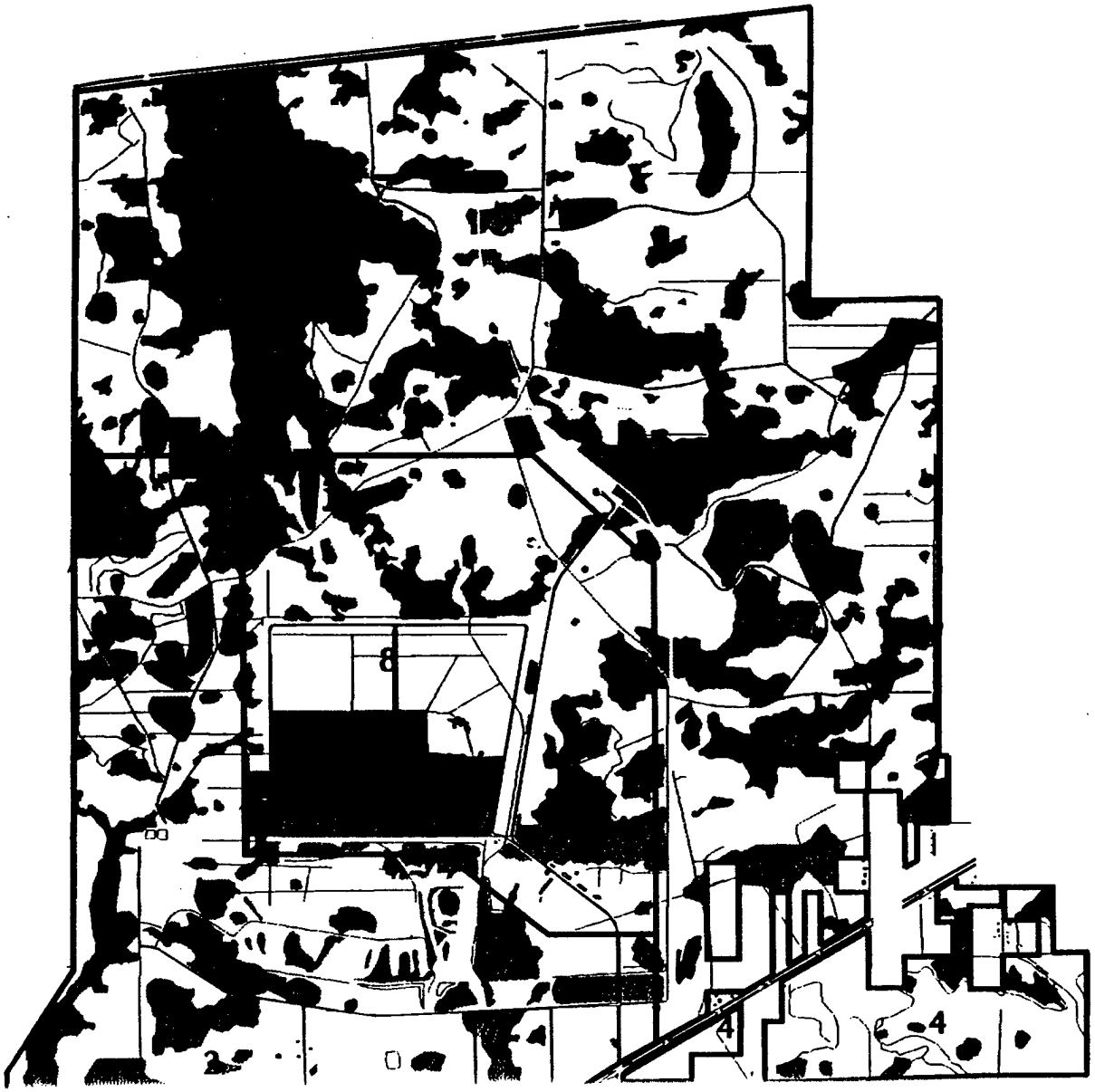
Based on the limited amount of proactive planning and development under ARS 2, a potential exists for deterioration of existing facilities at the station after disposal.

4.1.5 Alternative Reuse Scenario 3

ARS 3 represents the most aggressive redevelopment approach among the alternatives. It would involve completely dismantling all aviation assets at the station and redeveloping the property into a large-scale, mixed-use complex of manufacturing, light-industrial, residential, and recreational uses.

Development Constraint Analysis

Figure 4-4 depicts ARS 3 and land areas exhibiting known development constraints; Table 4-4 presents an analysis of the development potential of the station if development occurred only in areas without documented constraints. While industrial and commercial development under ARS 3 would not be significantly affected by development constraints, planned residential development would be impeded by environmental features at the station, if development occurred at the assumed density (i.e., one unit per 1 ac [0.4 ha]). Nevertheless, it is likely that the residential development could be "clustered" into smaller lots of 1 ac (0.4 ha) or less to avoid constrained areas, while maintaining the same overall net yield of residential units.



LEGEND

1 - Light Industrial
2 - Manufacturing
3 - Business Park
4 - Commercial
5 - Residential
6 - Conservation
7 - Parks and Recreation
8 - Open Space
9 - Non-Aviation/Incubator
Constrained Land Areas


N



Source: CFDC 1996; Ecology and Environment, Inc. 1996

Figure 4-4 ARS 3 : CONSTRAINED LAND AREAS

Table 4-4

CONSTRAINED LAND AREAS AND DEVELOPMENT POTENTIAL FOR ARS 3

Land Use	Area Devoted to Land Use (acres [hectares])	Area with Constraints (acres [hectares])[a]	Area with No Constraints (acres [hectares])	Floor Area Ratio (FAR)[b]	Permitted Development Potential (ft^2 [m^2])[c]	Planned New Development to 2010 (ft^2 [m^2])[b]	Additional Development Potential (ft^2 [m^2])[d]
Conservation	2,292 (928)	1,577 (638)	715 (289)	NA	NA	NA	NA
Open Space	1,574 (637)	642 (260)	932 (377)	NA	NA	NA	NA
Parks and Recreation	570 (231)	394 (159)	176 (71)	NA	NA	NA	NA
Planned Residential	3,471 (1,405)	2,279 (922)	1,192 (482)	NA[e]	NA - 1,192 units	NA - 3,250 units	NA - 2,058 units
Commercial	410 (166)	55 (22)	355 (144)	0.30	4,639,140 (430,990)	200,000 (18,581)	4,439,140 (412,409)
Business Park Users	307 (124)	86 (35)	221 (89)	0.50	4,813,380 (447,177)	275,000 (25,548)	4,538,380 (421,629)
Incubator Uses	720 (291)	147 (59)	573 (232)	0.50	12,479,940 (1,159,424)	275,000 (25,548)	12,204,940 (1,133,876)
Light Industrial	4,149 (1,679)	1,784 (722)	2,365 (957)	0.15	15,452,910 (1,435,622)	2,000,000 (185,806)	13,452,910 (1,249,816)
Manufacturing	3,709 (1,501)	1,790 (724)	1,919 (777)	0.15	12,538,746 (1,164,887)	750,000 (69,677)	11,788,746 (1,095,210)
Total	17,202 (6,962)	8,754 (3,541)	8,448 (3,418)	NA	49,924,116 (4,638,100)	3,500,000 (325,160)	46,424,116 (4,312,940)

[a] Land areas containing at least one of the following constraints: wetlands, floodplains, habitats of species of concern, potentially archaeologically sensitive areas, or environmentally contaminated areas.
[b] As proposed in the *Cecil Field Final Base Reuse Plan* (CFDC 1996).
[c] Permitted development potential calculated by multiplying the floor area ratio by the land area without development constraints (i.e., converted into square feet).
[d] Additional development potential calculated by subtracting planned development to 2010 from permitted development potential.
[e] FAR not applicable; permitted density assumed to be one residential unit per acre.

Key:
ARS = Alternative Reuse Scenario.
ft^2 = Square feet.
m^2 = Square meters.
NA = Not applicable; no buildings would be developed in these areas.

Source: Ecology and Environment, Inc. 1998.

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Internal Land Use Consistency

Development under ARS 3 probably would not result in any significant internal land use conflicts. However, by introducing residential uses into the scenario, the potential exists for future conflicts with industrial and manufacturing uses if these areas are not properly buffered from one another.

Overall, ARS 3 would take the least advantage of existing assets at the station by complete discontinuation of aviation facilities and long-term development of all lands currently used for their forestry resources. In turn, ARS 3 would involve the most infrastructure investment to facilitate development activities.

External Land Use Consistency

This ARS would result in limited conflicts with off-station land uses and is consistent with mixed-use development goals established in the *Jacksonville Comprehensive Plan.* However, based on the limited amount of development in this section of the city, encouragement of such an extensive development outside the city's existing urban service area could contribute to urban sprawl, altering anticipated growth patterns in this section and resulting in an unintended need for capital improvements and speculative land ventures.

Aesthetic Impacts

Aesthetic impacts would be similar to the impacts associated with the Preferred Alternative.

4.1.6 Alternative Reuse Scenario 4

ARS 4 is similar to the Preferred Alternative, except that it would introduce additional land uses at the Yellow Water Area and an additional land use district at the Main Station and does not include a Natural and Recreation Corridor component. Under ARS 4, the Yellow Water Area's light-industrial, agriculture, and recreation land use activities would be reduced to provide land for corrections and juvenile justice facilities.

A new light-industrial use is included for the area west of the proposed parks and recreation area at the Main Station. This reduces the amount of forestry land as proposed under the Preferred Alternative and represents a slight land use incompatibility with the adjacent park area.

No significant internal or external land use inconsistencies would result from implementation of this plan.

Development Constraint Analysis

Figure 4-5 depicts ARS 4 and land areas exhibiting known development constraints; Table 4-5 presents an analysis of the development potential of the station if development occurred only in areas without documented constraints. Environmental features would not significantly affect the implementation of ARS 4.

Internal Land Use Consistency

Internal land use consistency would be similar with that of the Preferred Alternative. The major difference would involve proposed uses of the Yellow Water Area. Both the corrections and juvenile justice facilities would be adjacent to light-industrial activities. This could result in potential land use conflicts depending on the types and intensities of industrial uses ultimately developed. However, given the FAR standards assumed under ARS 4, new industrial development could be controlled so that it does not adversely affect populations in the corrections or juvenile justice facilities.

External Land Use Consistency

External land use consistency would be similar to that under the Preferred Alternative. Proposed land uses abutting areas surrounding the station would include a mix of forestry, conservation, parks and recreation, and light-industrial uses, as under the Preferred Alternative.

Aesthetic Impacts

Aesthetic impacts would be similar to those under the Preferred Alternative.

4.1.7 No-Action Alternative

Implementation of the No-Action Alternative assumes Navy would reduce maintenance to levels consistent with federal government standards for excess and surplus properties under 41 C.F.R. §§101-47.402 and 101-47.4913. Under caretaker status, facilities would not be maintained in a manner that would facilitate rapid reuse. Rather, maintenance would consist of minimal activities to ensure security, health, and safety and minimize physical deterioration.

Implementation of this alternative would not result in internal or external land use conflicts. Activities at the site would cease, and adjacent land uses would not be impacted.

4.1.8 Cumulative Impacts

There are no reasonably foreseeable land use actions or development activities around NAS Cecil Field that would result in cumulative impacts to land use. However, redevelopment of NAS Cecil Field (specifically, planned infrastructure changes to support this redevelopment) could result in cumulative impacts to land use on the west side of Jacksonville.

As discussed in Section 4.9, infrastructure changes to support redevelopment would include amending the urban service boundary in the city's Comprehensive Plan to include the station property. These boundaries define areas of priority for public infrastructure investment, such as potable water and sewer facilities. Assuming that significant new public investments would be made to support redevelopment of the station, these improvements could influence new development around the station property that could benefit from expanded water and sewer facilities. However, the potential for such "spin-off" development would be tempered by overall demand for new development on the west side of Jacksonville, which is expected to be somewhat lower than demand in other parts of the city (Jacksonville Planning and Development 1990).

4.1.9 Mitigation Measures

To mitigate potential land use impacts, the JEDC or Duval/Clay counties will implement appropriate planning mechanisms to ensure that redevelopment and reuse of NAS Cecil Field is consistent with city/county development objectives. These measures include:

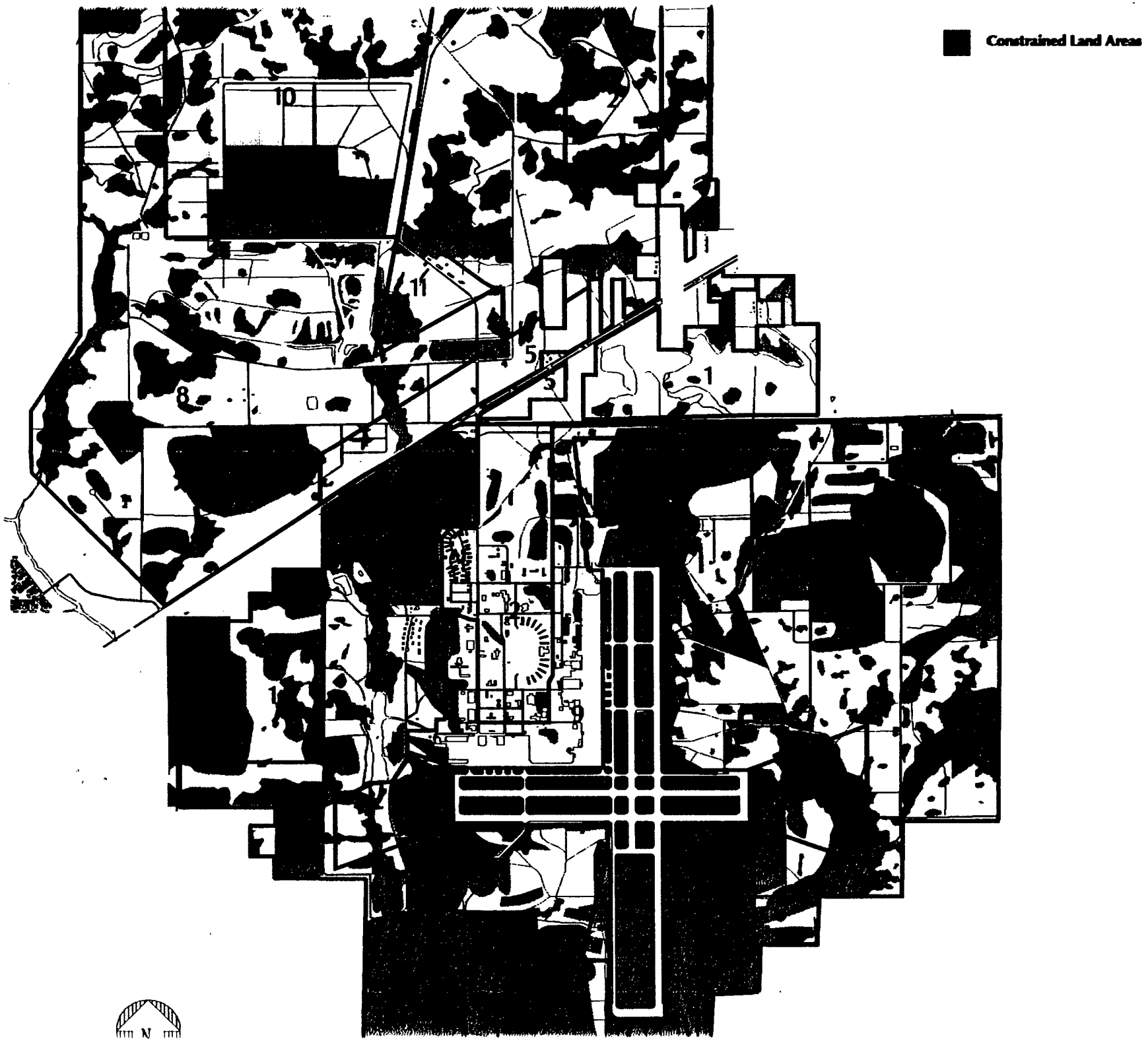
- Establishing an effective redevelopment strategy and implementation plan that is consistent with established land use categories and zoning classifications;
- Effectively managing and implementing a capital improvement program;
- Coordinating land use development with contamination cleanup and investigation; and
- Developing a Natural and Recreation Corridor.



LEGEND

1 - Light Industrial
2 - Heavy Industrial
3 - Forestry
4 - Forestry/Airport Reserve
5 - Commercial
6 - General Aviation
7 - Conservation
8 - Parks and Recreation
9 - Aviation-Related Services
10 - State Corrections Facility
11 - Juvenile Justice Facility

Constrained Land Areas


Constrained Land Areas
10
11
5
3
1
8
1
N



Source: CFDC 1996; Ecology and Environment, Inc. 1996

Figure 4-5 ARS 4 : CONSTRAINED LAND AREAS

Table 4-5

CONSTRAINED LAND AREAS AND DEVELOPMENT POTENTIAL FOR ARS 4

Land Use	Area Devoted to Land Use (acres [hectares])	Area with Constraints (acres [hectares])[a]	Area with No Constraints (acres [hectares])	Floor Area Ratio (FAR)[b]	Permitted Development Potential (ft^2 m^2)[c]	Planned New Development to 2010 (ft^2 m^2)[b]	Additional Development Potential (ft^2 m^2)[d]
Conservation	641 (259)	296 (120)	345 (140)	NA	NA	NA	NA
Forestry	980 (397)	598 (242)	382 (155)	NA	NA	NA	NA
Forestry/Airport Reserve	4,452 (1,802)	2,957 (1,197)	1,495 (605)	NA	NA	NA	NA
Parks and Recreation	2,955 (1,196)	1,363 (552)	1,592 (644)	NA	NA	NA	NA
State Corrections Facility	1,439 (582)	650 (263)	789 (319)	0.10	3,436,884 (319,297)	1,000,000 (92,903)	2,436,884 (226,394)
Juvenile Justice Facility	126 (51)	44 (18)	82 (33)	0.15	535,788 (49,776)	0	535,788 (49,776)
General Aviation	1,566 (634)	1,142 (462)	424 (172)	NA	NA	NA	NA
Aviation-Related Services	445 (180)	103 (42)	342 (138)	0.50	7,448,760 (692,012)	0	7,448,760 (692,012)
Commercial	207 (84)	25 (10)	182 (74)	0.30	2,378,376 (220,958)	100,000 (9,290)	2,278,376 (211,668)
Light Industrial	3,362 (1,361)	1,263 (511)	2,099 (849)	0.15	13,714,862 (1,274,152)	2,500,000 (232,258)	11,214,866 (1,041,895)
Heavy Industrial	1,029 (416)	313 (127)	716 (290)	0.15	4,678,344 (434,632)	1,250,000 (116,129)	3,428,344 (318,503)
Total	17,202 (6,962)	8,754 (3,544)	8,448 (3,419)	NA	32,193,018 (2,990,827)	4,850,000 (450,580)	27,343,018 (2,540,248)

Key at end of table.

Table 4-5 (Cont.)

[a] Land areas containing at least one of the following constraints: wetlands, floodplains, habitats of species of concern, potentially archaeologically sensitive areas, or environmentally contaminated areas.
[b] As proposed in the *Cecil Field Final Base Reuse Plan* (CFDC 1996).
[c] Permitted development potential calculated by multiplying the floor area ratio by the land area without development constraints (i.e., converted into square feet).
[d] Additional development potential calculated by subtracting planned development to 2010 from permitted development potential.

Key:

ARS = Alternative Reuse Scenario.
ft^2 = Square feet.
m^2 = Square meters.
NA = Not applicable; no buildings would be developed in these areas.

Source: Ecology and Environment, Inc. 1998.

Implementation, Land Use, and Zoning

To minimize land use conflicts, the land use implementation strategy of the receiving entity must be consistent with the reuse plan as amended to the *2010 Jacksonville Comprehensive Plan* and approved in accordance with the Florida Defense Conversion and Transition Act, Fla. Stat. Ch. 288.971-288.980 (1997). Because the property will be transferred from Navy to nonfederal entities, the land will become subject to state and local government control. Therefore, once the reuse plan is formally adopted and approved as a land use amendment to the Jacksonville and Clay County comprehensive plans, subsequent land use changes to the original reuse plan that are outside the proposed Public Benefit and Facility future land use category will be subject to the requirements of Fla. Stat. Ch. 163. Depending on the magnitude of any change, its implementation may be subject to the requirements of Fla. Stat. Ch. 380 (pertaining to developments of regional impact). Therefore, the implementation strategy of the responsible entities needs to be consistent with the approved reuse plan (as amended to respective local comprehensive plans) and the locally adopted zoning classification for effective and efficient implementation of the redevelopment process.

Capital Improvements Program (CIP)

Implementation of the Preferred Alternative will require significant capital expenditures and programming for improvements in water and sewer services, the aviation system, roads and drainage facilities, railways, and demolition. The programming will coordinate the associated cost of capital projects with the phasing and sequence of the redevelopment process. The JEDC, as the receiving entity, will formulate an overall CIP for the station property, identifying new/upgraded facilities required, prioritizing improvements in accordance with redevelopment goals and projects, and financing mechanisms to fund such facilities. This plan will then be incorporated into the Jacksonville city-wide CIP to promote the goals, objectives, and policies of the city's comprehensive plan in accordance with Fla. Stat. Ch. 163.

The CIP will have to be coordinated among the major receivers of property. Because several competing entities will require capital improvements to support their respective redevelopment goals, certain issues for effective implementation would need to be considered, such as:

- Which entity(ies) will be responsible for the cost of providing area-wide and site-specific infrastructure;

- How the CIP will relate to the phasing of the Preferred Alternative; and

- How on- and off-site improvements will be coordinated among on-site entities and service providers.

Clarification of these issues will result in a more effective and economically efficient redevelopment process.

Coordination of Development with Future and Ongoing Contamination Investigations

It is not anticipated that existing contamination will influence future land use development (see Section 4.11). However, land development activities will have to consider areas in which remedial actions are underway but incomplete and areas in which hazardous sites are identified but remedial actions have not been undertaken. Investigation and analysis of these areas is ongoing by Navy, EPA, and FDEP; therefore, information regarding the extent and types of contamination at the station will not be fully available until after the EIS process is complete. The JEDC, as the ultimate receiving entity, will be required to coordinate with Navy, EPA, and FDEP to ensure that land use conflicts do not occur in the future. This will be consistent with the team approach to remediation presented in the *BRAC Cleanup Plan* (see Section 4.11).

Natural and Recreation Corridor

Regarding the Natural and Recreation Corridor as a valuable land use resource for preserving, restoring, and enhancing the region's natural resources and providing sound land use planning and resource-based public recreation opportunities would offer the following mitigating benefits:

- An existing natural greenway will be retained which, because of its hydrologic connection, acts as a linchpin connecting Jennings State Forest and Brannan Field Mitigation Park with the St. Marys River system and Cary State Forest to the north. In a rapidly urbanizing area such as Duval County, opportunities to maintain natural system components over the long term and to integrate these features into the design of a metropolitan area are rare. The closing of Cecil Field by Navy, and the reintegration of land to the local community, presents the opportunity to essentially "hardwire" portions of the north Florida natural system into the overall metropolitan design;

- The greenway provides a natural buffer for planned light- and heavy-industrial activities on the east side of the base. Duval County's urban and suburban areas have rapidly been expanding westward. Managing future land use to limit conflicts between adjacent but differing land

use types will be tempered by firm establishment of the natural corridor; and

- From a recreational use perspective, establishment of the Cecil Field greenway/natural corridor in western Duval County supports development of regionally based trails, camping, and recreation areas. Duval County has been noted in a nationwide survey as a desirable place to live, work, and raise a family. Establishment of the outlined Cecil Field greenway would clearly add an important recreational opportunity to present and future Duval and Clay county citizens.

4.2 Topography, Geology, and Soils

4.2.1 Preferred Alternative

Implementation of the Preferred Alternative would not adversely affect soils on the base property, but limited impacts associated with specific construction projects would result in soil compaction, rutting, and exposure to potential erosion. Impacts to soils would be restricted to the area of disturbance only and would be minimized by the use of standard soil erosion and sedimentation control measures (e.g., hay bales, silt fences) during the construction of new projects (see Section 4.2.7).

Much of the area proposed for redevelopment is currently developed; therefore, the soils have been previously disturbed. In undisturbed areas where development is proposed, enough land area is available to site buildings and/or structures so that areas with soil-related development constraints or high erosion potential can be avoided.

As this plan is implemented, site-specific analysis of soil conditions would be conducted by the developer in conjunction with the development of soil erosion and sedimentation control plans. Each soil erosion and sedimentation control plan would include descriptions of acceptable post-development stormwater runoff rates and provide general drainage design criteria. Specific soil erosion and sedimentation control measures would be instituted as part of the local review and permitting process, consistent with the conservation element of the *Jacksonville Comprehensive Plan.*

No impacts to local or regional geologic resources or topography would result from this plan.

4.2.2 Alternative Reuse Scenario 1

Implementation of ARS 1 would result in impacts similar to those discussed for the Preferred Alternative. Because limited new development is proposed, impacts to soils under this

ARS would be primarily associated with ground disturbance resulting from demolition activities, removal of utilities, and ongoing management of forestry resources.

4.2.3 Alternative Reuse Scenario 2

Implementation of ARS 2 would result in impacts similar to those discussed for the Preferred Alternative.

4.2.4 Alternative Reuse Scenario 3

Implementation of ARS 3 would result in impacts similar to those discussed for the Preferred Alternative.

4.2.5 Alternative Reuse Scenario 4

Implementation of ARS 4 would result in impacts similar to those discussed for the Preferred Alternative.

4.2.6 No-Action Alternative

Implementation of this alternative would not result in significant adverse impacts to topography, geology, or soils.

4.2.7 Cumulative Impacts

There are no reasonably foreseeable actions that would result in cumulative impacts to topography, geology, and soils at the NAS Cecil Field property. All anticipated impacts would be localized in nature and associated with redevelopment activities.

4.2.8 Mitigation Measures

Site-specific impacts to soils will be minimized by avoidance of areas where soils may present development constraints (i.e., where a high erosion potential exists). Mitigation measures taken by the JEDC or the ultimate site developers will include the use of standard soil erosion and sedimentation control measures during construction of new projects (e.g., hay bales, silt fences). Specific soil erosion and sedimentation control measures will be instituted as part of the local review and permitting process, consistent with the conservation element of the *Jacksonville Comprehensive Plan*.

4.3 Terrestrial Resources

Upon closure of NAS Cecil Field, terrestrial resources will be managed in accordance with a natural resource management plan being developed by the USFWS (Epstein 1995). This plan will set forth policies for resource management prior to final disposal by Navy. Following disposal by Navy, redevelopment activities will be conducted by the JEDC or private developers. These entities will be responsible for obtaining appropriate reviews, approvals, and permits associated with terrestrial resource protection prior to conducting redevelopment activities.

4.3.1 Preferred Alternative

Implementation of the Preferred Alternative would result in overall minor impacts to terrestrial resources in the short-term and interim period, and moderate impacts in the long-term period.

Upland Vegetation and Wildlife

Implementation of the Preferred Alternative would not significantly affect upland vegetation and wildlife in the short term. Developed areas at the Main Station, including existing facilities, airstrips, and the golf course, would continue to be used in their present state with no additional development of surrounding areas. The golf course and other recreational lands at the Main Station (e.g., Lake Fretwell) would continue to be maintained in their present conditions with no impacts to the existing vegetation or wildlife.

The remaining extensive lands on the west, south, and east sides of the Main Station, including areas surrounding the airstrips, the majority of the Yellow Water Area, and lands within the Natural and Recreation Corridor, would be used for passive recreation and forestry. Potential uses include the development of active recreational uses such as ball fields, tennis courts, and bike trails outside the corridor and passive recreational uses such as hiking and camping within the corridor. Such recreational activities would negligibly affect vegetation and wildlife because of their typically unobtrusive nature and the small amount of terrestrial resources affected relative to the total undeveloped acreage at the station. Most of these areas would continue to be managed under a basewide forestry management plan to be developed by CFDC. The plan would likely be similar to existing management plans for Jennings State Forest and Brannan Field Mitigation Park, which are designed for sustainable management of the forest resources. Periodic selective harvesting of pinelands and hardwood habitats would continue. Harvesting results in both loss of habitat for certain forest-dwelling wildlife species and creation

of open habitat for other species. Overall, a variety of forest stands of different ages would be maintained by the forestry management plan to the benefit of wildlife species.

The southern end of the Main Station would be maintained in its present state as a conservation area. This area would adjoin the Brannan Field Mitigation Park (which is managed by the FGFWFC) and Jennings State Forest, and would be part of the Natural and Recreation Corridor. Most of this conservation area consists of upland pine and hardwood forests.

The proposed long-term construction of heavy- and light-industrial developments and additional buildings and facilities would require land clearing and vegetation removal. In general, these developments would directly affect vegetation and associated wildlife by removing habitats and fragmenting the remaining habitats, which would restrict potential wildlife movements. However, impacts would be minimized by enforcement of the proposed FAR standards by the Jacksonville Planning and Development Department and adoption of city regulations requiring surrounding native vegetation and connections between habitats, including upland and wetland systems, to be maintained. Moreover, the principal affected habitat type would be planted slash pine, which is widespread and very common at NAS Cecil Field and throughout northeastern Florida. Therefore, overall impacts to upland vegetation and wildlife would not be significant.

Wetland Vegetation and Wildlife

Based on the lack of significant change in land use or management proposed by the Preferred Alternative, most wetland vegetation and wildlife would continue to exist in its present state. The existing forestry management plan provides for periodic harvesting of forested wetland stands including wetlands dominated by pines, deciduous broad-leaved trees, and cypress. Removal of trees alters the vegetation composition and structure, wildlife use, and hydrologic patterns of wetlands. Scrub/shrub and emergent wetlands are not altered by forestry practices.

Overall, land uses proposed in the Preferred Alternative would not result in significant impacts to wetlands as identified on NWI maps. Section 4.1 presents a constraints analysis conducted to determine whether projected development could be reasonably developed on lands without sensitive environmental features. Wetland areas were a main constraint feature included in this analysis. Because of the large amount of nonwetland area that could be developed and the limited amount of proposed development, it is unlikely that encroachment into wetlands would be required to accommodate development. The majority of wetland areas in the Yellow Water

Area are located in the northwest portion, which would continue to be managed for forestry. Maintenance of the present land uses at the Main Station would not directly impact wetlands.

Proposed long-term development could impact wetlands, especially light- and heavy-industrial development on the eastern side of the Yellow Water Area. This portion of the Yellow Water Area contains sizeable hardwood, cypress, pine, and scrub/shrub wetlands. However, the relatively small amount of land that would actually be developed compared with the total area set aside for development should allow projects to be located in upland areas. Therefore, it is likely that direct encroachment on wetlands would be avoided. In those instances where encroachment on wetlands could not be avoided, the Natural and Recreation Corridor would be managed to provide credits for offsetting wetland impacts to the eastern portion of the station. Further, any development plans proposed near known wetland areas would need to comply with the permitting requirements of Section 404 of the Clean Water Act, 33 U.S.C. § 1344(a-t) (1994), as implemented by the U.S. Army Corps of Engineers Regulations, 33 C.F.R. Parts 320-333; Fla. Stat. Ch. 373, Part IV; and Fla. Admin. Code Ann. Ch. 62.

Field surveys will need to be conducted by developers in accordance with Section 404 of the Clean Water Act, 33 U.S.C. §§ 1251-1377 (1994); Fla. Stat. Ch. 373, Part IV; and Fla. Admin. Code Ann. Ch. 62 after site-specific development plans are formed to determine the extent of wetlands. As specific development plans are proposed near known wetland areas, wetland delineations would need to be conducted by the developer to determine specific wetland boundaries in relation to proposed developments and to ensure that wetland areas will be preserved and maintained.

Threatened and Endangered Species

Continued implementation of a forestry management plan throughout most of the Yellow Water Area and much of the Main Station in the interim would maintain the presence of suitable habitat for the federal- and state-listed species discussed in Section 3.3, such as the Florida gopher tortoise, Florida pine snake, eastern indigo snake, Florida mouse, Sherman's fox squirrel, and Bachman's sparrow in the drier pinelands. Although only the gopher tortoise, Sherman's fox squirrel, and Bachman's sparrow have been confirmed at the station, the extent of suitable habitat for these listed species makes it possible that other species are present at the station (see Section 3.3). Continued periodic harvesting and prescribed burning of selected pinelands would create habitats that would benefit these species at a variety of developmental stages. Longer rotation times between harvests and increased prescribed burning, especially in the Yellow Water Area, would further increase the value of the pinelands to these species. In

addition, the burning of pine habitats around certain emergent and cypress wetlands on the Yellow Water Area could increase potential breeding habitat for the flatwoods salamander by favoring the growth of wiregrass. Subsequent to the harvesting of drier areas at the Main Station, replanting with longleaf pine instead of with the existing slash pine would further increase habitat suitability for the aforementioned species.

Proposed long-term development could affect suitable habitats and individual federal- and state-listed species that have special protection status. For example, grading for building construction could cause mortality among gopher tortoises occupying their burrows, and development of light-industrial activities at the existing ordnance storage area could result in a loss of suitable foraging habitat for the southeastern American kestrel. In addition, fragmentation of suitable habitats, especially by large developments and transportation corridors, could be a significant indirect impact. However, the Natural and Recreation Corridor planned for the west side of the station would assist in mitigating terrestrial impacts on the east side development area by providing for a natural greenway connecting Jennings State Forest and Brannan Field Mitigation Park with the St. Marys River system and Cary State Forest to the north. The most intensive development would require relatively small areas; proper project siting could avoid suitable habitats. In general, most of the suitable habitat for listed species occurs at the Main Station, whereas much of the long-term new development is planned to occur at the Yellow Water Area. Policy 1.4.1 of the Conservation/Coastal Management Sub-Element of the NAS Cecil Field Transition Element, which will be adopted into the city of Jacksonville's 2010 Comprehensive Plan, specifies that the city will require a survey of listed species in areas proposed for new development and site clearing. If the survey indicates the presence of listed species, the city will require the preparation of a habitat management plan that specifies how the listed species will be protected from the impacts of the proposed development. The plan is to be prepared by a qualified professional and reviewed by FGFWFC and USFWS. Under the requirements of the habitat management plan, the developer may be required to provide for avoidance as well as mitigative measures, such as relocation of listed species.

4.3.2 Alternative Reuse Scenario 1

Overall, ARS 1 would result in the fewest impacts to terrestrial resources because of the minimal amount of redevelopment. Some existing facilities would be maintained, and new development would be minimal relative to the other reuse plans.

Upland Vegetation and Wildlife

ARS 1 would not result in significant changes to existing development patterns. The proposed uses at the Main Station would occur within existing structures, aviation facilities (including runways), other developed areas, and maintained lawn areas. In addition, the golf course and other recreational lands on the Main Station (e.g., Lake Fretwell) would continue to be maintained in their present conditions with no impacts to the vegetation or wildlife.

The remaining lands, consisting of virtually all of the Yellow Water Area and most of the Main Station, would be used for passive recreation and forestry. The resultant extensive greenspace could serve as an important wildlife travel corridor between Cary State Forest, which is approximately 6 mi (9.7 km) due north of the Yellow Water Area; Jennings State Forest, which borders the south side of the Main Station; and Camp Blanding, which borders Jennings State Forest.

Wetland Vegetation and Wildlife

Based on the lack of significant change in land use or management proposed by ARS 1, wetland vegetation and wildlife would not be affected. Continued implementation of the forestry management plan would not alter the ecological integrity of the wetland systems.

Threatened and Endangered Species

Implementation of ARS 1 would not affect the present distribution of federal-and state-listed species at the station or the suitability of habitats. The continued uses of the Main Station, including maintenance of the airstrips and forestry management, are compatible with maintenance of habitat suitable for inhabitants of dry pinelands.

4.3.3 Alternative Reuse Scenario 2

Implementation of ARS 2 would result in predominantly minor overall impacts to existing biological resources. Most of the station would be maintained in its present state for forestry purposes, existing facilities would continue to be used, and limited new development would occur in disturbed portions of the Main Station and the Yellow Water Area.

Upland Vegetation and Wildlife

Under ARS 2, the dominant land use would be forestry. Therefore, upland vegetation and wildlife resources would continue without significant variation from the current species

distribution and composition. The planned market-driven development in the Main Station and the Yellow Water Area would occur entirely within already disturbed areas; therefore, the loss of vegetation would be minimal and would not affect the overall value of habitats to wildlife.

Wetland Vegetation and Wildlife

ARS 2 would not result in encroachment on wetlands. Continued implementation of the forestry management plan would not alter the ecological integrity of wetland systems. Only a small portion of the existing Yellow Water Area ordnance area contains NWI wetlands. However, the small amount of acreage required for development, compared with the overall size of the general area, would allow for avoidance of wetland areas and prevent direct impacts to wetland resources.

Threatened and Endangered Species

Impacts to suitable habitat for federal- and state-listed species would be similar to those resulting from current operations. Continued forestry management practices would maintain habitat suitability for listed species. The market-driven development in the Yellow Water Area would result in the loss of suitable foraging habitat for the southeastern American kestrel. However, the area required for development, compared with the areas that would remain undisturbed, is small.

4.3.4 Alternative Reuse Scenario 3

Compared with the other ARSs, ARS 3 would result in greater disturbance of upland habitats, wetland habitats, and suitable habitats for species of concern. In particular, wetlands could experience direct impacts through possible hydrologic alterations, and wildlife could experience indirect impacts through restricted movement and habitat fragmentation.

Upland Vegetation and Wildlife

ARS 3 would result in widespread impacts to upland vegetation and wildlife, particularly at the Main Station. Residential development in the eastern part of the Main Station would cause removal of much of the forest, thereby minimizing the value of this area to wildlife. Manufacturing facilities, commercial development, and light-industrial developments would constitute relatively intensive land uses and potentially cause more upland habitat loss than the other ARSs. Creation of a conservation area in the southern portion of the Main Station would

retain a sizeable area in its present land cover, primarily dry pinelands with scattered hardwood wetlands.

Wetland Vegetation and Wildlife

Wetlands would be directly affected by several proposed developments associated with ARS 3. Residential development, the most intensive land use of this proposed reuse plan, would encroach on numerous acres of hardwood, cypress, and scrub/shrub wetlands in the eastern section of the Main Station. Additional indirect impacts could result from potential hydrological alterations. Most of the Yellow Water Area is designated for light-industrial and manufacturing activities. Over half of this area is mapped as wetland, and encroachment on wetlands would likely occur despite the modest FARs. Creation of the conservation area at the Main Station would preserve some hardwood and pine wetlands.

Threatened and Endangered Species

ARS 3 would potentially result in the direct loss of much suitable habitat for several federal- and state-listed species, including the gopher tortoise, Florida mouse, eastern indigo snake, Sherman's fox squirrel, Florida pine snake, Bachman's sparrow, numerous plant species in drier habitats, and possibly the wood stork in wetland areas. Proposed development at the Main Station would probably kill individual gopher tortoises or cause significant alteration of occupied habitats. In addition, developments throughout the station would fragment suitable habitats, thereby restricting movement of most listed species. Individuals that are not directly affected would be isolated from other individuals, potentially resulting in significant impacts to the local population through decreased reproduction. The proposed conservation area south of the Main Station and adjacent to the Brannan Field Mitigation Bank would create a sizeable conservation area and would somewhat offset overall impacts to listed species.

4.3.5 Alternative Reuse Scenario 4

Impacts resulting from implementation of ARS 4 would be similar to those for the Preferred Alternative.

4.3.6 No-Action Alternative

Upland Vegetation and Wildlife

Implementation of this alternative would not result in significant adverse impacts to upland vegetation and wildlife because no site disturbance would occur. It is assumed that, under caretaker status, Navy would continue implementation of its Long Range Forestry Management Plan to avoid fires or nuisance conditions.

Wetland Vegetation and Wildlife

Implementation of this alternative would not result in significant adverse impacts to wetland vegetation and wildlife because there would be no site disturbance or encroachment into wetland areas.

Threatened and Endangered Species

Implementation of this alternative would not result in a significant adverse impact to threatened and endangered species because there would be no site disturbance to impact suitable habitat. Continued periodic harvesting and prescribed burning of selected pinelands would create habitats that would benefit species.

4.3.7 Cumulative Impacts

A reasonably foreseeable action that would affect terrestrial resources in the vicinity of the NAS Cecil Field property involves efforts undertaken by the city of Jacksonville to establish a wildlife management area adjoining the southeast portion of the station property.

When combined with planned actions associated with the Preferred Alternative, specifically, development of the 6,300-ac Natural and Recreation Corridor along the entire western length of the station and management of forestry resources on the east side of the main station, the above-mentioned action could result in beneficial cumulative effects on terrestrial resources in the vicinity of the station property. Cumulatively, these actions would significantly contribute to terrestrial resources in this area, while allowing sensitive development of station property.

4.3.8 Mitigation Measures

Regulatory Mitigation

Upon completion of the federal actions necessary to finalize the disposal of NAS Cecil Field, the station property will be available for reuse/development activities and will be the subject of Florida development and natural resource regulations. The FGFWFC will ensure that all reuse activities fulfill permit requirements regarding both state- and federally listed species of concern likely to be affected by the proposed reuse action. In addition, the JEDC, as the receiving entity, will implement the Forestry Management Plan developed for NAS Cecil Field in the areas designated for such use in the Preferred Alternative.

Reuse and redevelopment of NAS Cecil Field will also be subject to the provisions of (1) the Conservation/Coastal Management Element requirements of the Jacksonville Comprehensive Plan; (2) the MOU for establishment of the Natural and Recreation Corridor as amended to the 2010 Jacksonville Comprehensive Plan as a component of the NAS Cecil Field transition element; and (3) the Conservation/Coastal Management Sub-Element of the NAS Cecil Field Transition Element. The relevant issues include conservation and protection of riverine wetlands, conservation and protection of native plant communities, protection of wildlife, and impact on wetlands. The policies also require the maintenance of ecological functions of upland and wetland habitats.

Regarding conservation and protection of native plant communities, Objective 3.3 of the Conservation/Coastal Element is to:

> "Conserve, appropriately use, protect, and manage environmentally sensitive lands (native plant communities and wildlife habitat) to maintain the natural ecological community types and sustainable population of wildlife native to the City [of Jacksonville]."

Regarding the protection of wildlife, Objective 3.5 of the Conservation/Coastal Element is to:

> "Protect and manage endangered, threatened, and species of special concern so there is no reduction in numbers of species that are found in the City and no significant loss of population size. Conserve and protect the functional values of areas of native wildlife habitats which require species protection efforts."

Objective 1.2 of the Conservation/Coastal Sub-Element of the NAS Cecil Field Transition Element is to:

- "Provide a natural and recreation corridor between the Cary State Forest and the Jennings State Forest which creates the opportunity for a migratory corridor for wildlife of the area."

Regarding listed species, Objective 1.4 of the Conservation/Coastal Sub-Element of the NAS Cecil Field Transition Element is to:

- "Protect listed species on NAS Cecil Field."

Regarding the protection of wetlands, Objective 4.1 of the Conservation/Coastal Element permits certain development provided that the following standards are met:

- **Encroachment** in the riverine/estuarine wetlands is the least damaging to the wetlands and no practicable on-site alternative exists; and
- The development is designed and located in such a manner that there is **no net loss** to wetland functions.

All new development on the station property will be subject to review and approval through the local permitting process administered by the city of Jacksonville. This process ensures that development is conducted consistent with city conservation policies.

In addition to local conservation policies, individual projects under the Preferred Alternative will be subject to state and federal regulatory programs, depending on the type and scale of development proposed. Individual developers will be responsible for obtaining reviews and permits prior to project implementation. For example, new projects could be subject to permitting under the Clean Water Act, 33 U.S.C. § 1344(a-r) (1994), if they could affect wetlands under the jurisdiction of USACE.

Specific Mitigation Measures for Federal- and State-Listed Species

Although only the gopher tortoise, Sherman's fox squirrel, and Bachman's sparrow have been confirmed at the station, mitigation measures are also proposed for non-confirmed species with suitable habitat at the station.

Mammals

Sherman's fox squirrel. To mitigate the impact to the Sherman's fox squirrel, any activities planned in the areas of suitable habitat should be scheduled to avoid the breeding season, when the less-mobile young are present.

Birds

Southeast American kestrel. To mitigate impact to the southeast American kestrel, all redevelopment activities that require removing cavity trees should be conducted during nonbreeding season to avoid negative effects on the unfledged young. In addition, developers should take measures (e.g., erection of nest boxes) to compensate for the loss of potential nesting habitat.

Bachman's sparrow. To mitigate impact to the Bachman's sparrow, all activities planned in the areas of suitable habitat should be scheduled during the nonbreeding season to avoid adverse effects on the unfledged young.

Reptiles and Amphibians

Gopher tortoise. To mitigate impact to the gopher tortoise, developers should conduct surveys immediately prior to any habitat alteration. Individual tortoise found during these surveys should be relocated.

Eastern indigo snakes, Florida pine snakes, and Florida gopher frogs. These species are closely associated with gopher tortoise burrows and habitat. To mitigate impact, any of these species found during subsequent gopher tortoise surveys should be relocated.

Plants

Variable-leaf crownbeard and eight other listed species. To mitigate impacts to these species, species-specific surveys should be conducted prior to development and should be scheduled when the plants are in bloom. If a plant population is identified in the proposed

project area, mitigative measures such as avoidance, relocation, or collection of seeds and propagation would need to be discussed with USFWS.

Mitigation measures for terrestrial resources will primarily be enforced at the local level in accordance with the goals, objectives and polices of Conservation/Coastal Management Sub-Element and the MOU for the Natural and Recreation Corridor, which are components of the NAS Cecil Field Transition Element

The recommended mitigation measures presented in this FEIS for federal- and state-listed species could be mitigated for pursuant to Policy 1.4.1 of the Conservation/Coastal Management Sub-Element of the NAS Cecil Field Transition Element, which will be adopted as an amendment to the 2010 Jacksonville Comprehensive Plan. The policy requires a site survey for new development to determine the occurrence of listed species. If the survey indicates the presence of listed species, a habitat management plan will be required demonstrating how the listed species will be protected. The policy also requires that "Under the requirements of the habitat management plan, the developer may be required to provide for avoidance as well as mitigative measure, such as relocation of listed species." In addition, the MOU requires the development of a wetland mitigation plan by October 1, 1998, to mitigate the impact of development on the eastern portion of the property.

4.4 Water Quality and Hydrology

4.4.1 Preferred Alternative

Surface Water Hydrology

No significant impacts to surface water hydrology are anticipated from implementation of the Preferred Alternative. All development proposed for the property would be undertaken pursuant to the jurisdiction of the *Jacksonville 2010 Comprehensive Plan* and would therefore be subject to policies, goals, and guidelines that ensure continuing natural functions of water bodies, wetlands, and floodplains, as well as attainment of water quality standards.

To preserve and protect the significant wetlands at the station and provide natural connections to off-site wetland areas, the Preferred Alternative limits the amount of development in environmentally sensitive areas and allows for the preservation of natural areas. No new realignment of streams or physical alteration of wetland systems would be anticipated as a result of implementing the Preferred Alternative, other than alterations that would provide restorative enhancements to the wetland system in the Natural and Recreation Corridor. Therefore, no

adverse impacts to surface water flow patterns or reduction of flood retention capacity are anticipated.

The station currently has a well-developed system of primarily open drainage systems. However, many of the open ditches and swales indicate restricted flows resulting from lack of maintenance and sediment removal. As new areas of the station are opened for development, primarily in the Yellow Water Area, additional stormwater collection, conveyance, and outfall systems will need to be installed (see Section 4.9, Infrastructure). Redevelopment would not result in a significant increase in off-site stormwater runoff because appropriate stormwater management practices would be implemented.

Water Quality

The Preferred Alternative is not expected to affect streams located on station property, which are classified as Class III water bodies by FDEP according to guidelines established in the Fla. Admin. Code Ann. Ch. 17-302. (FDEP classification designates water bodies for recreation, propagation, and maintenance of a healthy well-balanced population of fish and wildlife.) Deactivation of the station's wastewater treatment plant (WWTP) would improve water quality through elimination of effluent discharge and reduction of nutrient loads to Rowell Creek. Therefore, long-term water quality improvement is anticipated.

Potential surface water quality impacts may result from industrial stormwater discharge, or from normal maintenance and use of developed areas (e.g., herbicide and insecticide use, increased levels of oil and gas in stormwater runoff from roads and parking lots). Following property transfer, an industrial stormwater discharge permit would be required under Fla. Stat. Ch. 403, Part I. The city of Jacksonville will require Stormwater Pollution Prevention Plan and Illicit Discharge Report for future land use development on station property.

Adverse impacts to surface water quality could result from various types of industrial uses through accidental or unpermitted discharges. However, heavy-industrial uses are anticipated to be in the form of clean modern manufacturing operations. Furthermore, industrial-use development is proposed to occupy less than 10% of the overall land area.

Groundwater

The Preferred Alternative would not affect the availability of groundwater in the area or the quality of water withdrawn. Most potable water in Duval County is obtained from wells sewed by the Floridian aquifer system. Principal recharge to the Floridan aquifer system occurs in the lakes region of southwestern Clay County, eastern Bradford County, and western Alachua

County, where the confining beds are either thin or missing. Little or no recharge of the Floridian aquifer system occurs near NAS Cecil Field. An increase in impervious surface area resulting from development would not significantly decrease the amount of water recharged into the Floridian aquifer system.

The potable water system at NAS Cecil Field currently operates independently of the municipal system. However, JEA plans to connect the city's system with the on-site water treatment plant. The water treatment plant is expected to be used for 3 to 5 years, until a new plant is built on site. JEA's long-term plan is to abandon the on-site potable water wells and develop new on-site wells (Riker 1998). Until the station property is connected with the city's potable water supply system, increased, reduced, or changed use of the potable water supply may necessitate a change in consumptive-use permits (obtained from the St. Johns River Water Management District [SJRWMD]). Overall, implementation of the Preferred Alternative and fulfillment of its associated consumptive-use permits would not cause an exceedance of safe aquifer yields.

The reuse plan does not propose development on any of the identified contaminated sites located on station property. Overall, remediation of contaminated groundwater areas will result in improvements to groundwater quality.

4.4.2 Alternative Reuse Scenario 1

Surface Water Hydrology

Implementation of ARS 1 would not result in any adverse impacts to surface water hydrology or flood retention capacity in the vicinity of the station because existing conditions would be maintained. No new realignment of streams or physical alteration of wetland systems would result from this scenario.

Water Quality

Implementation of ARS 1 would not result in any adverse impacts to water quality in the vicinity of the station. Deactivation of the station's WWTP would improve water quality through the elimination of wastewater treatment plant effluent discharge and reduction of nutrient loads to Rowell Creek. Use of best management practices for forestry would continue, as would proper erosion control measures to prevent agriculture runoff.

Groundwater

Implementation of ARS 1 would not result in any adverse impacts to the availability of groundwater in the area or the quality of water withdrawn because existing conditions would be essentially maintained. Remediation of identified contaminated groundwater areas identified during the RFI process would result in improvements to groundwater quality.

4.4.3 Alternative Reuse Scenario 2

Surface Water Hydrology

Based on the limited amount of new development planned, implementation of ARS 2 should not result in any adverse impacts to surface water hydrology or flood retention capacity in the vicinity of the station. No new realignment or physical alteration of streams or wetland systems would result from this scenario.

Water Quality

Implementation of ARS 2 would not result in any adverse impacts to water quality. Deactivation of the station's WWTP would improve water quality through elimination of wastewater treatment plant effluent discharge and reduction of nutrient loads to Rowell Creek. Minor surface water quality impacts may occur from normal maintenance and use of developed areas, including herbicide and insecticide use, and from oil and gas in stormwater runoff from roads, parking lots, and aviation areas. However, these effects would be less significant than under pre-closure conditions.

Groundwater

Implementation of ARS 2 would not result in any adverse impacts to the availability of groundwater in the area or the quality of water withdrawn. The station would be connected to Jacksonville's potable system (Riker 1998). Until the station is connected with the city's potable water supply system, increased, reduced, or changed use of the potable water supply may necessitate a change in consumptive-use permits. Fulfillment of consumptive-use permits would not cause exceedances of safe aquifer yields. Remediation of contaminated groundwater areas would result in improvements to groundwater quality.

4.4.4 Alternative Reuse Scenario 3

Surface Water Hydrology

Implementation of ARS 3 would potentially affect surface water hydrology and flood retention capacity on station property. Development of large tracts of land for manufacturing/ light-industrial and planned residential projects would potentially result in realignment of streams or physical alteration of wetland systems. The significance of impacts from construction and operation of this scenario would depend on the final design. Depending on the extent of development, this scenario would most likely alter natural sheet flow and flow characteristics of streams as a result of the increase in impervious surface area.

Water Quality

Development of large tracts of land for manufacturing, light-industrial, residential, and commercial projects may result in increased use of pesticides, insecticides, or herbicides for lawn care, and increased levels of oil and gas in stormwater runoff from roads and parking lots. Furthermore, development of large tracts of land for industrial projects may result in increased water flow intensity and sediment loads from increased runoff velocity over impervious and newly cleared areas.

Deactivation of the station's WWTP would improve water quality through elimination of effluent discharge and reduction of nutrient loads to Rowell Creek.

Groundwater

Implementation of ARS 3 would not impact the availability of groundwater in the area. Development of large tracts of land for industrial, residential, and commercial projects would potentially increase the amount of impervious surfaces in the area, and consequently decrease the amount of recharge to the surficial and intermediate aquifers through soil infiltration. However, the Floridian aquifer system would not be affected because little or no recharge of significant groundwater occurs near the station.

The base would be connected to the city's potable system in (Riker 1998). Until the station is connected with the city's potable water supply system, increased, reduced, or changed use in the potable water supply may necessitate a change in consumptive-use permits. Fulfillment of consumptive-use permits would not cause an exceedance of safe aquifer yields.

4.4.5 Alternative Reuse Scenario 4

Implementation of ARS 4 would result in impacts similar to those discussed for the Preferred Alternative.

4.4.6 No-Action Alternative

Surface Water Hydrology

No significant impacts to surface water hydrology would occur as a result of implementation of this alternative because no realignment of streams or physical alteration of the wetland systems would occur.

Water Quality

Deactivation of the station's WWTP would improve water quality through elimination of effluent discharge and reduction of nutrient loads to Rowell Creek. Because no activities would occur at the site, there would be no potential for surface water quality impacts from industrial stormwater discharge or from normal maintenance and use of developed areas (e.g., herbicide and insecticide use, stormwater runoff containing levels of oil and gas from roads and parking lots).

Groundwater

Implementation of this alternative would not adversely impact groundwater availability or quality. Because impervious surface at the site would not increase, there would be no impact to the amount of water recharge into the Floridian aquifer system. With minimal demand for water use at the site, availability of groundwater would not be impacted. Under this alternative, the existing consumptive use permit would not need to be changed to allow for an increase in groundwater withdrawal.

4.4.7 Cumulative Impacts

Other than eventual discontinuation of various activities associated with the use of NAS Cecil Field as a naval airfield (e.g., operation of independent WWTP and potable water facilities), there are no reasonably foreseeable actions in the region that would result in cumulative impacts to water resources when combined with the effects of the Preferred Alternative.

Based on careful planning and conservation of sensitive areas, the Preferred Alternative would not result in significant cumulative impacts to surface water hydrology, water quality, or groundwater resources in the Jacksonville area. All development proposed for NAS Cecil Field will be under the jurisdiction of the *Jacksonville 2010 Comprehensive Plan*; therefore, it will be subject to policies, goals, and guidelines that ensure continuing natural functions of water bodies, wetlands, and floodplains, as well as attainment of water quality standards. Under this development plan, all appropriate federal, state, and city permits would be obtained by the JEDC, as the receiving entity; by a site developer; or by the JEA, in order to protect these resources. With the construction of additional impervious surfaces, additional stormwater control structures would be necessary on the property. However, base station redevelopment would not result in significant increases in stormwater runoff in the Jacksonville area.

4.4.8 Mitigation Measures

Site-specific mitigation for impacts to surface water hydrology and groundwater quality will be developed by JEDC during EPA, USACE, FDEP, and SJRWMD permitting processes following submission of individual project plans and detailed specifications.

Off-site mitigation measures for Black Creek should be considered by JEDC as redevelopment progresses because Black Creek, which drains about half of NAS Cecil Field, experiences severe flooding. Standards greater than existing permit criteria need to be investigated to assist in preventing or ameliorating current flooding. New standards would also assist in maintaining water quality of this sensitive system. A joint Floodplain Management Study (Section 22) by USACE, SJRWMD, and Clay County is under way, and a feasibility study is being considered. Clay County is also preparing a stormwater drainage study. Several additional studies on flood warning systems have been completed by the SJRWMD. The recommendations from these studies should be considered by JEDC in development plans for the area.

4.5 Climate and Air Quality

4.5.1 Climate

Neither the Preferred Alternative nor any of the ARSs would have a significant impact on local or regional climate conditions.

4.5.2 Air Quality

Air quality impacts of the Preferred Alternative and ARS 1, ARS 2, ARS 3, and ARS 4 must comply with any federal, state, or local agency regulations based on the Clean Air Act, 42 U.S.C. §§ 7401-7671q (1994), as amended in 1990. Major regulations that may apply are construction and operating permit procedures for sources of stationary air pollution and emission standards such as the New Source Performance Standards, 40 C.F.R. Part 60 (1997), and control technology standards. JEDC and/or developers of future facilities would be responsible for obtaining the proper permits prior to development.

Duval County has been designated as an ozone maintenance area (see Section 3.5); therefore, any action must comply with the air quality maintenance plan in Florida's SIP. The General Conformity Rule, 40 C.F.R. Part 51 subpart w, applies to actions that occur in maintenance and nonattainment areas. This action was analyzed for applicability of the General Conformity Rule.

As discussed in Section 3.5.2.2, transfers of land under certain conditions are exempt from General Conformity Rule applicability. One of the conditions for exemption would be complete transfer of land. After the transfer, the federal agency involved in the action would not retain authority to control air pollutant emissions associated with these lands, nor would it retain authority over any facilities developed or located on these lands. This exemption would apply to reuse of NAS Cecil Field because Navy anticipates complete transfer of lands and facilities to other parties. Thus, this action would be exempt from the General Conformity Rule.

Although reuse of Cecil Field would be exempted from the analysis requirements of the General Conformity Rule, NEPA requirements contained in 42 U.S.C. §§ 4321-4370(d) (1994), would still apply. Accordingly, this FEIS addresses potential impacts to air quality.

Because ozone is the main pollutant of concern in Duval County, the focus of the air quality analysis is on emissions of VOCs and NO_X, which are the pollutants that react to form ozone. Analyses are also presented for carbon monoxide (CO) and particulate matter (PM) emissions from mobile and stationary sources and construction/demolition activities. Pre-closure and projected total annual emissions of VOCs, NO_X, CO, and PM were compared to evaluate the impacts to air quality from the proposed action. The latest emission factors published by EPA for aircraft and mobile sources and construction/demolition were used for the analysis.

Emissions were estimated for personally owned vehicles (POVs) for the Preferred Alternative and each ARS. Estimated future trip generation data were distributed according to the current NAS Cecil Field employee trip distribution (see Sections 3.7, 3.8 and 4.8). Daily trip

data presented in Sections 3.8 and 4.8 are one-way trip counts. Round-trip (RT) counts were determined by dividing the total number of one-way trips (inbound and outbound) by two. An average round-trip commuting distance was determined based on the distance from a central location in Duval (10.9 mi [17.5 km]) and Clay (30.3 mi [48.8 km]) counties. For the small percentage of trips originating outside these two counties, an average RT commuting distance of 50 mi (80.5 km) was assigned. The number of daily vehicle miles traveled (VMT) was determined by multiplying the number of daily trips from each location by the RT distance. The annual VMT was determined by multiplying the daily VMT by 240 workdays per year. VOC, NO_X, and CO emission factors (grams/mi) for model year 1999 (EPA 1992) were applied to the annual VMT to determine annual emissions.

Aircraft emission estimates were based on estimated future aircraft operations and emission factors for aircraft determined to be representative of the aircraft classes included in future operations. Estimated future aircraft operations are shown in Table 4-6. These operations levels apply to the Preferred Alternative, ARS 2, and ARS 4. Aircraft operations under ARS 1 include helicopters only (AH-64, UH-60, and OH-58). No aircraft operations are included in ARS 3.

Emission estimates for ground operation of aircraft include idling and taxiing, take-off/ climbout up to 3,000 ft (914.4 m), approach/landing, taxiing in, and idling. Emission factors are based on fuel usage and operating mode (e.g., takeoff, climbout). Fuel use is determined by multiplying the fuel use rate by the time spent in each operating mode. Emission factors for aircraft are shown in Table 4-7 (EPA 1992a). Commercial aircraft use of the airfield was specified by the CFDC as being for "single-engine piston" through "large jet" aircraft. For these aircraft classes, representative aircraft models with published emission factors were used.

Emissions were estimated for full LTO cycles and touch-and-go (T&G) operations. Since taxiing in and out and idling do not occur for T&G operations, the emissions produced under these conditions were not calculated. Total annual emissions of VOC and NO_X were determined by summing the emissions generated by each operating mode for annual LTO and T&G operations and each aircraft type.

Stationary-source emissions were estimated for major sources expected to be included in any reuse scenario. Emission estimates were obtained from the existing emission inventory for NAS Cecil Field (Navy 1995) and assumed to represent emission levels in future years. Selection of which sources to include in each reuse scenario was based on best engineering judgment. For example, if significant aircraft activity is part of a reuse scenario, then emissions associated with aircraft maintenance activities are included. A boiler plant is included in the

Table 4-6

ESTIMATED FUTURE AIRCRAFT OPERATIONS FOR THE PREFERRED ALTERNATIVE, ARS 1, ARS 2, AND ARS 4

Aircraft Type	Annual Operations[a]			
	Phase 1 (1998-2004)		Phase 2 (2005-2010)	
	Takeoffs and Landings	Touch-and-Go	Takeoffs and Landings	Touch-and-Go
AH-64 (Helicopter)	1,450	475	3,300	1,200
UH-60 (Helicopter)	425	175	875	300
OH-58 (Helicopter)	1,325	325	875	250
Single-Engine Piston (Cessna 150)	10,000	2,000	15,000	2,500
Twin-Engine Piston (Cessna 337)	10,000	2,000	20,000	2,500
Turbo Prop (DeHavilland DHC 6)	15,000	2,000	25,000	2,500
Corporate Jet (Lear 31)	15,000	0	20,000	0
Large Jet (Boeing 737-300)	5,000	0	10,000	0

[a] ARS 1 contains only helicopter operations listed.

Source: CFDC 1996.

Table 4-7

EMISSION FACTORS FOR AIRCRAFT BY OPERATING MODE

Aircraft	Number of Engines	Engine Model	Mode	Fuel Flow (lb/min [kg/min])	Emissions (lb/1,000 lb fuel [kg/454 kg fuel])	
					VOCs	NO_x
AH-64 (Helicopter)	2	T58-GE-5	Taxi Out/idle	2.2 (1.0)	97 (44.0)	1.5 (0.7)
			Climbout	14.8 (6.7)	0.8 (0.4)	7.2 (3.3)
			Approach	14.8 (6.7)	0.8 (0.4)	7.2 (3.3)
			Taxi In/idle	2.2 (1.0)	97 (44.0)	1.5 (0.7)
UH-60 (Helicopter)	1	T58-GE-5	Taxi Out/idle	2.2 (1.0)	97 (44.0)	1.5 (0.7)
			Climbout	14.8 (6.7)	0.8 (0.4)	7.2 (3.3)
			Approach	14.8 (6.7)	0.8 (0.4)	7.2 (3.3)
			Taxi In/idle	2.2 (1.0)	97 (44.0)	1.5 (0.7)
OH-58 (Helicopter)	1	T58-GE-5	Taxi Out/idle	2.2 (1.0)	97 (44.0)	1.5 (0.7)
			Climbout	14.8 (6.7)	0.8 (0.4)	7.2 (3.3)
			Approach	14.8 (6.7)	0.8 (0.4)	7.2 (3.3)
			Taxi In/idle	2.2 (1.0)	97 (44.0)	1.5 (0.7)
Cessna 150	1	O-200	Taxi Out/idle	0.14 (0.1)	29.0 (13.1)	1.58 (0.7)
			Takeoff	0.75 (0.3)	20.8 (9.4)	4.87 (2.2)
			Climbout	0.75 (0.3)	20.8 (9.4)	4.87 (2.2)
			Approach	0.43 (0.2)	33.2 (15.1)	1.14 (0.5)
			Taxi In/idle	0.14 (0.1)	29.0 (13.1)	1.58 (0.7)
Cessna 337	2	TSIO-360C	Taxi Out/idle	0.19 (0.1)	138.26 (62.7)	1.91 (0.9)
			Takeoff	2.22 (1.0)	9.17 (4.2)	2.71 (1.2)
			Climbout	1.66 (1.8)	9.55 (4.3)	4.32 (2.0)
			Approach	1.02 (0.5)	11.31 (5.1)	3.77 (1.7)
			Taxi In/idle	0.19 (0.1)	138.26 (62.7)	1.91 (0.9)

Key at end of table.

Table 4-7

EMISSION FACTORS FOR AIRCRAFT BY OPERATING MODE

Aircraft	Number of Engines	Engine Model	Mode	Fuel Flow (lb/min [kg/min])	Emissions (lb/1,000 lb fuel [kg/454 kg fuel])	
					VOCs	NO_x
DHC 6	2	PT6A-27	Taxi Out/idle	1.92 (0.9)	50.2 (22.8)	2.4 (1.1)
			Takeoff	7.1 (3.2)	0	7.8 (3.5)
			Climbout	6.7 (3.0)	0	7.0 (3.2)
			Approach	3.6 (1.6)	2.2 (1.0)	8.4 (3.8)
			Taxi In/idle	2.0 (0.9)	50.2 (22.8)	2.4 (1.1)
Lear 31	2	TFE731-2	Taxi Out/idle	3.17 (1.44)	20.04 (9.1)	2.82 (1.3)
			Takeoff	27.12 (12.30)	0.11 (0.05)	15.25 (6.9)
			Climbout	22.88 (10.38)	0.13 (0.06)	13.08 (5.9)
			Approach	8.86 (4.02)	4.26 (1.9)	5.9 (2.7)
			Taxi In/idle	3.17 (1.44)	20.04 (9.1)	2.82 (1.3)
Boeing 737-300	2	CFM-56-3	Taxi Out/idle	16.01 (7.26)	1.83 (0.8)	3.9 (1.8)
			Takeoff	134.92 (61.20)	0.04 (0.02)	18.5 (8.4)
			Climbout	111.51 (50.58)	0.05 (0.02)	16.0 (7.3)
			Approach	44.71 (20.28)	0.1 (0.05)	8.4 (3.8)
			Taxi In/idle	16.01 (7.26)	1.83 (0.8)	3.9 (1.8)

Key:

lb = Pounds.
NO_x = Oxides of nitrogen.
VOCs = Volatile organic compounds.

Source: EPA 1992a.

stationary-source inventory for future facilities requiring steam for heat or hot water (e.g., a correctional institution).

Construction and demolition (C&D) emission estimates are based on the anticipated new structural floor space requirements shown in Tables 2-2, 2-5, 2-7, 2-9, and 2-11. Emissions of VOCs and NO_X are generated by heavy construction equipment. Particulate emissions result from mechanical disturbance of structures and soil. Construction of structural floor space was evenly divided over the five-year period of each phase.

Three phases in the development of new facilities—demolition, site preparation, and construction—were analyzed for emission generation. New construction is assumed to occur on previously developed land; therefore, demolition of existing structures occurs prior to new construction. Particulate emissions generated by demolition are based on floor space removed (assumed equal to new floor space to be constructed) and emission factors for structure take-down, debris removal, and vehicular activity (EPA 1992).

Heavy construction equipment engine emissions (VOCs and NO_X) are based on emission factors (EPA 1992a) and best engineering estimates of the types and quantities of equipment required for demolition.

VOC, NO_X, and PM emissions generated by site preparation activities are based on best engineering estimates of the types and quantity of equipment used and the duration of activities. Site preparation and construction activities generally require more acreage than the actual building footprint because of the need for logistical and operational activities such as equipment and material storage and space to operate equipment and vehicles. Building footprint estimates were doubled to account for this extra space requirement.

Site preparation emission estimates were calculated following this procedure for the Preferred Alternative. For each ARS, emissions were increased or decreased based on the ratio of acreage involved in each ARS compared with acreage involved in the Preferred Alternative. Construction emission estimates were also calculated in this manner.

4.5.2.1 Preferred Alternative

The primary air emission sources are expected to be aircraft, mobile-source activity to and from the property, construction activities, and aircraft maintenance facilities. Table 4-8 presents estimated annual emissions from aircraft operations for Phase 1 (1998 to 2004) and Phase 2 (2005 to 2010) of the Preferred Alternative. Mobile-source (vehicle) emission estimates for the Preferred Alternative are shown in Table 4-9. These estimates are based on 1999 mobile-

Table 4-8

EMISSION ESTIMATES FOR AIRCRAFT OPERATIONS FOR THE PREFERRED ALTERNATIVE
(tons/year [tonnes/year])

Aircraft	Phase 1 (1998-2004)				Phase 2 (2005-2010)			
	VOCs		NO_x		VOCs		NO_x	
	Touch-and-Go	Full LTO	Touch-and-Go	Full LTO	Touch-and-Go	Full LTO	Touch-and-Go	Full LTO
AH-64	0.1 (0.1)	2.4 (2.2)	0.7 (0.6)	2.0 (1.8)	5.4 (4.9)	0.2 (0.2)	4.7 (4.3)	1.7 (1.5)
UH-60	0	0.7 (0.6)	0.2 (0.2)	0.6 (0.5)	1.4 (1.3)	0	1.2 (1.1)	0.4 (0.4)
OH-58	0.1 (0.1)	2.2 (2.0)	0.5 (0.5)	1.9 (1.7)	14.0 (12.7)	0	1.2 (1.1)	0.3 (0.3)
Piston 1 Engine	0.2 (0.2)	1.2 (1.1)	0	0.1 (0.1)	1.8 (1.6)	0.2 (0.2)	0.2 (0.2)	0
Piston 2 Engine	0.3 (0.3)	5.7 (5.2)	0.1 (0.1)	0.7 (0.6)	11.5 (10.4)	0.4 (0.4)	1.3 (1.2)	0.2 (0.2)
Turbo prop	0.1 (0.1)	38.1 (34.6)	0.6 (0.5)	6.0 (5.4)	63.5 (57.6)	0.1 (0.1)	10.0 (9.1)	0.7 (0.6)
Corporate Jet	0	13.3 (12.1)	0	7.7 (7.0)	17.8 (16.1)	0	10.3 (9.3)	0
Large Jet	0	4.0 (3.6)	0	44.0 (39.9)	8.0 (7.3)	0	88.0 (79.8)	0
Total	0.8 (0.8)	67.6 (61.4)	2.1 (1.9)	63.0 (59.3)	123.4 (111.9)	0.9 (0.9)	116.9 (106.1)	3.3 (3.0)

Key:

LTO = Landing and takeoff.
NO_x = Oxides of nitrogen.
VOCs = Volatile organic compounds.

Source: Ecology and Environment, Inc. 1998.

Table 4-9

VEHICLE EMISSION FACTORS, ANNUAL VMT, AND EMISSIONS FOR THE PREFERRED ALTERNATIVE

Development Phase	Vehicle Emission Factors (grams/mile)			Annual VMT	Total Emissions (tons/year [tonnes/year])		
	VOCs	NO_X	CO		VOCs	NO_X	CO
Phase 1	1.58	2.23	21.05	20,574,965	36 (33)	51 (46)	477 (433)
Phase 2	1.58	2.23	21.05	55,493,549	97 (88)	136 (123)	1,288 (1,168)

Key:

CO = Carbon monoxide.
NO_X = Oxides of nitrogen.
VMT = Vehicle miles traveled.
VOCs = Volatile organic compounds.

Sources: EPA 1992; Ecology and Environment, Inc. 1998.

source emission factors, estimates of average daily trips, and 240 workdays per year. Emissions associated with C&D activities are presented in Table 4-10.

Summaries of projected emissions for the Preferred Alternative and pre-closure emissions are presented in Table 4-11. As noted, VOC emissions would decrease by 422 tons (382 tonnes) per year from pre-closure conditions to the completion of Phase 2. Emissions of NO_x during the same period would decrease by 250 tons (227 tonnes) per year.

From pre-closure conditions to completion of Phase 2, annual emissions of CO would increase by 407 tons (369 tonnes) per year. Annual emissions of PM would increase by 82 tons 74 tonnes) per year. The increase in CO emissions would be primarily a result of the increase in VMT by employees at the facility. The increase in PM emissions would be solely a result of C&D projects associated with the preferred alternative (see Table 4-10). Construction PM emissions would be temporary; they would cease on completion of the proposed facilities.

Developers of future facilities would be responsible for obtaining the proper permits prior to development. Applicable regulations include construction and operating permit procedures for stationary air-pollution-emitting sources, Florida Pre-Construction Review, Fla. Admin. Code Ann. Ch. 62-212 (1997) and Florida Operating Permits, Fla. Admin. Code Ann. Ch. 62-213 (1997); emission standards such as the New Source Performance Standards, 40 C.F.R. Part 60 (1998); and control technology standards.

4.5.2.2 Alternative Reuse Scenario 1

The primary air emission sources for ARS 1 are expected to be aircraft and mobile-source activity to and from the site. Aircraft type would be limited to Florida National Guard helicopter use in this scenario; thus, emissions would be produced only during takeoff, landing, and T&G operations. The helicopter engine emission values presented in Table 4-12 were estimated by applying the emission factors in Table 4-7 to the estimated future aircraft operations in Table 4-6. New stationary-source emissions are expected to be minimal because no major facilities that emit air pollutants are planned for construction.

Mobile-source emission estimates for ARS 1 are shown in Table 4-13. These estimates are based on 1999 mobile-source emission factors, estimates of average daily trips, and 240 workdays per year. C&D emission estimates are shown on Table 4-14.

Table 4-10

ANNUAL CONSTRUCTION AND DEMOLITION EMISSIONS FOR THE Preferred Alternative (tons/year [tonnes/year])

Activity	Phase 1 (1998-2004)				Phase 2 (2005-2010)			
	Acreage[a]/year (hectares/year)	VOCs	NO_x	PM	Acreage[a]/year (hectares/year)	VOCs	NO_x	PM
Demolition[b]	13.8 (5.6)	1.0 (0.9)	7.2 (6.5)	1.8 (1.6)	21.6 (8.7)	1.6 (1.5)	11.3 (10.3)	2.8 (2.5)
Site Prep[c]	13.8 (5.6)	0.7 (0.6)	5.7 (5.2)	0.5 (0.5)	21.6 (8.7)	1.1 (1.0)	8.9 (8.1)	0.6 (0.5)
Construction[d]	13.8 (5.6)	1.4 (1.3)	11.0 (10.0)	66 (60)	21.6 (8.7)	2.2 (2.0)	17.2 (15.6)	104 (94)
Total	NA	3.1 (2.8)	23.9 (21.7)	68.3 (62.1)	NA	4.9 (4.5)	37.4 (34.0)	107.4 (97.0)

[a] Acreage used in site preparation and construction calculations is total disturbed land (twice construction footprint).
[b] Demolition assumed to require four haul trucks, two bulldozers, two front-end loaders, and two backhoes for a 120-day period each year.
[c] Site preparation assumed to require four haul trucks, two graders, two bulldozers, two front-end loaders, and one excavator for 90 days each year.
[d] Construction assumed to require two small cranes, two hi-lifts, two compactors, one paver, two rollers, and five haul trucks for 120 days each year.

Key:

NA = Not applicable.
NO_x = Oxides of nitrogen.
PM = Particulate matter.
VOCs = Volatile organic compounds.

Source: Ecology and Environment, Inc. 1998.

Table 4-11

AIR POLLUTANT EMISSIONS SUMMARY FOR THE Preferred Alternative (tons/year [tonnes/year])

Emission Source	VOCs	NO_x	CO	PM
Pre-closure	711 (645)	552 (501)	883 (801)	25 (23)
Phase 1				
Aircraft	68.4 (62.1)	65.1 (59.1)	—	—
Stationary	63 (57)	9 (8)	2 (2)	—
Construction	3 (3)	24 (22)	—	68 (62)
Mobile	36 (33)	51 (46)	477 (433)	—
Total	170.4 (155.1)	149.1 (135.1)	479 (435)	68 (62)
Net change from pre-closure	-540.6 (-489.9)	-402.9 (-365.9)	-404 (-366)	+43 (+39)
Phase 2				
Aircraft	124.3 (112.8)	120.2 (109.0)	—	—
Stationary	63 (57)	9 (8)	2 (2)	—
Construction	5 (5)	37 (34)	—	107 (97)
Mobile	97 (88)	136 (123)	1,288 (1,168)	—
Total	289.3 (262.8)	302.2 (274.0)	1,290 (1,170)	107 (97)
Net change from pre-closure	-421.7 (-382.2)	-249.8 (-227.0)	+407 (+369)	+82 (+74)

Key:

CO = Carbon monoxide.
NO_x = Oxides of nitrogen.
PM = Particulate matter.
VOCs = Volatile organic compounds.

Source: Ecology and Environment, Inc. 1998.

Table 4-12

AIRCRAFT EMISSIONS ESTIMATE FOR ARS 1 (tons/year [tonnes/year])

Aircraft	Phase 1 (1998-2004)				Phase 2 (2005-2010)			
	VOCs		NO_x		VOCs		NO_x	
	T&G	LTO	T&G	LTO	T&G	LTO	T&G	LTO
AH-64	0.1 (0.1)	2.4 (2.2)	0.7 (0.6)	2.0 (1.8)	0.2 (0.2)	5.4 (5.0)	1.7 (1.5)	4.7 (4.3)
UH-60	0.0 (0.0)	0.7 (0.7)	0.2 (0.2)	0.6 (0.6)	0.0 (0.0)	1.4 (1.3)	0.4 (0.4)	1.2 (1.1)
OH-58	0.1 (0.1)	2.2 (2.0)	0.5 (0.5)	1.9 (1.7)	0.0 (0.0)	1.4 (1.3)	0.3 (0.3)	1.2 (1.1)
Total	0.2 (0.2)	5.3 (4.9)	1.4 (1.3)	4.5 (4.1)	0.2 (0.2)	8.2 (7.6)	2.4 (2.2)	7.1 (6.5)

Key:

ARS = Alternative Reuse Scenario.
LTO = Landings and takeoffs.
NO_x = Oxides of nitrogen.
T&G = Touch-and-go.
VOCs = Volatile organic compounds.

Source: Ecology and Environment, Inc. 1998.

Table 4-13

VEHICLE EMISSION FACTORS, ANNUAL VMT, AND EMISSIONS FOR ARS 1

Development Phase	Vehicle Emission Factors (grams/mile)			Annual VMT	Total Emissions (tons/year [tonnes/year])		
	VOCs	NO_X	CO		VOCs	NO_X	CO
Phase 1 (1998-2004)	1.58	2.23	21.05	22,617,747	39 (35)	56 (51)	525 (476)
Phase 2 (2005-2010)	1.58	2.23	21.05	27,529,744	48 (44)	68 (62)	639 (580)

Key:

ARS = Alternative Reuse Scenario.
CO = Carbon monoxide.
NO_X = Oxides of nitrogen.
VMT = Vehicle miles traveled.
VOCs = Volatile organic compounds.

Source: Ecology and Environment, Inc. 1998.

Table 4-14

ANNUAL CONSTRUCTION AND DEMOLITION AIR EMISSIONS FOR ARS 1 (tons/year [tonnes/year])

Activity	Phase 1 (1998-2004)				Phase 2 (2005-2010)			
	Acreage[a]/year (hectares/year)	VOCs	No_x	PM	Acreage[a]/year (hectares/year)	VOCs	NO_x	PM
Demolition[b]	2.3 (0.9)	0.17 (0.15)	1.2 (1.1)	0.3 (0.3)	2.3 (0.9)	0.17 (0.15)	1.2 (1.1)	0.3 (0.3)
Site Prep[c]	2.3 (0.9)	0.12 (0.11)	0.95 (0.86)	0.1 (0.1)	2.3 (0.9)	0.12 (0.11)	0.95 (0.86)	0.1 (0.1)
Construction[d]	2.3 (0.9)	0.23 (0.21)	1.8 (1.6)	11.0 (10.0)	2.3 (0.9)	0.23 (0.21)	1.8 (1.6)	17.3 (15.7)
Total	NA	0.52 (0.47)	3.95 (3.56)	11.4 (10.4)	NA	0.52 (0.47)	3.95 (3.56)	17.7 (16.1)

[a] Acreage used in site preparation and construction calculations is total disturbed land (twice construction footprint).
[b] Demolition structural floor space assumed equal to new construction floor space. Emission calculations based on EPA 1992.
[c] Site preparation assumed to require 15 days/year.
[d] Construction assumed to require two small cranes, two hi-lifts, two compactors, one paver, two rollers, and five haul trucks for 120 days each year. Based on ratio of acreages (13.8/2.3 = 6).

Key:

ARS = Alternative Reuse Scenario.
NA = Not applicable.
NO_x = Oxides of nitrogen.
PM = Particulate matter.
VOCs = Volatile organic compounds.

Source: Ecology and Environment, Inc. 1998.

Summarized emissions for ARS 1 are compared with pre-closure levels in Table 4-15. At the completion of Phase 2, a substantial decrease in emissions of all compounds is anticipated. As with the Preferred Alternative, this action would be exempt from the General Conformity Rule.

4.5.2.3 Alternative Reuse Scenario 2

The primary air emission sources for ARS 2 are expected to be aircraft, mobile-source activity to and from the site, and C&D activities. Table 4-8 presents estimated annual emissions from aircraft operations for Phase 1 and Phase 2 of the Preferred Alternative. Aircraft emissions for ARS 2 would be identical to those in the Preferred Alternative because aircraft activity and type would be the same for both scenarios. Stationary-source emissions are expected to be significantly lower compared with pre-closure levels.

Mobile-source emission estimates are shown in Table 4-16. These estimates are based on 1999 mobile-source emission factors, estimates of average daily trips, and 240 workdays per year. C&D emission estimates are shown in Table 4-17.

Summaries of projected emissions for ARS 2 are compared with pre-closure levels in Table 4-18. Emissions would decrease significantly from pre-closure conditions to completion of Phase 2. VOC emissions would decrease by 491 tons (446 tonnes) per year; NO_x emissions would decrease by 374 tons (339 tonnes) per year; and PM emissions would decrease by 7 tons (7 tonnes) per year. CO emissions would decrease by 457 tons (414 tonnes) per year. As with the Preferred Alternative, this action would be exempt from the General Conformity Rule.

4.5.2.4 Alternative Reuse Scenario 3

The primary air emission sources from ARS 3 are expected to be mobile-source activity to and from the station and C&D activities. Aircraft emissions would not occur under this scenario because no aircraft activity is proposed.

Stationary-source emissions are expected to decrease significantly compared with pre-closure conditions.

Mobile-source emission estimates are shown in Table 4-19. These estimates are based on 1999 mobile-source emission factors, estimates of average daily trips, and 240 workdays per year. C&D emission estimates are shown on Table 4-20. These estimates are based on new structural floor space requirements and development of residential housing areas.

Summaries of projected emissions for ARS 3 and pre-closure emissions are presented in Table 4-21. This table shows that from pre-closure to completion of Phase 2, annual emissions

Table 4-15

AIR POLLUTANT EMISSIONS SUMMARY FOR ARS 1 (tons/year [tonnes/year])

Emission Source	VOCs	NO_x	CO	PM
Pre-closure	711 (645)	552 (501)	883 (801)	25 (23)
Phase 1 (1998-2004)				
Aircraft	5.5 (5.0)	5.9 (5.4)	–	–
Stationary	–	–	–	–
Construction	0.52 (0.47)	3.9 (3.6)	–	11.4 (10.4)
Mobile	39 (35)	56 (51)	525 (476)	–
Total	45 (40)	66 (60)	525 (476)	11.4 (10.4)
Net change from pre-closure	-666 (-605)	-486 (-441)	-358 (-325)	-13.6 (-12.6)
Phase 2 (2005-2010)				
Aircraft	8.4 (7.6)	9.5 (8.6)	–	–
Stationary	–	–	–	–
Construction	0.52 (0.47)	3.95 (3.58)	–	17.7 (16.1)
Mobile	48 (44)	68 (62)	639 (580)	–
Total	57 (52)	81 (74)	639 (580)	17.7 (16.1)
Net change from pre-closure	-654 (-593)	-471 (-427)	-244 (-221)	-7.3 (-6.9)

Key:

ARS = Alternative Reuse Scenario.
NO_x = Oxides of nitrogen.
PM = Particulate matter.
VOCs = Volatile organic compounds.

Source: Ecology and Environment, Inc. 1998.

Table 4-16

VEHICLE EMISSION FACTORS, ANNUAL VMT, AND EMISSIONS FOR ARS 2

Development Phase	Vehicle Emission Factors (grams/mile)			Annual VMT	Total Emissions (tons/year [tonnes/year])		
	VOCs	NO_X	CO		VOCs	NO_X	CO
Phase 1 (1998-2004)	1.58	2.23	21.05	9,890,207	17 (15)	24 (22)	229 (208)
Phase 2 (2005-2010)	1.58	2.23	21.05	18,262,427	32 (29)	45 (41)	424 (385)

Key:

ARS = Alternative Reuse Scenario.
CO = Carbon monoxide.
NO_X = Oxides of nitrogen.
VMT = Vehicle miles traveled.
VOCs = Volatile organic compounds.

Sources: EPA 1992; Ecology and Environment, Inc. 1998.

Table 4-17

ANNUAL CONSTRUCTION AND DEMOLITION AIR EMISSIONS FOR ARS 2 (tons/year [tonnes/year])

Activity	Phase 1				Phase 2			
	Acreage[a]/yr (hectares/yr)	VOCs	NO_x	PM	Acreage[a]/yr (hectares/yr)	VOCs	NO_x	PM
Demolition[b]	2.3 (0.9)	0.17 (0.15)	1.2 (1.1)	0.3 (0.3)	2.3 (0.9)	0.17 (0.15)	1.2 (1.1)	0.3 (0.3)
Site Prep[c]	2.3 (0.9)	0.12 (0.11)	0.95 (0.86)	0.1 (0.1)	2.3 (0.9)	0.12 (0.11)	0.95 (0.86)	0.1 (0.1)
Construction[d]	2.3 (0.9)	0.23 (0.21)	1.8 (1.6)	11.0 (10.0)	2.3 (0.9)	0.23 (0.21)	1.8 (1.6)	17.3 (15.7)
Total	NA	0.52 (0.47)	3.95 (3.56)	11.4 (10.4)	NA	0.52 (0.47)	3.95 (3.56)	17.7 (16.1)

[a] Acreage used in site preparation and construction calculations is total disturbed land (twice construction footprint).
[b] Demolition structural floor space assumed equal to new construction floor space. Emission calculations based on EPA 1992.
[c] Site preparation assumed to require 15 days/year.
[d] Construction assumed to require two small cranes, two hi-lifts, two compactors, one paver, two rollers, and five haul trucks for 120 days each year. Based on ratio of acreages (13.8/2.3 = 6).

Key:

ARS = Alternative Reuse Scenario.
NA = Not applicable.
NO_x = Oxides of nitrogen.
PM = Particulate matter.
VOCs = Volatile organic compounds.

Source: Ecology and Environment, Inc. 1998.

Table 4-18

AIR POLLUTANT EMISSIONS SUMMARY FOR ARS 2 (tons/year [tonnes/year])

Emission Source	VOCs	NO_x	CO	PM
Pre-closure	711 (645)	552 (501)	883 (801)	25 (23)
Phase 1				
Aircraft	68.4 (62.1)	65.1 (59.1)	—	—
Stationary	63 (57.2)	9 (8)	2 (2)	—
Construction	0.52 (0.47)	3.95 (3.56)	—	11.4 (10.4)
Mobile	17 (15)	24 (22)	229 (208)	—
Total	148.92 (134.87)	102.05 (92.66)	231 (210)	11.4 (10.4)
Net change from pre-closure	-562.08 (-510.23)	-419.95 (-408.32)	-652 (-591)	-13.6 (-12.6)
Phase 2				
Aircraft	124.3 (112.8)	120.2 (109.0)	—	—
Stationary	63 (57)	9 (8)	2 (2)	—
Construction	0.52 (0.47)	3.95 (3.56)	—	17.7 (16.1)
Mobile	32 (29)	45 (41)	424 (385)	—
Total	219.82 (199.27)	178.15 (161.56)	426 (387)	17.7 (16.1)
Net change from pre-closure	-491.18 (-445.73)	-373.85 (-339.42)	-457 (-414)	-7.3 (-6.9)

Key:

ARS = Alternative Reuse Scenario.
CO = Carbon monoxide.
NO_x = Oxides of nitrogen.
PM = Particulate matter.
VOCs = Volatile organic compounds.

Source: Ecology and Environment, Inc. 1998.

Table 4-19

VEHICLE EMISSION FACTORS, ANNUAL VMT, AND EMISSIONS FOR ARS 3

Development Phase	Vehicle Emission Factors (grams/mile)			Annual VMT	Total Emissions (tons/year [tonnes/year])		
	VOCs	NO_X	CO		VOCs	NO_X	CO
Phase 1 (1998-2004)	1.58	2.23	21.05	28,684,787	50 (45)	71 (64)	666 (604)
Phase 2 (2005-2010)	1.58	2.23	21.05	118,687,383	207 (188)	292 (265)	2,754 (2,498)

Key:

ARS = Alternative Reuse Scenario.
CO = Carbon monoxide.
NO_X = Oxides of nitrogen.
VMT = Vehicle miles traveled.
VOCs = Volatile organic compounds.

Sources: EPA 1992a; Ecology and Environment, Inc. 1998.

Table 4-20

ANNUAL CONSTRUCTION AND DEMOLITION AIR EMISSIONS FOR ARS 3 (tons/year [tonnes/year])

Activity	Phase 1				Phase 2			
	Acreage/yr[a] (hectares/yr)	VOCs	NO_x	PM	Acreage/yr[a] (hectares/yr)	VOCs	NO_x	PM
Demolition[b]	113.8 (46.0)	8.2 (7.4)	59.4 (53.9)	1.8 (1.6)	218.4 (88.4)	15.8 (14.3)	114 (103)	2.3 (2.1)
Site Prep[c]	113.8 (46.0)	5.8 (5.3)	47.0 (42.6)	3.7 (3.4)	218.4 (88.4)	11.1 (10.1)	90.2 (81.8)	7.1 (6.4)
Construction[d]	113.8 (46.0)	11.5 (10.4)	90.7 (82.3)	544.0 (493.5)	218.4 (88.4)	22.2 (20.1)	174.1 (157.9)	1,045 (948)
Total	NA	25.5 (23.1)	197.1 (178.8)	549.5 (498.5)	NA	49.1 (44.5)	378.3 (342.7)	1,054 (957)

[a] Acreage used in site preparation and construction calculations is total disturbed land (twice construction footprint).
[b] Demolition structural floor space assumed equal to new construction floor space. Emission calculations based on EPA 1992.
[c] Site preparation assumed to require 15 days/year.
[d] Construction assumed to require two small cranes, two hi-lifts, two compactors, one paver, two rollers, and five haul trucks for 120 days each year. Based on ratio of acreages (13.8/2.3 = 6).

Key:

ARS = Alternative Reuse Scenario.
NA = Not applicable.
NO_x = Oxides of nitrogen.
PM = Particulate matter.
VOCs = Volatile organic compounds.

Source: Ecology and Environment, Inc. 1998.

Table 4-21

AIR POLLUTANT EMISSIONS SUMMARY FOR ARS 3 (tons/year [tonnes/year])

Emission Source	VOCs	NO_x	CO	PM
Pre-closure	711 (645)	552 (501)	883 (801)	25 (23)
Phase 1				
Aircraft	—	—	—	—
Stationary	—	—	—	—
Construction	25.5 (23.1)	197.1 (178.8)	—	550 (499)
Mobile	50 (45)	71 (64)	666 (604)	—
Total	76 (68)	268 (243)	666 (604)	550 (499)
Net change from pre-closure	-635 (-577)	-284 (-258)	-217 (-197)	+525 (+476)
Phase 2				
Aircraft	—	—	—	—
Stationary	—	—	—	—
Construction	49.1 (44.5)	378.3 (342.7)	—	1,054 (957)
Mobile	207 (188)	292 (265)	2,754 (2,498)	—
Total	256 (233)	670 (608)	2,754 (2,498)	1,054 (957)
Net change from pre-closure	-455 (-412)	+118 (+107)	+1,871 (+1,697)	+1,029 (+934)

Key:

ARS = Alternative Reuse Scenario.
CO = Carbon monoxide.
NO_x = Oxides of nitrogen.
PM = Particulate matter.
VOCs = Volatile organic compounds.

Source: Ecology and Environment, Inc. 1998.

of VOCs would decrease by 455 tons (412 tonnes). NO_x emissions would increase by 118 tons (107 tonnes) annually. Annual emissions of CO would increase by 1,871 tons (1,697 tonnes) from pre-closure conditions to completion of Phase 2. Annual PM emissions would increase by 1,029 tons (933 tonnes) from pre-closure conditions to completion of Phase 2. The increase in CO emissions would primarily result from an increase in vehicle miles traveled by facility employees. The increase in emissions of particulate matter would be due solely to C&D projects. As with the Preferred Alternative, this action would be exempt from the General Conformity Rule.

4.5.2.5 Alternative Reuse Scenario 4

The primary air emission sources are expected to be aircraft, mobile-source activity to and from the former Cecil Field, construction activities, and a boiler plant that will be added for the proposed correctional facility.

Aircraft emissions are projected to be the same under ARS 4 as for the Preferred Alternative. Vehicle-related emissions are shown in Table 4-22. These emissions are based on emission factors and projected daily trips (see Section 4.8). C&D emissions are shown in Table 4-23. VOC and NO_x emissions result from equipment engine exhaust; particulate emissions are generated by mechanical disturbance of existing structures and soil.

Summaries of projected emissions for ARS 4 and pre-closure emissions are presented in Table 4-24. Annual emissions of VOCs and NO_x would decrease from pre-closure conditions to the completion of Phase 2 by 384 tons (348 tonnes) and 201 tons (183 tonnes), respectively. Annual particulate emissions would increase by 82 tons (74 tonnes). CO would increase by 706 tons (640 tonnes). As with the Preferred Alternative, this action would be exempt from the General Conformity Rule.

Developers of future facilities would be responsible for obtaining the proper permits prior to development. Major regulations that may apply are construction and operating permit procedures for stationary air-pollution-emitting sources and emission standards such as the New Source Performance Standards, 40 C.F.R. Part 60 (1998), and control technology standards, Fla. Admin. Code Ann. Ch. 62-212 (1997) and Fla. Admin. Code Ann. Ch. 62-213 (1997).

4.5.2.6 No-Action Alternative

Under this alternative, emission levels would be substantially lower than pre-closure levels. No land use activities would occur, and no employee commutes would take place.

Table 4-22

VEHICLE EMISSION FACTORS, ANNUAL VMT, AND EMISSIONS FOR ARS 4

Development Phase	Vehicle Emission Factors (grams/mile)			Annual VMT	Total Emissions (tons/year [tonnes/year])		
	VOCs	NO_x	CO		VOCs	NO_x	CO
Phase 1 (1998-2004)	1.58	2.23	21.05	30,026,206	54 (49)	74 (67)	697 (632)
Phase 2 (2005-2010)	1.58	2.23	21.05	64,944,791	113 (103)	160 (145)	1,507 (1,367)

Key:

ARS = Alternative Reuse Scenario.
CO = Carbon monoxide.
NO_x = Oxides of nitrogen.
VMT = Vehicle miles traveled.
VOCs = Volatile organic compounds.

Source: Ecology and Environment, Inc. 1998.

Table 4-23

ANNUAL CONSTRUCTION AND DEMOLITION AIR EMISSIONS FOR ARS 4 (tons/year [tonnes/year])

Activity	Phase 1 (1998-2004)				Phase 2 (2005-2010)			
	Acreage/yr[a] (hectares/yr)	VOCs	NO_x	PM	Acreage/yr[a] (hectares/yr)	VOCs	NO_x	PM
Demolition[b]	23.0 (9.3)	1.7 (1.5)	12 (11)	2.9 (2.6)	21.6 (8.7)	1.6 (1.5)	11.3 (10.3)	2.8 (2.5)
Site Prep[c]	23.0 (9.3)	1.2 (1.1)	9.5 (8.6)	0.8 (0.7)	21.6 (8.7)	1.1 (1.0)	8.9 (8.1)	0.7 (0.6)
Construction[d]	23.0 (9.3)	2.3 (2.1)	18.3 (16.6)	110.0 (99.8)	21.6 (8.7)	2.2 (2.0)	17.2 (15.6)	103.3 (93.7)
Total	NA	5.2 (4.7)	39.8 (36.2)	113.7 (103.1)	NA	4.9 (4.5)	37.4 (34.0)	106.8 (96.8)

[a] Acreage used in site preparation and construction calculations is total disturbed land (twice construction footprint).
[b] Demolition structural floor space assumed equal to new construction floor space. Emission calculations based on EPA 1992.
[c] Site preparation assumed to require 15 days/year.
[d] Construction assumed to require two small cranes, two hi-lifts, two compactors, one paver, two rollers, and five haul trucks for 120 days each year. Based on ratio of acreages (13.8/2.3 = 6).

Key:

ARS = Alternative Reuse Scenario.
NA = Not applicable.
NO_x = Oxides of nitrogen.
PM = Particulate matter.
VOCs = Volatile organic compounds.

Source: Ecology and Environment, Inc. 1998.

Table 4-24

AIR POLLUTANT EMISSIONS SUMMARY FOR ARS 4 (tons/year [tonnes/year])

Emission Source	VOCs	NO_x	CO	PM
Pre-closure	711 (645)	552 (501)	883 (801)	25 (23)
Phase 1				
Aircraft	68.4 (62.1)	65.1 (59.1)	–	–
Stationary	85 (77)	33 (30)	82 (74)	–
Construction	5.2 (4.7)	39.8 (36.2)	–	113.7 (103.1)
Mobile	52 (47)	74 (67)	697 (632)	–
Total	210.6 (190.8)	211.9 (192.3)	779 (706)	113.7 (103.1)
Net change from pre-closure	-500.4 (-454.2)	-340.1 (-308.8)	-104 (-95)	+88.7 (+80.1)
Phase 2				
Aircraft	124.3 (112.8)	120.2 (109.0)	–	–
Stationary	85 (77)	33 (30)	82 (74)	–
Construction	4.9 (4.5)	37.4 (33.9)	–	106.8 (97)
Mobile	113 (103)	160 (145)	1,507 (1,367)	–
Total	327.2 (297.3)	350.6 (317.9)	1,589 (1,441)	106.8 (97)
Net change from pre-closure	-383.3 (-347.8)	-201.4 (-183.1)	+706 (+640)	+81.8 (+74)

Note: Stationary sources include a boiler and other airfield sources. Emissions estimate based on actual reported emissions for 1994.

Key:

ARS = Alternative Reuse Scenario.
CO = Carbon monoxide.
NO_x = Oxides of nitrogen.
PM = Particulate matter.
VOCs = Volatile organic compounds.

Source: Ecology and Environment, Inc. 1998.

4.5.2.7 Cumulative Impacts

Other than termination of Navy aircraft operations at NAS Cecil Field after its closure, the only reasonably foreseeable action that could result in cumulative impacts to air quality would be the subsequent use of OLF Whitehouse by NAS Jacksonville (see Section 1.4). OLF Whitehouse would be used for operations by P-3 and S-3 aircraft. S-3 aircraft would be transferred to NAS Jacksonville after NAS Cecil Field is closed. However, emissions associated with these operations should not result in cumulative increases, because they would involve only a redistribution of aircraft operations from one portion of the air quality control region (i.e., Duval County) to another. The emission estimates associated with these changes would be the subject of separate environmental documentation at NAS Jacksonville.

More significantly, termination of F/A-18 operations at NAS Cecil Field would result in cumulative reductions in ozone precursor emissions in the region. The cumulative impact on VOC and NO_x emissions for the Preferred Alternative compared with pre-closure levels would be a decrease in emissions. The projected VOC and NO_x emissions decreases demonstrate that the Preferred Alternative would not cause or contribute to any new violation of the ozone NAAQS. These emission changes would not have a significant cumulative impact on ozone concentration; therefore, implementation of the Preferred Alternative and each of the ARSs would conform to the Florida SIP.

The cumulative impact of the Preferred Alternative on CO emissions is anticipated to be higher at the completion of Phase 2 than at pre-closure. CO emission increases would be the result of projected increases in VMT. However, Duval County is in attainment for CO; therefore, this increase would not have significant implications on conformance with the Florida SIP.

PM emissions would increase under the Preferred Alternative as a result of C&D activities, but these increases are considered temporary. These emissions would cease on completion of construction projects.

4.5.2.8 Mitigation

Mitigation measures for CO emissions include improving traffic flow or applying traffic demand measures to reduce VMT and CO emissions. The need for mitigation will be established and specific mitigation measures selected by the JEDC in conjunction with local agencies following submission of individual project plans.

Mitigation measures for PM emissions occurring during construction/demolition activities include applying water or another wetting agent to prevent dust production during these

activities. Individual developers will be required by local agencies to evaluate the need for mitigation following submission of individual project plans.

4.6 Noise

4.6.1 Preferred Alternative

The most significant sources of noise resulting from implementation of the Preferred Alternative would be military and civilian aircraft operations. Other less significant noise sources would include traffic, industrial operations, and C&D activities.

Noise impacts resulting from aircraft operations were analyzed using the Integrated Noise Model (INM) Version 5.0 (FAA 1995). INM is an FAA computer-based model that is used to evaluate aircraft noise impacts in the vicinity of civilian airports. INM contains several databases that contain aircraft procedure and noise data. After values for projected aircraft operations (e.g., LTO cycles, T&G operations), runway, flight track, and flight profile data were entered, INM was used to generate projected DNL noise contours surrounding NAS Cecil Field for subsequent phases of redevelopment after its closure. DNL contours represent the average noise levels over a 24-hour period and include louder single events. DNL takes into account both the noise level of all individual events that occur during a 24-hour period and the number of times those events occur.

Under the Preferred Alternative, five types of civilian fixed-wing aircraft and three types of helicopters are expected to use the airfield (CFDC 1996).

For civilian aircraft, representative aircraft models within each category were used for modeling (FAA 1995). These aircraft models included the GASE-PV (single-engine prop), Beechcraft Model 58 Barron (twin-engine prop), DASH 7 (turbo prop), Lear 25 (corporate jet), and Boeing 737 (large jet).

It should be noted that projected helicopter operations were not included in the noise analysis. FAA does not include model inputs for noise analysis of helicopter operations in the INM; the Heliport Noise Model (HNM) was used to evaluate these impacts (FAA 1995).

Following guidance from the FAA (Vahovich 1997), HNM model runs for helicopter operations associated with reuse of NAS Cecil Field were entered into INM to obtain the total projected noise exposure associated with projected rotary- and fixed-wing aircraft operations. The UH-60 helicopter was used as the surrogate rotary-wing aircraft. This helicopter has a rotor type (i.e., double rotor), power plant, and horsepower comparable to those of the AH-64

helicopter. The UH-60 is slightly larger and more powerful than the OH-58. Therefore, use of the noise profile for the UH-60 would result in a conservative estimate of helicopter noise.

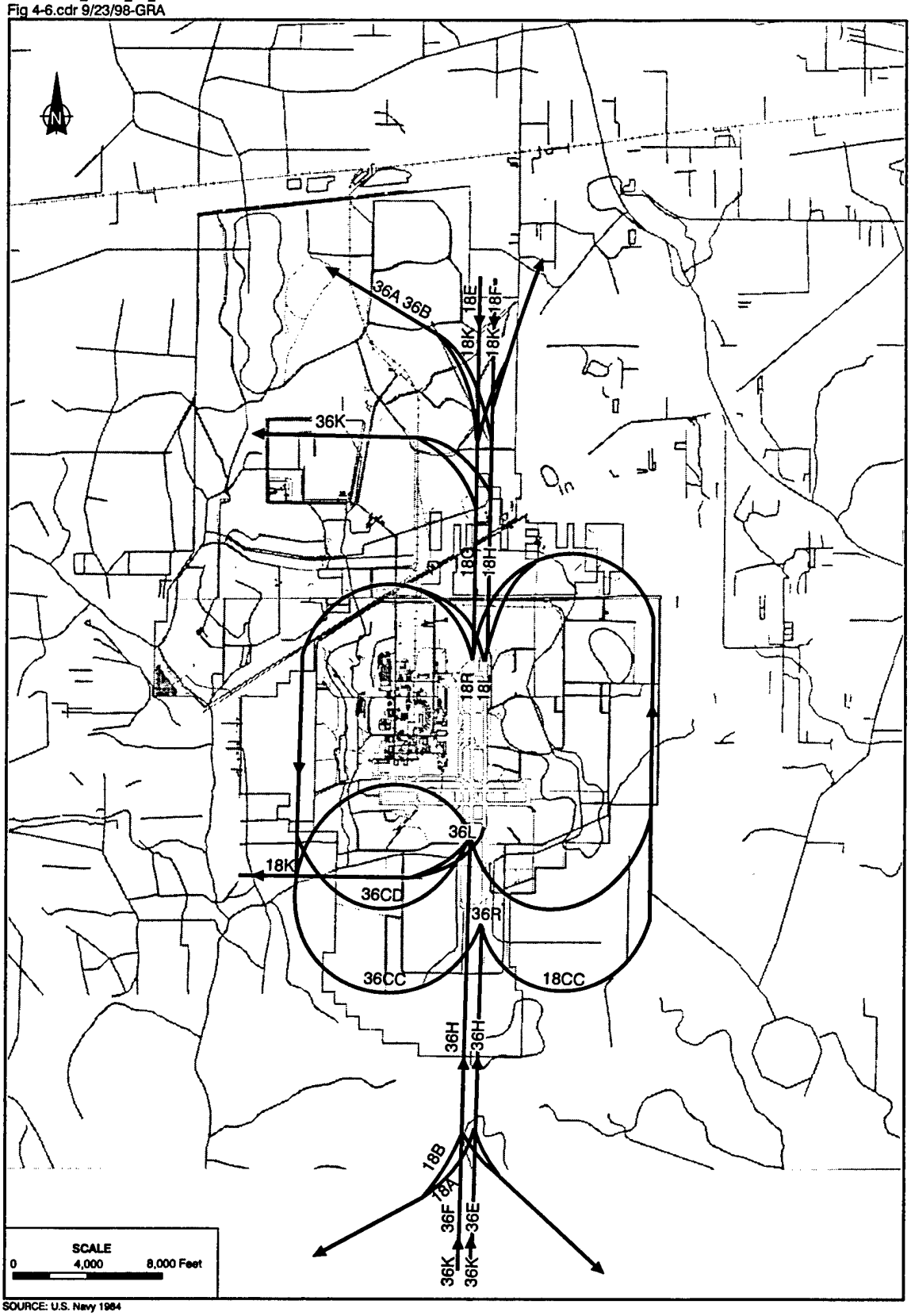
Assumed flight tracks and profiles for the model were derived from the NAS Cecil Field AICUZ program, which currently governs existing operations at the station (see Figures 4-6 and 4-7). It is reasonable to assume that these tracks would remain relatively similar under civilian use of the station after closure. Full LTO cycles and T&G operations were distributed over each of the station's primary and crosswind runways using the same percentages indicated in the AICUZ documentation, which were calculated based on historic wind direction data (Navy 1984). This distribution is presented in Table 4-25.

Projected DNL contours for Phase 1 (2004) of the redevelopment under the Preferred Alternative are compared with existing AICUZ noise contours and depicted on Figure 4-8; Figure 4-9 presents the same comparison for Phase 2 (2010) of the redevelopment. As these figures show, projected noise exposure from aircraft operations at the station would be significantly less than under pre-closure conditions. This would be primarily the result of the significant decrease in overall operations that would occur after the station closes and because aircraft training activities between NAS Cecil Field and OLF Whitehouse would no longer occur.

Figure 4-10 presents projected Phase 2 noise contours over existing surrounding land use. As shown, the 75-dB DNL contour would stay within the current station boundaries and would not significantly affect on-station land uses proposed under the Preferred Alternative, as compared with existing AICUZ noise contours. The projected 65-dB DNL contour would extend beyond the current station boundaries; however, it would primarily affect lands devoted to forestry and conservation. No residential structures have been identified in the portion of the 65-dB DNL contour that lies outside the station's property boundary.

In addition to noise associated with aircraft operations as implementation of the Preferred Alternative progresses, it is anticipated that business establishments would begin to relocate to the station, resulting in long-term, gradual increases in ambient noise levels from other sources. These increases would be associated with both industrial operations and local traffic resulting from increased employment. In addition, future infrastructure and road improvements, as well as demolition of station structures during redevelopment, would require the use of heavy construction machinery, resulting in short-term increases in ambient sound levels. Quantitative estimates of the noise levels resulting from these sources cannot be conducted without specific data regarding the new industrial activities, projected traffic, and construction/demolition projects. Nevertheless, the absence of any concentrations of sensitive

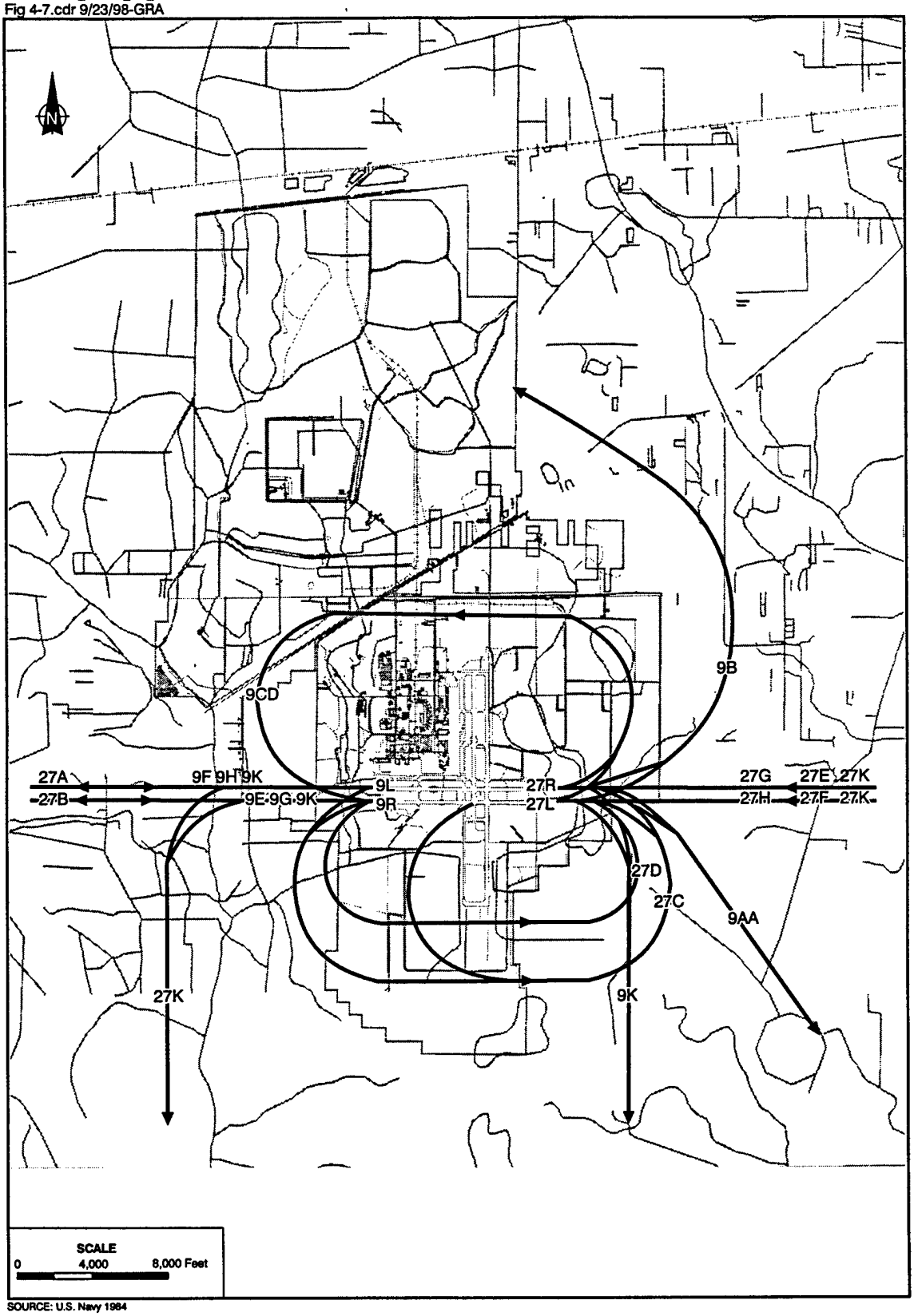
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Fig 4-6.cdr 9/23/98-GRA



SOURCE: U.S. Navy 1984

Figure 4-6 FLIGHT TRACKS ASSOCIATED WITH RUNWAYS 18 AND 36

02: 000822_Vm06_00_90-B0009
Fig 4-7.cdr 9/23/98-GRA



SOURCE: U.S. Navy 1984

Figure 4-7 FLIGHT TRACKS ASSOCIATED WITH RUNWAYS 9 AND 27

Table 4-25

AVERAGE DAILY RUNWAY DISTRIBUTION OF PROJECTED FLIGHT OPERATIONS

Runway Usage[b]	INM51 Representative Aircraft	LTOs/year	T&Gs/year	LTOs/day[a]	T&Gs/day[a]	Runway 18L		Runway 18R		Runway 36L		Runway 36R	
						Full LTOs	T&Gs	Full LTOs	T&Gs	Full LTOs	T&Gs	Full LTOs	T&Gs
		—	—	—	—	17.70%	12.80%	17.90%	12.30%	18.20%	20%	15.50%	19.90%
Phase 1													
AH-64	UH-60[c]	1,450	475	6.04	2.0	1.07	0.26	1.08	0.25	1.10	0.40	.94	0.39
UH-60	UH-60[c]	425	175	1.77	0.73	0.31	0.09	0.32	0.08	0.33	0.15	0.27	0.14
OH-58	UH-60[c]	1,325	325	5.52	1.35	0.98	0.17	0.99	0.16	1.00	0.27	0.86	0.26
Single-Engine Piston	GASEPV	10,000	2,000	41.67	8.33	7.38	1.07	7.46	1.03	7.58	1.67	6.46	1.66
Twin-Engine Piston	BEC58P	10,000	2,000	41.67	8.33	7.38	1.07	7.46	1.03	7.58	1.67	6.46	1.66
Turbo Prop	DHC7	15,000	2,000	62.50	8.33	11.06	1.07	11.19	1.03	11.38	1.67	9.69	1.66
Corporate Jet	LEAR25	15,000	0	62.50	0	11.06	0	11.19	0	11.38	0	9.69	0
Large Jet	Boeing 737	5,000	0	20.83	0	3.69	0	3.73	0	3.79	0	3.23	0
Phase 2													
AH-64	UH-60	3,300	1,200	13.75	5.0	2.43	0.64	2.46	0.62	2.50	1.00	2.13	0.99
UH-60	UH-60	875	300	3.65	1.25	0.64	0.16	0.65	0.15	0.66	0.25	0.57	0.24
OH-58	UH-60	875	250	3.65	1.04	0.64	0.13	0.65	0.12	0.66	0.21	0.57	0.20
Single-Engine Piston	GASEPV	15,000	2,500	62.50	10.42	11.06	1.33	11.19	1.28	11.38	2.08	9.69	2.07
Twin-Engine Piston	BEC58P	20,000	2,500	83.33	10.42	14.75	1.33	14.92	1.28	15.17	2.08	12.92	2.07
Turbo Prop	DHC7	25,000	2,500	104.17	10.42	18.44	1.33	18.65	1.28	18.96	2.08	16.15	2.07
Corporate Jet	LEAR25	20,000	0	83.33	0	14.75	0	14.92	0	15.17	0	12.92	0
Large Jet	Boeing 737	10,000	0	41.67	0	7.38	0	7.46	0	7.58	0	6.46	0

Key at end of table.

Table 4-25

AVERAGE DAILY RUNWAY DISTRIBUTION OF PROJECTED FLIGHT OPERATIONS

Runway Usage[b]	INM51 Representative Aircraft	LTOs/year	T&Gs/year	LTOs/day[a]	T&Gs/day[a]	Runway 9L		Runway 9R		Runway 27L		Runway 27R	
						Full LTOs	T&Gs	Full LTOs	T&Gs	Full LTOs	T&Gs	Full LTOs	T&Gs
						7.70%	10%	7.70%	9.80%	7.70%	9.70%	7.70%	6.50%
Phase 1													
AH-64	UH-60	1,450	475	6.04	2.0	0.47	0.20	0.47	0.19	0.47	0.19	0.47	0.13
UH-60	UH-60	425	175	1.77	0.73	0.14	0.07	0.14	0.06	0.14	0.06	0.14	0.05
OH-58	UH-60	1,325	325	5.52	1.35	0.43	0.13	0.43	0.12	0.43	0.12	0.43	0.09
Single-Engine Piston	GASEPV	10,000	2,000	41.67	8.33	3.21	0.83	3.21	0.82	3.21	0.81	3.21	0.54
Twin-Engine Piston	BEC58P	10,000	2,000	41.67	8.33	3.21	0.83	3.21	0.82	3.21	0.81	3.21	0.54
Turbo Prop	DHC7	15,000	2,000	62.50	8.33	4.81	0.83	4.81	0.82	4.81	0.81	4.81	0.54
Corporate Jet	LEAR25	15,000	0	62.50	0	4.81	0	4.81	0	4.81	0	4.81	0
Large Jet	Boeing 737	5,000	0	20.83	0	1.60	0	1.60	0	1.60	0	1.60	0
Phase 2													
AH-64	UH-60	3,300	1,200	13.75	5.0	1.06	0.50	1.06	0.49	1.06	0.48	1.06	0.33
UH-60	UH-60	875	300	3.65	1.25	0.28	0.13	0.28	0.12	0.28	0.12	0.28	0.08
OH-58	UH-60	875	250	3.65	1.04	0.28	0.10	0.28	0.10	0.28	0.10	0.28	0.07
Single-Engine Piston	GASEPV	15,000	2,500	62.50	10.42	4.81	1.04	4.81	1.02	4.81	1.01	4.81	0.68
Twin-Engine Piston	BEC58P	20,000	2,500	83.33	10.42	6.42	1.04	6.42	1.02	6.42	1.01	6.42	0.68
Turbo Prop	DHC7	25,000	2,500	104.17	10.42	8.02	1.04	8.02	1.02	8.02	1.01	8.02	0.68
Corporate Jet	LEAR25	20,000	0	83.33	0	6.42	0	6.42	0	6.42	0	6.42	0
Large Jet	Boeing 737	10,000	0	41.67	0	3.21	0	3.21	0	3.21	0	3.21	0

Key at end of table.

Table 4-25 (Cont.)

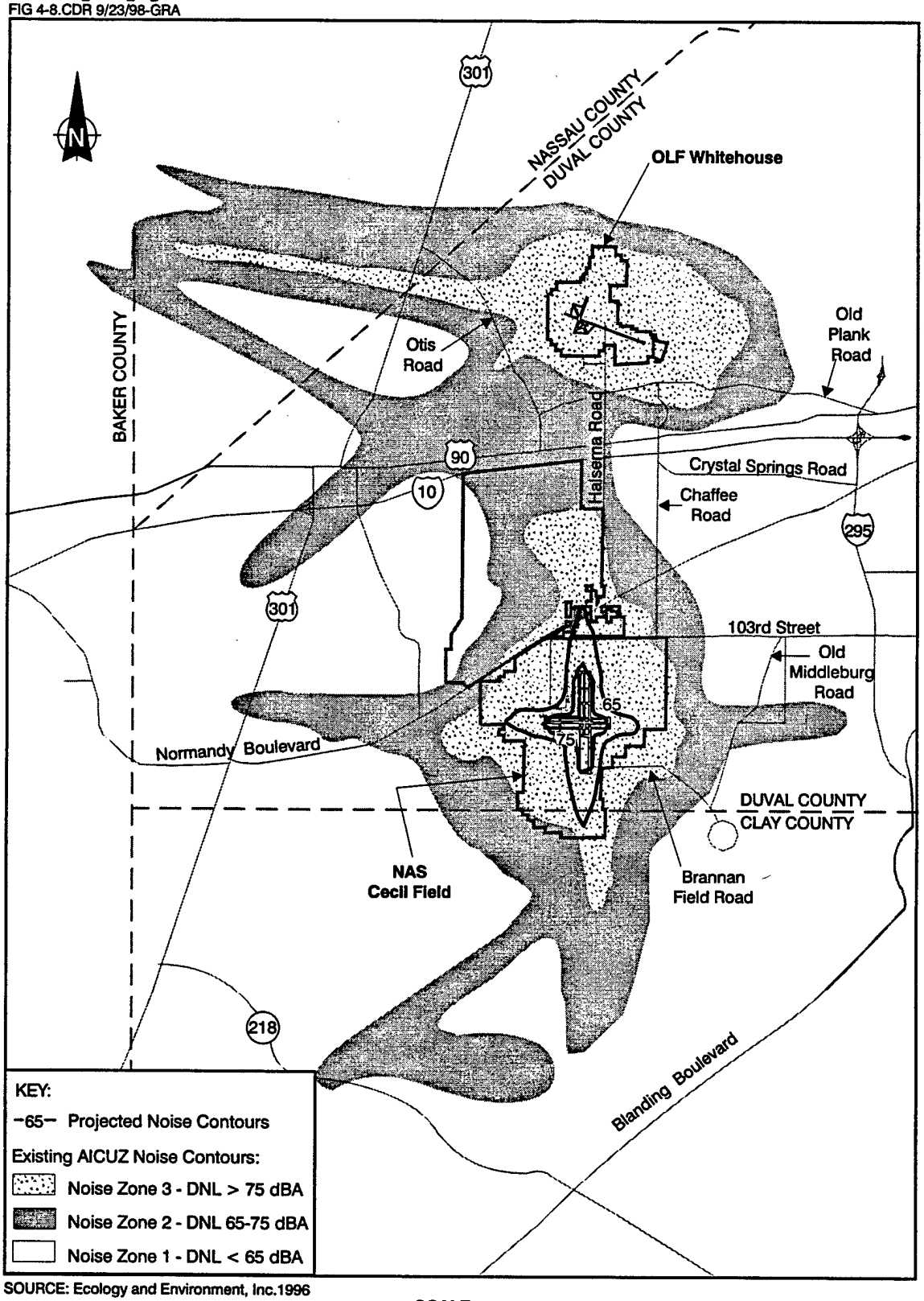
[a] Assumes 240 flying days per year. 75% of daily flights during day (0700-1900) and 25% during evening (1900-2200).
[b] Runway usage (i.e., primary vs. crosswind) assumed to be the same as reported in the NAS Cecil Field AICUZ documentation.

Key:

AICUZ =Air Installation Compatible Use Zone.
Full LTOs =Aircraft operations that include takeoff, climbout, approach, landing, and taxiing modes.
INM51 =Integrated Noise Model (Version 5.1).
T&Gs =Touch-and-go aircraft operations.

Sources: CFDC 1996; U.S. Navy 1984.

02: 000822_Vm06_00_90-B0009
FIG 4-8.CDR 9/23/98-GRA

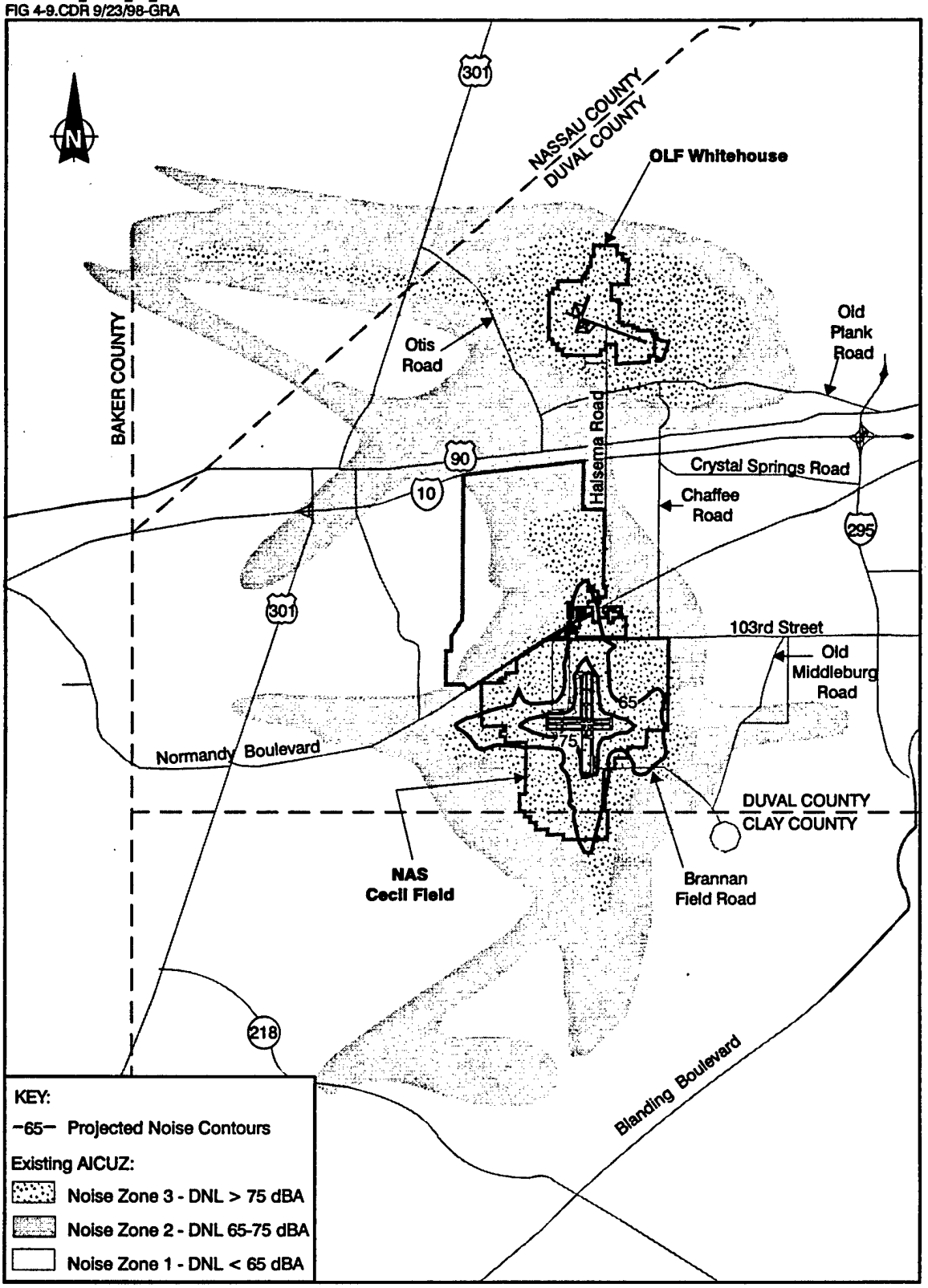


SOURCE: Ecology and Environment, Inc.1996

SCALE
0 18,500 37,000 Feet

Figure 4-8 PROJECTED PHASE 1 (2004) NOISE CONTOURS AND EXISTING AICUZ NOISE CONTOURS

02: 000822_Vm06_00_90-B0009
FIG 4-9.CDR 9/23/98-GRA



SOURCE: Ecology and Environment, Inc.1996

SCALE
0 18,500 37,000 Feet

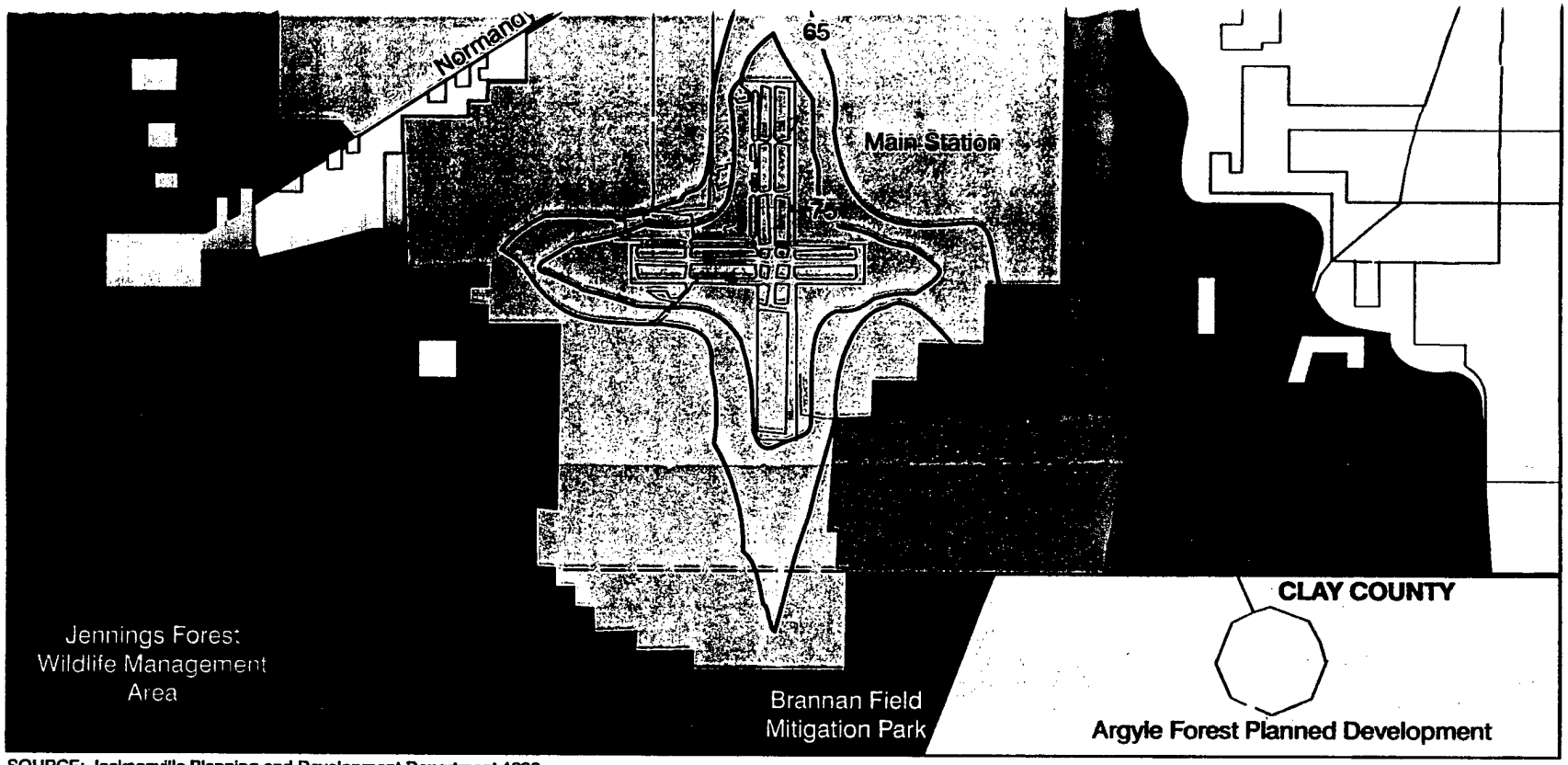
Figure 4-9 PROJECTED PHASE 2 (2010) NOISE CONTOURS AND EXISTING AICUZ ZONES

02: 000822_VM06_00_90-B0009
Fig 4-10.cdr 9/22/98-GRA



City of Baldwin
90
10
Pope Duval Park
Yellow Water Area
Crystal Springs Road
Chaffee Road
103rd Street
Normandy Boulevard
65
75
Main Station

(2)



SOURCE: Jacksonville Planning and Development Department 1990

KEY:

- Agriculture
- Low-Density Residential
- Navy Property
- Recreation
- Commercial
- Airport
- Planned Community (Not yet constructed)
- State Forest
- Open Space/Vacant
- Proposed Northeast Florida Regional Wildlife Mitigation Park

SCALE

0 3,500 7,000 14,000 Feet

Figure 4-10 PROJECTED PHASE 2 (2010) NOISE CONTOURS AND SURROUNDING LAND USE

(3)

noise receptors (e.g., residential areas, hospitals, churches) in proximity to the station indicates that these effects would not be significant.

4.6.2 Alternative Reuse Scenario 1

Under ARS 1, ambient noise levels in the vicinity of NAS Cecil Field would decrease from pre-closure conditions because of the cessation of fixed-wing aircraft operations. Other noise sources would also be significantly limited because the majority of the station would be reused for forestry and recreation.

Noise from aircraft sources would be limited to that associated with helicopter operations. HNM was used to project noise contours associated with projected helicopter operations under ARS 1. Figures 4-11 and 4-12 present projected noise contours for Phase 1 and Phase 2 levels of operation under ARS 1. As shown, projected noise contours are significantly smaller than pre-closure contours and noise contours associated with the Preferred Alternative. The projected contours would extend over only a small area outside assumed helicopter parking areas.

The limited market-driven development and recreational facilities planned for the remainder of the site under ARS 1 are not expected to generate significant levels of ambient noise.

4.6.3 Alternative Reuse Scenario 2

Noise impacts under ARS 2 would be similar to those for the Preferred Alternative for aircraft sources and less significant for other noise sources (see Figures 4-8 and 4-9 for projected noise contours).

Noise impacts resulting from aircraft operations would be similar to those under the Preferred Alternative because the projected level of aircraft operations would be the same. Long-term noise levels resulting from other sources under ARS 3 would be slightly lower than under the Preferred Alternative because the alternative involves low levels of infrastructure and industrial development at the site.

4.6.4 Alternative Reuse Scenario 3

Besides the No-Action Alternative, ARS 3 would result in the greatest decrease in ambient noise levels from pre-closure levels because all aircraft operations at NAS Cecil Field would cease after closure.

Construction of residential, commercial, and industrial areas would result in short-term and minor increases in noise levels above background levels. Local traffic noise would also increase. However, long-term development under ARS 3 would have a greater potential for creating future noise conflicts with sensitive receptors by locating a large residential development in proximity to light-industrial and manufacturing uses.

4.6.5 Alternative Reuse Scenario 4

Noise impacts under ARS 4 would be similar to those under the Preferred Alternative because the development patterns and aircraft operations are the same, with the exception of the correctional and juvenile justice facilities planned under this alternative (see Figures 4-8 and 4-9 for projected noise contours). Neither of these facilities would be a significant noise source.

4.6.6 No-Action Alternative

The No-Action Alternative would result in the greatest decrease in ambient noise levels from pre-closure levels because all aircraft operations at NAS Cecil Field would cease after closure and no site redevelopment would occur.

No short-term or long-term increase in noise levels would occur.

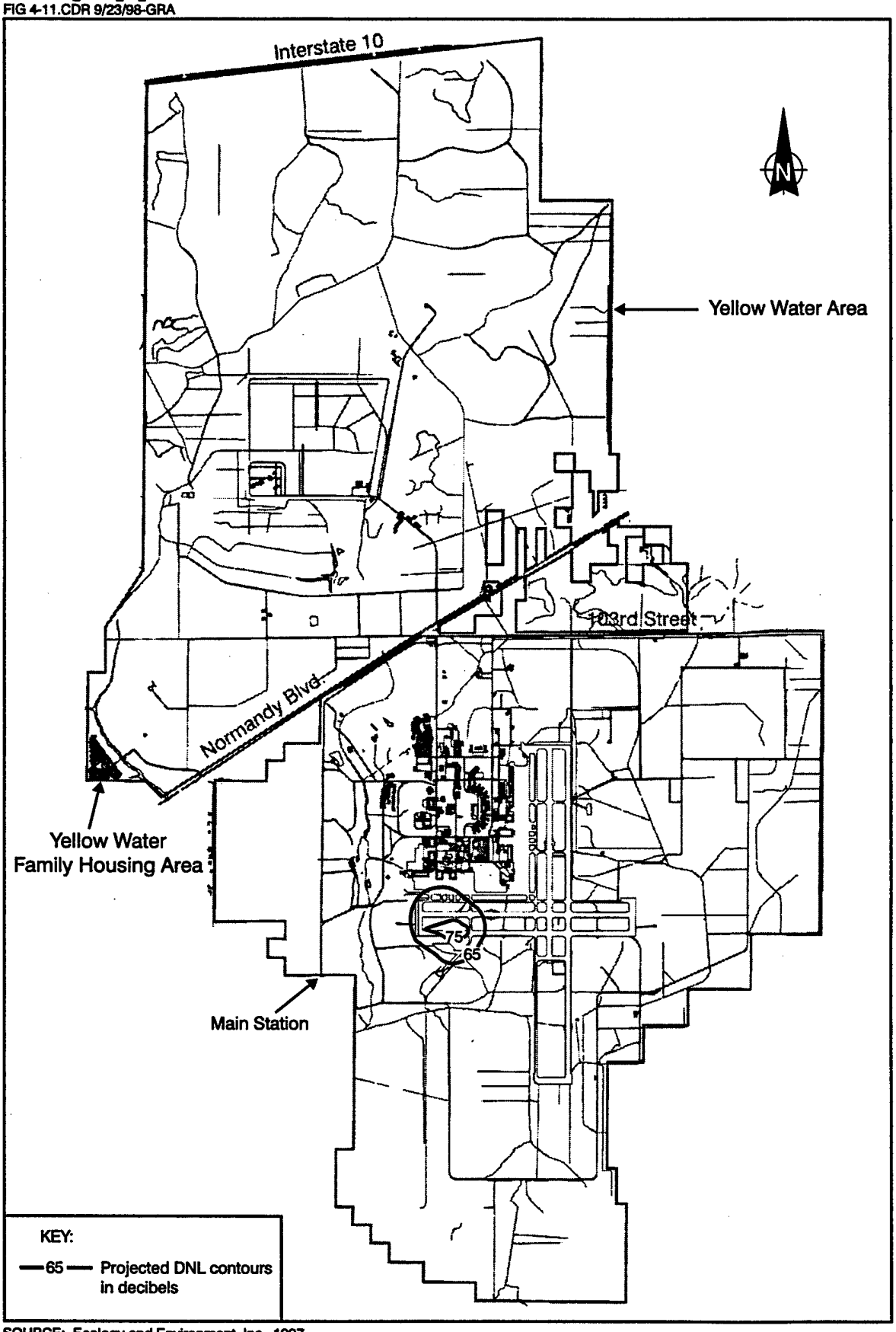
4.6.7 Cumulative Impacts

Other than cessation of Navy aircraft operations at NAS Cecil Field associated with its closure, the only reasonably foreseeable actions that could potentially result in cumulative impacts to noise exposure levels would be the planned use of OLF Whitehouse by Navy aircraft at NAS Jacksonville.

Closure of NAS Cecil Field and reuse of the station would result in an overall decrease in aircraft noise levels in the vicinity of the station property. This decrease would be due to an overall reduction in the number of operations occurring in the vicinity of the station following its closure. In addition, the aircraft conducting operations at the airfield after closure would have engine types that create lower noise levels than the turbo fan and turbo jet engines of Navy aircraft currently based at the station. As presented in Section 4.6.1, noise exposure contours associated with the Preferred Alternative would extend only slightly beyond the property boundaries at the station and would be significantly smaller than pre-closure contours.

If control of OLF Whitehouse is transferred from NAS Cecil Field to NAS Jacksonville, the less noise intrusive S-3 aircraft would replace the F/A-18. In addition, the number of aircraft operating from the OLF would be reduced. As of August 1998, the Southern Division of Naval

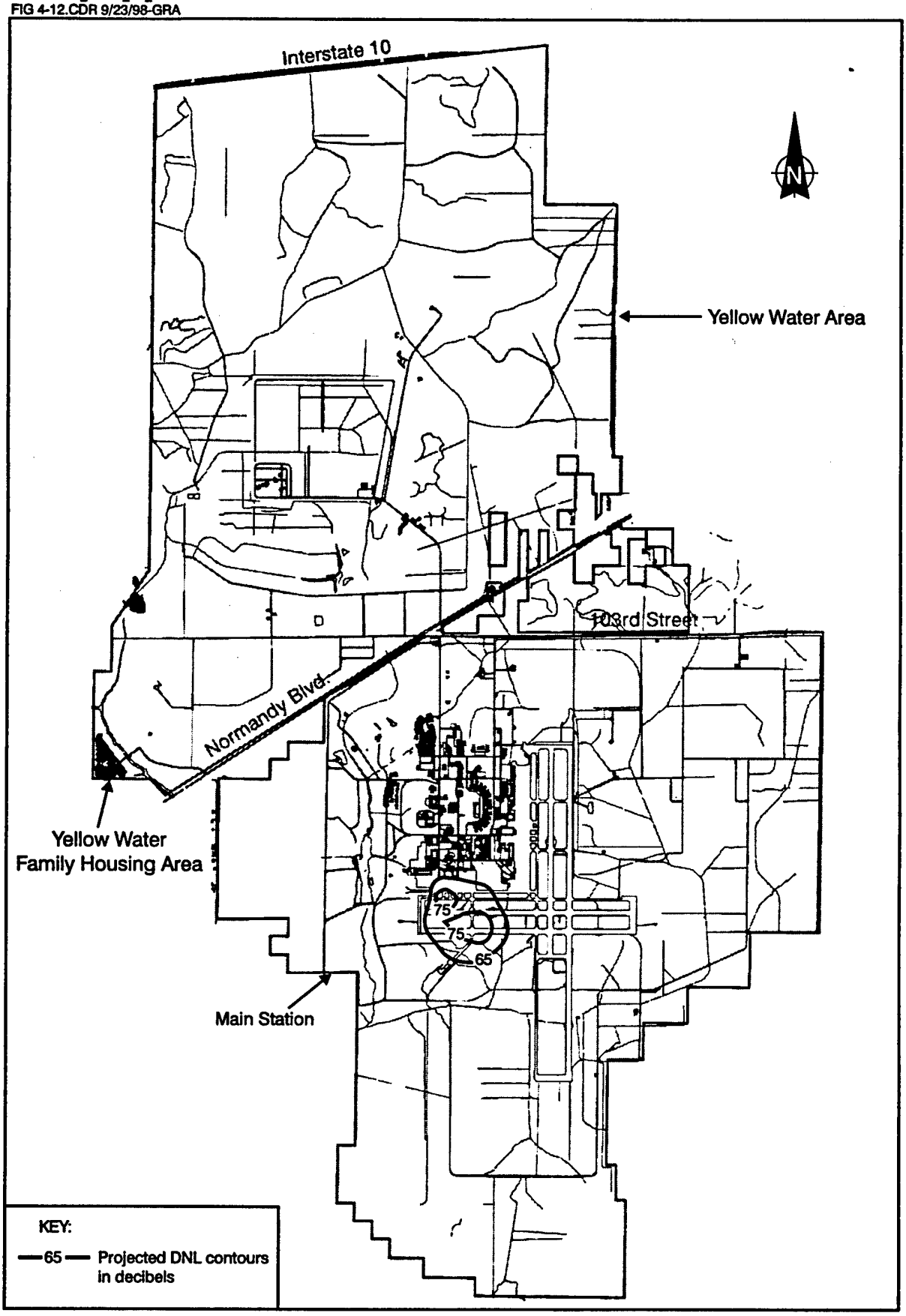
02: 000822_Vm06_00_90-B0009
FIG 4-11.CDR 9/23/98-GRA



SOURCE: Ecology and Environment, Inc., 1997

Figure 4-11 PHASE 1 PROJECTED NOISE CONTOURS - ARS 1

02: 000822_Vm06_00_90-B0009
FIG 4-12.CDR 9/23/98-GRA



SOURCE: Ecology and Environment, Inc., 1997

SCALE
0 ½ 1 Mile

Figure 4-12 PHASE 2 PROJECTED NOISE CONTOURS - ARS 1

Facilities Engineering Command is working on an environmental assessment (EA) for NAS Jacksonville to assess potential noise impacts associated with the reuse of OLF Whitehouse for S-3 aircraft operations. Preliminary data from this ongoing EA indicate that no significant adverse cumulative noise impact associated with NAS Jacksonville and OLF Whitehouse would occur.

Because of the decrease in engine noise levels for those aircrafts operating from OLF Whitehouse and NAS Cecil Field, it is expected that the area within the 65-dB DNL contour at each airfield would decrease and that the distance between the 65-dB DNL contours for the two airfields would increase. Therefore, no significant adverse cumulative noise impact would be expected for the surrounding community.

4.6.8 Mitigation Measures

As discussed in Section 3.6, Navy currently mitigates aircraft noise impacts through its AICUZ program, a comprehensive approach designed to avoid airfield encroachment by incompatible land uses. This is accomplished through designation of various noise exposure and accident potential zones, which are based on current airfield operations. The city of Jacksonville has adopted these zone designations as part of its local Comprehensive Plan and development regulations. Although all fixed wing Navy aircraft operations will cease after closure and projected levels of aircraft operations associated with the Preferred Alternative are expected to be lower than pre-closure levels, the city intends to maintain its land use control around station property to avoid future encroachment by incompatible uses.

Short-term noise impacts resulting from C&D activities will be mitigated by developers of projects that will be constructed during redevelopment. These activities will be administered by the city through its development review and permitting processes. Measures designed to mitigate these types of impacts will include use of appropriate noise reduction equipment, such as mufflers and baffles on construction machinery, and/or regulation of the periods during which construction activities occur, such as restricting construction to daylight hours when noise impacts are less obtrusive.

Noise impacts resulting from C&D activities will likely continue subsequent to reuse of certain structures by employees. Consequently, redevelopment activities will be required to comply with OSHA standards to abate noise for station employees. Methods will include the use of the noise reduction discussed previously.

4.7 Socioeconomics and Community Services

4.7.1 Preferred Alternative

Population

The Preferred Alternative is projected to have only a minor impact on the population and demographics of Duval and Clay counties and on the Jacksonville MSA as a whole. As shown in Table 4-26, approximately 3,199 direct jobs and 3,528 indirect jobs would be expected to be created through implementation of this plan (The Arthur Andersen Group et al. n.d.). Creation of these jobs would spur economic activity and potentially create an incentive for people to relocate to the area.

However, given the size of the regional economy and the previous loss of approximately 7,435 direct full-time military and civilian jobs due to closure of NAS Cecil Field, the Preferred Alternative's effect on the regional population would not be expected to be significant. Development under the Preferred Alternative would increase employment for local residents. Because the need for new employees would be gradual (i.e, project buildout is 2010), recruitment of employees from outside the metropolitan area would not be anticipated. Therefore, population would not be expected to increase as a result of the proposed action.

Economy, Employment, and Income

With the exception of ARS 4, the Preferred Alternative would have the greatest positive economic impact on the city of Jacksonville and surrounding communities. Implementation of the Preferred Alternative is projected to create 3,199 direct jobs in the region. Under this plan, warehouse and distribution firms are projected to become the largest employers at the former military facility, employing approximately 1,000 persons. Other large employers at the site would be expected to be manufacturing industries, business park users, and aircraft manufacturing and repair companies (see Table 4-26).

Initial job creation activity would induce additional economic growth in the regional economy. As these industries move to the NAS Cecil Field they would likely hire employees from the Jacksonville area. As these new employees spend a portion of their additional disposable income in the regional economy and/or as these new industries purchase goods and services from local suppliers, the income of other local businesses would expand. In response, these local businesses may hire more employees or expand their total output, thus multiplying the positive economic effects of this initial injection of funds into the economy.

Table 4-26

TOTAL, DIRECT, AND INDIRECT EMPLOYMENT IMPACTS OF THE PREFERRED ALTERNATIVE

Land Use	Land Use Activity	Direct Employment	Indirect Employment	Total Direct and Indirect Employment
Phase 1: 1998-2004				
Light/Heavy Industrial	Business Park Users	333	320	653
Commercial	Retail/Commercial	0	0	0
Aviation-General/Related Services	Air Cargo	20	19	39
Aviation-General/Related Services	Aircraft Manufacturing/Repair	200	298	498
Heavy Industrial	Manufacturing	250	305	555
Light Industrial	Warehouse/Distribution	400	384	784
Total		1,203	1,326	2,529
Phase 2: 2005-2010				
Light/Heavy Industrial	Business Park Users	333	319	652
Commercial	Retail/Commercial	133	72	205
Aviation-General/Related Services	Air Cargo	30	29	59
Aviation-General/Related Services	Aircraft Manufacturing/Repair	400	596	996
Heavy Industrial	Manufacturing	500	610	1,110
Light Industrial	Warehouse/Distribution	600	576	1,176
Total		1,996	2,202	4,198
Total: Phases 1 and 2				
Light/Heavy Industrial	Business Park Users	666	639	1,305
Commercial	Retail/Commercial	133	72	205
Aviation-General/Related Services	Air Cargo	50	48	98
Aviation-General/Related Services	Aircraft Manufacturing/Repair	600	894	1,494
Heavy Industrial	Manufacturing	750	915	1,665
Light Industrial	Warehouse/Distribution	1,000	960	1,960
Total		3,199	3,528	6,727

Source: The Arthur Andersen Group et al. n.d.

Additionally, it is anticipated that this plan would generate approximately $78 million in direct payroll and $67 million in indirect earnings (see Table 4-27). The aircraft manufacturing/repair companies would be expected to provide the highest-paying jobs at the NAS Cecil Field, with average annual salaries of $35,000, while commercial industries located on the site would be expected to provide the lowest-paying jobs, with average annual salaries of $10,500 (The Arthur Andersen Group et al. n.d.).

Taxes and Revenues

Implementation of the Preferred Alternative would generate an estimated $2,164,758 annually in property tax revenues, with the total assessed value of taxable property on the former naval station reaching nearly $100 million (The Arthur Andersen Group et al. n.d.).

With implementation of the Preferred Alternative, it is expected that $1.8 million to $4.1 million would be spent annually on operation and maintenance costs, and approximately $71.2 million on one-time capital costs. In addition, this plan would require that more than $173 million be spent on capital improvements by other government and private entities (The Arthur Andersen Group et al. n.d.).

Housing

The Preferred Alternative would have only a minor impact on the housing market in the city of Jacksonville and surrounding communities. Proposed reuse of NAS Cecil Field would not be expected to increase total employment and total population in the region over current conditions. Therefore, implementation of the Preferred Alternative would have no impact on the housing market in the city of Jacksonville or surrounding communities compared with existing conditions.

Education

Implementation of the Preferred Alternative would have only a minor impact on the provision of educational services in Clay and Duval counties. As described in previous sections, the increased economic activity that would occur as a result of reuse of NAS Cecil Field would stimulate the regional economy and create an incentive for some new residents to move into the area. It is likely that some relocating persons would have families; therefore, the total number of school-age children could be affected. However, when the loss of 7,435 direct full-time military and civilian jobs due to the closure of NAS Cecil Field is considered, the total population in the region would not be expected to increase over current levels. Because the creation of 3,199

Table 4-27

TOTAL, DIRECT, AND INDIRECT INCOME IMPACTS OF THE PREFERRED ALTERNATIVE

Land Use	Land Use Activity	Direct Payroll	Indirect Earnings	Total Direct and Indirect Earnings
Phase 1: 1998-2004				
Light/Heavy Industrial	Business Park Users	9,990,000	6,693,300	16,683,300
Commercial	Retail/Commercial	0	0	0
Aviation-General/Related Services	Air Cargo	600,000	534,000	1,134,000
Aviation-General/Related Services	Aircraft Manufacturing/Repair	7,000,000	6,090,000	13,090,000
Heavy Industrial	Manufacturing	6,250,000	6,687,500	12,937,500
Light Industrial	Warehouse/Distribution	6,000,000	5,340,000	11,340,000
Total		$29,840,000	$25,344,800	$55,184,800
Phase 2: 2005-2010				
Light/Heavy Industrial	Business Park Users	9,990,000	6,693,300	16,683,300
Commercial	Retail/Commercial	1,396,500	991,515	2,388,015
Aviation-General/Related Services	Air Cargo	900,000	801,000	1,701,000
Aviation-General/Related Services	Aircraft Manufacturing/Repair	14,000,000	12,180,000	26,180,000
Heavy Industrial	Manufacturing	12,500,000	13,375,000	25,875,000
Light Industrial	Warehouse/Distribution	9,000,000	8,010,000	17,010,000
Total		$47,786,500	$42,050,815	$89,837,315
Total: Phases 1 and 2				
Light/Heavy Industrial	Business Park Users	19,980,000	13,386,600	33,366,600
Commercial	Retail/Commercial	1,396,500	991,515	2,388,015
Aviation-General/Related Services	Air Cargo	1,500,000	1,335,000	2,835,000
Aviation-General/Related Services	Aircraft Manufacturing/Repair	21,000,000	18,270,000	39,270,000
Heavy Industrial	Manufacturing	18,750,000	20,062,500	38,812,500
Light Industrial	Warehouse/Distribution	15,000,000	13,350,000	28,350,000
Total		$77,626,500	$67,395,615	$145,022,115

Source: The Arthur Andersen Group et al. n.d.

direct jobs under the Preferred Alternative would not be large enough to counteract the negative economic impacts associated with the loss of 7,435 military and civilian jobs, the Preferred Alternative would not be anticipated to increase the total population or the total number of school-aged children in the region over existing levels.

When the impacts of both closure and reuse are considered, the Preferred Alternative would have a slight positive impact on the school systems in Duval County. As described previously, the total number of school-age children would be expected to decline as a net result of closure and reuse. At the same time, property tax revenues in Duval County would be expected to increase as the land previously owned by Navy becomes taxable.

Emergency and Medical Services

The Preferred Alternative would have minor adverse impacts on provision of fire, police, and ambulance services in the city of Jacksonville. The transfer of NAS Cecil Field from Navy ownership to private or local government ownership would increase the area that would need to be serviced by local police, fire, and ambulance corps, thus increasing manpower and equipment needs. The negative effects caused by the increase in the area served by local emergency services would be slightly offset by the transfer of all naval public safety buildings and equipment (e.g., firehouses, police stations, vehicles) to the city of Jacksonville (CFDC 1996). In addition, implementation of the Preferred Alternative would expand local government revenues through an increase in property tax collections. The additional property tax revenues, in conjunction with the transfer of buildings and equipment, should more than offset any financial burdens placed on the providers of emergency services.

The Preferred Alternative would not have a significant impact on the provision of medical services in the city of Jacksonville or surrounding communities. Because the regional population is not expected to increase over existing levels (see Section 4.7.1), demand for medical services would be expected to remain at its current level. Because no change in the supply of medical services would be anticipated as a result of the Preferred Alternative, no change in the provision of medical services in the Jacksonville area is projected.

Recreation Services

Implementation of the Preferred Alternative would positively affect the provision of recreational facilities in the Jacksonville area. Under this alternative, most of NAS Cecil Field's existing golf course, athletic fields, and other recreational facilities would continue to be used for

these purposes and remain open to the public, thereby increasing the recreational facilities available to local residents.

4.7.2 Alternative Reuse Scenario 1

Similar to the Preferred Alternative, ARS 1 would have very little impact on the population or demographic characteristics of Duval and Clay counties or on the Jacksonville MSA as a whole. Based on the limited economic activity that is projected to occur as a result of the implementation of this alternative (see Table 4-28), ARS 1 would not be expected to attract a significant number of new residents to the region. Under ARS 1, demographic and population characteristics in the region would be expected to remain relatively constant compared with those following the closure of NAS Cecil Field.

Economy, Employment and Income

Under ARS 1, ownership of NAS Cecil Field would be retained by public benefit entities, and a small area of land would be used for market-driven development, probably including business park uses. A large portion of the land at the station would be used as a managed forestry preserve.

Approximately 666 direct and 640 indirect jobs would be expected to be created by business park users under this alternative (see Table 4-28). Total direct payroll generated by the reuse of the site would be expected to reach nearly $20 million, which would create an additional $13 million in indirect earnings in the regional economy (see Table 4-29).

Taxes and Revenues

Annual property tax receipts from the NAS Cecil Field would reach $520,292, and the total assessed value of taxable property at the site would be expected to reach $24 million under this alternative (The Arthur Andersen Group et al. n.d.).

Total capital costs expected to be incurred for redevelopment of the NAS Cecil Field would be estimated to be approximately $13.1 million, and annual operating and maintenance costs would be expected to range between $1.8 million and $4.1 million under ARS 1 (The Arthur Andersen Group et al. n.d.).

Table 4-28

TOTAL, DIRECT, AND INDIRECT EMPLOYMENT IMPACTS OF ARS 1

Land Use Category	Industry/Employer	Direct Employment	Indirect Employment	Total Direct and Indirect Employment
Phase 1: 1998-2004				
Market-Driven	Business Park Users (office and industrial)	333	320	653
Forestry/Recreation	Forestry/Recreation	0	0	0
Total		333	320	653
Phase 2: 2005-2010				
Market-Driven	Business Park Users	333	320	653
Forestry/Recreation	Forestry/Recreation	0	0	0
Total		333	320	653
Total: Phases 1 and 2				
Market-Driven	Business Park Users	666	640	1,306
Forestry/Recreation	Forestry/Recreation	0	0	0
Total		666	640	1,306

Key:

ARS = Alternative Reuse Scenario.

Source: The Arthur Andersen Group et al. n.d.

Table 4-29

TOTAL, DIRECT, AND INDIRECT INCOME IMPACTS OF ARS 1

Land Use Category	Land Use Industry/Employer	Direct Payroll	Indirect Income	Total Direct and Indirect Earnings
Phase 1: 1998-2004				
Market-Driven	Business Park Users (office and industrial)	9,990,000	6,693,300	16,683,300
Forestry/Recreation	Forestry/Recreation	0	0	0
Total		$9,990,000	$6,693,300	$16,683,300
Phase 2: 2005-2010				
Market-Driven	Business Park Users	9,990,000	6,693,300	16,683,300
Forestry/Recreation	Forestry/Recreation	0	0	0
Total		$9,990,000	$6,693,300	$16,683,300
Total: Phases 1 and 2				
Market-Driven	Business Park Users	19,980,000	13,386,600	33,366,600
Forestry/Recreation	Forestry/Recreation	0	0	0
Total		$19,980,000	$13,386,600	$33,366,600

Key:

ARS = Alternative Reuse Scenario.

Source: The Arthur Andersen Group et al. n.d.

Housing

ARS 1 would not have a significant impact on the regional housing market in the Jacksonville MSA. Because this alternative would create only a small number of jobs and would not induce any changes in the size of the regional population, the demand for housing would not be affected.

Education

Impacts associated with implementation of ARS 1 would be similar to those under the Preferred Alternative, although the change in population and the increase in property tax revenues would be less under this alternative than under the Preferred Alternative.

Emergency and Medical Services

The impacts associated with ARS 1 would be similar to those described for the Preferred Alternative.

Recreation

Of all of the alternatives considered, ARS 1 would have the most positive impact on the provision of recreational facilities. Under ARS 1, the majority of the land at the former station would be utilized for forestry and passive recreation purposes. In addition, the existing on-base golf course, athletic fields, and other recreational facilities would be preserved. This alternative would increase the amount of active and passive recreational land available in Jacksonville.

4.7.3 Alternative Reuse Scenario 2

Population

ARS 2 would have only a minor impact on the demographic and population characteristics of Duval and Clay counties and on the Jacksonville MSA as a whole. A total of 1,266 direct jobs and 1,534 indirect jobs would be expected to be created by implementing this alternative (The Arthur Andersen Group et al. n.d.). The additional employment opportunities that would be created by this alternative would be largely filled by the local population. Therefore, population would not be expected to increase as a result of this alternative.

Economy, Employment, and Income

ARS 2 would have a positive impact on the economy of Jacksonville and surrounding communities. Economic benefits to the regional economy would accrue as a direct result of reuse of NAS Cecil Field. As the level of economic activity in the region expands as a result of implementation of ARS 2, additional positive indirect economic impacts would also occur.

Implementation of this alternative would be expected to create 1,266 direct jobs in the regional economy. Business park users and aviation manufacturing and repair companies would supply this increase in economic opportunities (see Table 4-30).

In addition to the employment opportunities that would be directly created by redevelopment of NAS Cecil Field, employment in the regional economy would be indirectly increased by this alternative. Every additional job created and each additional dollar of earnings and output generated at the site would stimulate the regional economy and create more employment and business opportunities.

Implementation of ARS 2 would be expected to create an estimated 2,800 jobs in the region if redevelopment proceeds as proposed, including the direct and indirect employment impacts of this alternative (The Arthur Andersen Group et al. n.d.). ARS 2 would also have a positive impact on the employee earnings and total income in the regional economy. Implementation of ARS 2 would be expected to generate approximately $41 million in direct payroll and $32 million in indirect income throughout the regional economy (see Table 4-31). Aviation manufacturing and repair industries would be expected to provide jobs with the highest average annual salaries ($35,000) (The Arthur Andersen Group et al. n.d.).

Taxes and Revenues

Following implementation of ARS 2, annual property tax revenues generated at the site would reach approximately $639,958, and the total assessed value of taxable property at the NAS Cecil Field would reach approximately $29.5 million (The Arthur Andersen Group et al. n.d.).

Annual operation and maintenance costs associated with this alternative would be expected to range from $1.8 million to $4.1 million, while total capital costs would be approximately $13.4 million. An additional $3.3 million for capital improvements would be expected to be incurred by other entities associated with the development of specific projects (The Arthur Andersen Group et al. n.d.).

Table 4-30

TOTAL, DIRECT, AND INDIRECT EMPLOYMENT IMPACTS OF ARS 2

Land Use Category	Land Use Activity	Direct Employment	Indirect Employment	Total Direct and Indirect Employment
Phase 1: 1998-2004				
Market-Driven	Business Park Users (office and industrial)	333	320	653
General Aviation	Aviation Manufacturing/Repair	200	298	498
Total		533	618	1,151
Phase 2: 2005-2010				
Market-Driven	Business Park Users (office and industrial)	333	320	653
General Aviation	Aviation Manufacturing/Repair	400	596	996
Total		733	916	1,649
Total: Phases 1 and 2				
Market-Driven	Business Park Users (office and industrial)	666	640	1,306
General Aviation	Aviation Manufacturing/Repair	600	894	1,494
Total		1,266	1,534	2,800

Key:

ARS = Alternative Reuse Scenario.

Source: The Arthur Andersen Group et al. n.d.

Table 4-31

TOTAL, DIRECT, AND INDIRECT INCOME IMPACTS OF ARS 2

Land Use Category	Land Use Activity	Direct Payroll	Indirect Earnings	Total Direct and Indirect Earnings
Phase 1: 1998-2004				
Market-Driven	Business Park Users (office and industrial)	9,990,000	6,693,300	16,683,300
General Aviation	Aviation Manufacturing/Repair	7,000,000	6,055,000	13,055,000
Total		$16,990,000	$12,748,300	$29,738,300
Phase 2: 2004-2010				
Market-Driven	Business Park Users (office and industrial)	9,990,000	6,693,300	16,683,300
General Aviation	Aviation Manufacturing/Repair	14,000,000	12,110,000	26,110,000
Total		$23,990,000	$18,803,300	$42,793,300
Total: Phases 1 and 2				
Market-Driven	Business Park Users (office and industrial)	19,980,000	13,386,600	33,366,600
General Aviation	Aviation Manufacturing/Repair	21,000,000	18,165,000	39,165,000
Total		$40,980,000	$31,551,600	$72,531,600

Key:

ARS = Alternative Reuse Scenario.

Source: The Arthur Andersen Group et al. n.d.

Housing

Implementation of ARS 2 would not have a significant impact on the housing market in the Jacksonville MSA. As described previously, this alternative would not be expected to increase the total population in the region compared with current conditions.

Education

Impacts associated with the implementation of ARS 2 would be similar to those caused by implementation of the Preferred Alternative, although the change in population and the increase in property taxes would be less than for the Preferred Alternative.

Emergency and Medical Services

ARS 2 would affect the provision of emergency and medical services in a manner similar to that described for the Preferred Alternative.

Recreation

The impacts associated with implementation of ARS 2 would be similar to those described for ARS 1. However, the area dedicated to recreational facilities under this alternative would be slightly smaller than the area utilized for ARS 1.

4.7.4 Alternative Reuse Scenario 3

Population

Implementation of ARS 3 would have a moderate impact on population and demographic characteristics of the area immediately adjacent to the site, but only a minor impact on the Jacksonville MSA as a whole.

ARS 3 calls for the development of a new 3,250-unit residential community on portions of the NAS Cecil Field. As a result of this residential development, the population on the NAS Cecil Field would increase by 3,250 households, or an estimated 8,255 persons. These additional residents would have a moderate impact on the demographic characteristics of communities in the surrounding area. This localized impact would be lessened to some extent because construction and occupation of these housing units would be dispersed over a 12-year period.

Regionally, ARS 3 would have only a minor impact on population and demographic characteristics of the Jacksonville MSA. Implementation of this scenario would be expected to create approximately 2,550 direct jobs and 2,190 indirect jobs in the Jacksonville area (The

Arthur Andersen Group et al. n.d.). As with all increases in economic activity, these additional employment opportunities would create an incentive for people to relocate to the area. However, the relative magnitude of the population impact on the region as a whole would be tempered by several factors, including the loss of employment resulting from the closure of NAS Cecil Field; the existence of unemployed and underemployed persons who currently reside in the region; the length of time being considered; and the size of the existing population.

In conclusion, implementation of ARS 3 would have a moderate impact on population and demographics in the immediate vicinity of the former naval station. On a regional level, ARS 3 is expected to have only a minor impact on demographic and population characteristics of the Jacksonville area as a whole.

Economy, Employment, and Income

Implementation of ARS 3 would also have a positive impact on the Jacksonville economy. Under this alternative, an estimated 2,550 direct and 2,190 indirect jobs would be created. As shown in Table 4-32, direct employment at the site would be diverse. The majority of job creation activities would be dispersed among light-industrial establishments such as warehousing and distribution firms, manufacturing companies, and business park users. In addition, a smaller number of jobs would be created by commercial enterprises (see Table 4-32).

As described previously, the additional economic activity that would result from implementation of ARS 3 would be multiplied to create additional employment and earnings in the regional economy. Indirect employment impacts of ARS 3 would include the creation of approximately 2,190 additional jobs in the economy (see Table 4-33).

As a direct result of implementation of ARS 3, approximately $53 million in payroll would be expected to be generated by industries/employers located at NAS Cecil Field. The indirect income that would be generated by this alternative is expected to reach slightly more than $41 million (see Table 4-33).

Under this ARS 3, business park users would be expected to pay the highest average annual salaries ($30,000), while warehouse and distribution companies would pay the lowest average annual salaries ($15,000) (The Arthur Andersen Group et al. n.d.).

Taxes and Revenues

ARS 3 would generate approximately $7,520,376 in annual property tax revenues after its implementation. The proposed residential community would be expected to supply

Table 4-32

TOTAL, DIRECT, AND INDIRECT EMPLOYMENT IMPACTS OF ARS 3

Land Use Category	Land Activity Industry/Employer	Direct Employment	Indirect Employment	Total Direct and Indirect Employment
Phase 1: 1998-2004				
Business Park Users	Office and Industrial	333	320	653
Commercial	Neighborhood Commercial	0	0	0
Manufacturing	Light/Heavy	250	305	555
Light Industrial	Warehouse/Distribution	400	384	784
Total		983	1,009	1,992
Phase 2: 2005-2010				
Business Park Users	Office and Industrial	400	383	783
Commercial	Neighborhood Commercial	267	144	411
Manufacturing	Light/Heavy	500	270	770
Light Industrial	Warehouse/Distribution	400	384	784
Total		1,567	1,181	2,748
Total: Phases 1 and 2				
Business Park Users	Office and Industrial	733	703	1,436
Commercial	Neighborhood Commercial	267	144	411
Manufacturing	Light/Heavy	750	575	1,325
Light Industrial	Warehouse/Distribution	800	768	1,568
Total		2,550	2,190	4,740

Key:

ARS = Alternative Reuse Scenario.

Source: The Arthur Andersen Group et al. n.d.

Table 4-33

TOTAL, DIRECT, AND INDIRECT INCOME IMPACTS OF ARS 3

Land Use Category	Land Activity Industry/Employer	Direct Payroll	Indirect Earnings	Total Direct and Indirect Earnings
Phase 1: 1998-2004				
Business Park Users	Office and Industrial	$9,990,000	$6,693,300	$16,683,300
Commercial	Neighborhood Commercial	0	0	0
Manufacturing	Light/Heavy	$6,250,000	$6,687,500	$12,937,500
Light Industrial	Warehouse/Distribution	$6,000,000	$5,340,000	$11,340,000
Total		$22,240,000	$18,720,800	$40,960,800
Phase 2: 2005-2010				
Business Park Users	Office and Industrial	$11,988,000	$8,031,960	$20,019,960
Commercial	Neighborhood Commercial	$8,010,000	$5,366,700	$13,876,500
Manufacturing	Light/Heavy	$5,250,000	$3,727,500	$8,977,500
Light Industrial	Warehouse/Distribution	$6,000,000	$5,340,000	$11,340,000
Total		$31,248,000	$22,466,160	$53,714,160
Total: Phases 1 and 2				
Business Park Users	Office and Industrial	$21,978,000	$14,725,260	$36,703,260
Commercial	Neighborhood Commercial	$8,010,000	$5,366,700	$13,376,700
Manufacturing	Light/Heavy	$11,500,000	$10,415,000	$21,915,000
Light Industrial	Warehouse/Distribution	$12,000,000	$10,680,000	$22,680,000
Total		$53,488,000	$41,186,960	$94,674,960

Key:

ARS = Alternative Reuse Scenario.

Source: The Arthur Andersen Group et al. n.d.

approximately $5.7 million in annual property tax revenues, or more than 75% of the total property taxes generated annually under this alternative. Total assessed value of taxable property on the naval station would be expected to reach more than $430 million.

The costs to implement this alternative would include annual operation and maintenance costs ranging from $1.8 million to $4.1 million and one-time capital costs of approximately $57 million. Costs incurred by other agencies would reach approximately $170.8 million under this alternative (The Arthur Andersen Group et al. n.d.).

Housing

ARS 3 would have a moderate impact on the regional housing market in the Jacksonville MSA. If implemented, ARS 3 would include development of approximately 3,250 housing units at the station, which would have an impact on the regional housing supply.

Although this alternative would significantly affect housing supply, it would have very little impact on housing demand. ARS 3 would increase total employment and total population in the four-county area. However, when the cumulative impacts associated with closure and reuse are considered, the net change in population and employment would be negative. The change in housing demand would not be expected to be as great as the change in housing supply; therefore, implementation of ARS 3 could actually cause a decrease in the cost of housing in the region.

Education

The impacts of ARS 3 on the regional educational system and facilities would be similar to those described for the Preferred Alternative. However, since ARS 3 calls for construction of approximately 3,250 single-family homes at NAS Cecil Field, implementation of this scenario would result in a significant enrollment increase in schools located in the immediate vicinity of the site. Although specific schools in the district would be affected and redistricting of school children could be required, the overall enrollment impact to the Duval County School District would not be expected to be significant.

Emergency and Medical Services

The impacts associated with implementation of ARS 3 would be similar to those described for the Preferred Alternative.

Recreation

The impacts associated with implementation of ARS 3 would be similar to those described for the Preferred Alternative.

4.7.5 Alternative Reuse Scenario 4

Population

ARS 4 would have only a minor impact on the population and demographics of Duval and Clay counties and on the Jacksonville MSA as a whole. As shown in Table 4-34, approximately 5,249 direct jobs and 4,758 indirect jobs would be expected to be created through implementation of this scenario (The Arthur Andersen Group et al. n.d.). Creation of these jobs would spur economic activity and potentially create an incentive for people to relocate to the area. However, based on the size of the regional economy and the previous loss of approximately 7,435 direct full-time military and civilian jobs due to the closure of NAS Cecil Field, the effect on the regional population would not be expected to be significant. In addition, it is predicted that a large portion of the jobs created under this plan would be filled the Jacksonville labor market, thus decreasing the need to recruit workers to the area.

Economy, Employment, and Income

Implementation of ARS 4 would create 5,249 direct jobs in the region. Under this plan, the State Department of Corrections would become the largest employer at the site, employing approximately 1,950 persons. Other large employers at the site would be expected to be warehousing and distribution facilities, manufacturing industries, business park users, and aircraft manufacturing and repair companies (see Table 4-34).

This initial job creation activity would induce additional economic growth in the regional economy. As these industries move to NAS Cecil Field, they would likely hire employees from the Jacksonville area. As these new employees spend a portion of their additional disposable income in the regional economy and/or as these new industries purchase goods and services from local suppliers, the income of other local businesses would expand. In response, these local businesses may hire more employees or expand their total output, thus multiplying the positive economic effects of this initial injection of funds into the economy.

Under ARS 4, it is predicted that direct employment at the site would create an additional 4,758 indirect jobs, raising total employment resulting from the implementation of this plan to 10,007 jobs (see Table 4-34).

Table 4-34

TOTAL, DIRECT, AND INDIRECT EMPLOYMENT IMPACTS OF ARS 4

Land Use Category	Land Activity Industry/Employer	Direct Employment	Indirect Employment	Total Direct and Indirect Employment
Phase 1: 1998-2004				
State Correctional Facility	State Department of Corrections	1,950	1,170	3,120
State Juvenile Justice Facility	Juvenile Justice	100	60	160
Light/Heavy Industrial	Business Park Users	333	320	653
Commercial	Retail/Commercial	0	0	0
Aviation-General/ Related Service	Air Cargo	20	19	39
Aviation-General/ Related Service	Aircraft Manufacturing/Repair	200	298	498
Heavy Industrial	Manufacturing	250	305	555
Light Industrial	Warehouse/Distribution	400	384	784
Total		3,253	2,556	5,809
Phase 2: 2005-2010				
State Correctional Facility	State Department of Corrections	0	0	0
State Juvenile Justice Facility	Juvenile Justice	0	0	0
Light/Heavy Industrial	Business Park Users	333	319	652
Commercial	Retail/Commercial	133	72	205
Aviation-General/ Related Service	Air Cargo	30	29	59
Aviation-General/ Related Service	Aircraft Manufacturing/Repair	400	596	996
Heavy Industrial	Manufacturing	500	610	1,110
Light Industrial	Warehouse/Distribution	600	576	1,176
Total		1,996	2,202	4,198

Key at end of table.

Table 4-34

TOTAL, DIRECT, AND INDIRECT EMPLOYMENT IMPACTS OF ARS 4

Land Use Category	Land Activity Industry/Employer	Direct Employment	Indirect Employment	Total Direct and Indirect Employment
Total: Phases 1 and 2				
State Correctional Facility	State Department of Corrections	1,950	1,170	3,120
State Juvenile Justice Facility	Juvenile Justice	100	60	160
Light/Heavy Industrial	Business Park Users	666	639	1,305
Commercial	Retail/Commercial	133	72	205
Aviation-General/ Related Service	Air Cargo	50	48	98
Aviation-General/ Related Service	Aircraft Manufacturing/Repair	600	894	1,494
Heavy Industrial	Manufacturing	750	915	1,665
Light Industrial	Warehouse/Distribution	1,000	960	1,960
Total		5,249	4,758	10,007

Key:

ARS = Alternative Reuse Scenario.

Source: The Arthur Andersen Group et al. n.d.

Additionally, it is anticipated that implementation of ARS 4 would generate approximately $118 million in direct payroll and $92 million in indirect earnings (see Table 4-35). Aircraft manufacturing/repair companies would be expected to provide the highest-paying jobs at the NAS Cecil Field, with average annual salaries of $35,000, while commercial industries located at the site would provide the lowest-paying jobs, with average annual salaries of $10,500 (The Arthur Andersen Group et al. n.d.).

Taxes and Revenues

Implementation of ARS 4 would generate an estimated $2,164,758 annually in property tax revenues, with the total assessed value of taxable property on the site reaching nearly $100 million (The Arthur Andersen Group et al. n.d.).

To implement ARS 4, $1.8 million to $4.1 million would be expected to be spent annually on operation and maintenance costs, and approximately $71.2 million on one-time capital costs. In addition, this plan would require that more than $173 million be spent on capital improvements by other government and private entities (The Arthur Andersen Group et al. n.d.).

Housing

ARS 4 would have only a minor impact on the housing market in the city of Jacksonville and surrounding communities. Proposed reuse of NAS Cecil Field is expected to increase total employment and total population in the region over post-closure conditions. This projected increase in population would increase the demand for housing in the four-county area, possibly leading to a slight increase in the price of houses in the area compared with post-closure conditions.

However, when the impacts to the regional housing market from both closure and reuse of NAS Cecil Field are considered, implementation of ARS 4 would have very little impact on the housing market in the city of Jacksonville or surrounding communities compared with existing conditions. Increases in population and employment that would be created by implementing this plan would not exceed employment or population declines that will occur as a result of closure of NAS Cecil Field.

Education

Implementation of ARS 4 would have only a minor impact on the provision of educational services in Clay and Duval counties. As described in previous sections, the increased economic activity that would occur as a result of reuse of NAS Cecil Field would stimulate the

Table 4-35

TOTAL, DIRECT, AND INDIRECT INCOME IMPACTS OF ARS 4

Land Use Category	Land Activity Industry/Employer	Direct Payroll	Indirect Earnings	Total Direct and Indirect Earnings
Phase 1: 1998-2004				
State Correctional Facility	State Department of Corrections	$39,000,000	$22,400,000	$62,400,000
State Juvenile Justice Facility	Juvenile Justice	1,800,000	1,080,000	2,880,000
Light/Heavy Industrial	Business Park Users	9,990,000	6,693,300	16,683,300
Commercial	Retail/Commercial	0	0	0
Aviation-General/Related Service	Air Cargo	600,000	534,000	1,134,000
Aviation-General/Related Service	Aircraft Manufacturing/Repair	7,000,000	6,090,000	13,090,000
Heavy Industrial	Manufacturing	6,250,000	6,687,500	12,937,500
Light Industrial	Warehouse/Distribution	6,000,000	5,340,000	11,340,000
Total		$70,640,000	$49,824,800	$120,464,800
Phase 2: 2005-2010				
State Correctional Facility	State Department of Corrections	$0	$0	$0
State Juvenile Justice Facility	Juvenile Justice	0	0	0
Light/Heavy Industrial	Business Park Users	9,990,000	6,693,300	16,683,300
Commercial	Retail/Commercial	1,396,500	991,515	2,388,015
Aviation-General/Related Service	Air Cargo	900,000	801,000	1,701,000
Aviation-General/Related Service	Aircraft Manufacturing/Repair	14,000,000	12,180,000	26,180,000
Heavy Industrial	Manufacturing	12,500,000	13,375,000	25,875,000
Light Industrial	Warehouse/Distribution	9,000,000	8,010,000	17,010,000
Total		$47,786,500	$42,050,815	$89,837,315

Key at end of table.

Table 4-35

TOTAL, DIRECT, AND INDIRECT INCOME IMPACTS OF ARS 4

Land Use Category	Land Activity Industry/Employer	Direct Payroll	Indirect Earnings	Total Direct and Indirect Earnings
Total: Phases 1 and 2				
State Correctional Facility	State Department of Corrections	$39,000,000	$23,400,000	$62,400,000
State Juvenile Justice Facility	Juvenile Justice	1,800,000	1,080,000	2,880,000
Light/Heavy Industrial	Business Park Users	19,980,000	13,386,600	33,366,600
Commercial	Retail/Commercial	1,396,500	991,515	2,388,015
Aviation-General/Related Service	Air Cargo	1,500,000	1,335,000	2,835,000
Aviation-General/Related Service	Aircraft Manufacturing/Repair	21,000,000	18,270,000	39,270,000
Heavy Industrial	Manufacturing	18,750,000	20,062,500	38,812,500
Light Industrial	Warehouse/Distribution	15,000,000	13,350,000	28,350,000
Total		$118,426,500	$91,875,615	$210,302,115

Key:

ARS = Alternative Reuse Scenario.

Source: The Arthur Andersen Group et al. n.d.

economy and create an incentive for new residents to move into the area. Because some of the relocating persons would have families, the total number of school-age children in the region would be affected.

However, when the loss of 7,435 direct full-time military and civilian jobs due to the closure of NAS Cecil Field is considered, the total population in the region would not be expected to expand over current levels. Since the creation of 5,249 direct jobs under ARS 4 would not be sufficient to offset the negative economic impacts associated with the loss of 7,435 military and civilian jobs, ARS 4 would not be anticipated to increase the total population or the total number of school-age children in the region over existing levels.

When the impacts of both closure and reuse are considered, ARS 4 could have a slight positive impact on the school systems in Duval County. As described above, the total number of school-age children would be expected to decrease as a net result of closure and reuse. At the same time, property tax revenues in Duval County would be expected to increase as the land previously owned by Navy would become taxable.

Emergency and Medical Services

ARS 4 would have minor adverse effects on the provision of fire, police, and ambulance services in the city of Jacksonville. The transfer of NAS Cecil Field from Navy ownership to private or local government ownership would increase the area to be serviced by local police, fire, and ambulance corps, thereby increasing manpower and equipment needs. Negative effects caused by the increase in the area served by local emergency services would be slightly offset by the transfer of all public safety buildings and equipment (e.g., firehouses, police stations, vehicles) currently used by Navy at NAS Cecil Field to the city of Jacksonville (CFDC 1996). In addition, implementation of ARS 4 would expand local government revenues through an increase in property tax collections. The additional property tax revenues, in conjunction with the transfer of buildings and equipment, should more than offset any financial burdens placed on the providers of emergency services.

ARS 4 would not have a significant impact on the provision of medical services in the city of Jacksonville or surrounding communities. Since the regional population would not be expected to increase over existing levels, demand for medical services would be expected to remain at its current level. Since no change in the supply of medical services would be anticipated as a result of the preferred alternative, no change in the provision of medical services in the Jacksonville area is projected.

Recreation Services

Implementation of ARS 4 would positively affect the provision of recreational facilities in the Jacksonville area. Under this alternative, the majority of NAS Cecil Field's existing golf course, athletic fields, and other recreational facilities would be managed by the city of Jacksonville, thereby increasing the recreational facilities available to local residents.

4.7.6 No-Action Alternative

Population

Given the size of Duval and Clay counties and of the MSA as a whole, the loss of approximately 7,435 direct full-time military and civilian jobs due to closure of NAS Cecil Field would not be expected to significantly impact the regional population. This alternative would not create an incentive for new residents to relocate to the area.

Economy, Employment, and Income

Implementation of this alternative would have the greatest negative economic impact on the city of Jacksonville and the surrounding area by directly and indirectly impacting employment and income. The 7,140 full-time and reserve military personnel, 813 civilians, and 342 contractors employed at NAS Cecil Field in FY 95 had a total annual payroll of approximately $229.2 million. In addition, requests for services at NAS Cecil Field contributed another $26 million to the local economy. Under this alternative, there would be no substitute for the economic, employment, and income losses due to closure of NAS Cecil Field.

Taxes and Revenues

Implementation of this alternative would result in the greatest loss of potential taxes and revenues. Because the land will continue to be federally owned, property taxes revenues generated under this alternative would be consistent with pre-closure revenues.

Annual operation and maintenance revenues generated from the provision of infrastructure and utility services would be minimal compared to the other alternatives.

Housing

This alternative is not expected to have a significant adverse impact on the housing market in the city and surrounding community. Given the limited amount of housing that would

be vacated by military and civilian personnel and their dependents, no adverse impact to vacancy rates would be expected from implementation of this alternative.

Education

Implementation of this alternative would not have a significant adverse impact on schools in the city and surrounding region. Although the school districts in the city and surrounding region would no longer receive financial assistance under the U.S. Department of Education Impact Aid Program, the total number of school-age children would be expected to decline as a result of closure and reuse.

Implementation of this alternative would not contribute to property tax revenues, which are partially used for the local school system.

Emergency and Medical Services

Implementation of the No-Action Alternative would not have a significant adverse impact on emergency or medical services in the city or surrounding region. The population requiring these services would not increase.

Recreation Services

Compared to the other alternatives, the No-Action Alternative would have no positive impact to recreational resources in the city or surrounding region. All recreational amenities that would be associated with the reuse of NAS Cecil Field under the other alternatives would be lost because public access to NAS Cecil Field would not be granted.

4.7.7 Cumulative Impacts

Past and reasonably foreseeable future actions that could result in cumulative socioeconomic impacts, when added to the actions associated with the Preferred Alternative, include job losses associated with closure of NAS Cecil Field and changes in military employment associated with other BRAC 1993 and BRAC 1995 actions in the region. The following sections discuss the cumulative implications of these actions, when added to the actions associated with the Preferred Alternative.

Population

The cumulative impacts of BRAC 1993 and BRAC 1995 actions and the Preferred Alternative would result in a net increase in population in the Jacksonville MSA. As described in the following sections, total direct employment in the region would increase by 2,351 positions. Creation of these jobs would spur economic activity and create an incentive for people to relocate to the area, and total population in the Jacksonville MSA would expand as a result.

Economy, Employment, and Income

The cumulative effects of closure of NAS Cecil Field, implementation of the Preferred Alternative, and completion of several other separate BRAC 1993 and BRAC 1995 actions would be to increase total direct employment in the Jacksonville area by 2,351 jobs. As shown in Table 4-36, BRAC 1993 recommendations affecting the Jacksonville MSA would result in a net loss of 4,033 military positions but would create 1,217 new civilian positions. Likewise, BRAC 1995 actions would increase the total number of DoD civilian jobs in the area by 67 positions and the number of military billets in the region by 1,901 positions. When these actions are included with effects of the Preferred Alternative, creation of 4,483 new civilian jobs would be expected. However, total military employment in the region would be expected to decrease by 2,132 positions, creating a net increase of 2,351 jobs in the Jacksonville regional economy (see Table 4-36).

Creation of 2,351 additional jobs in the local economy would result in a substantial increase in employee earnings. As described in previous sections, this increase in direct employment would also increase employment and income in other sectors of the economy. As these industries and military installations hire employees from the Jacksonville area, and as these new employees spend a portion of their additional disposable income in the regional economy, the income of other local businesses would expand. In response, these local businesses may hire more employees or expand their total output, thus multiplying the positive economic effects of this initial injection of funds into the economy.

The cumulative impact of these BRAC actions and implementation of the Preferred Alternative would create substantial indirect employment and income effects in the regional economy. These indirect effects, while not quantified, are projected to be significant.

Table 4-36

CUMULATIVE REGIONAL ECONOMIC IMPACTS OF BRAC 1993 AND BRAC 1995 ACTIONS AND IMPLEMENTATION OF THE PREFERRED ALTERNATIVE

Command/Alternative	Civilian Employment Impacts	Military Employment Impacts	Total Employment Impacts
BRAC 1993			
NADEP	+1,683	+204	+1,887
Defense Distribution Depot	+250	+3	+253
NAS Jacksonville	+77	+152	+229
NAS Cecil Field	-813	-6,622	-7,435
NAVSTA Mayport	+8	+2,138	+2,146
Naval Hospital	+12	+92	+104
BRAC 1993 Impact	+1,217	-4,033	-2,816
BRAC 1995			
NADEP	+40	0	+40
NAS Jacksonville	+27	+1,901	+1,968
BRAC 1995 Impact	+67	+1,901	+1,968
NAS Cecil Field Preferred Alternative			
Preferred Alternative	+3,199	0	+3,199
Total Cumulative Impacts	+4,483	-2,132	+2,351

Key:

BRAC = Base Closure and Realignment Act.
NAVSTA = Naval Station.

Sources: Mayor's Commission on Base Closure and Realignment 1995; Arthur Andersen et al. 1995.

Housing

As described above, total population in the Jacksonville MSA would increase due to cumulative effects of implementation of the Preferred Alternative and the 1993 and 1995 BRAC actions. This increase in population would also increase the demand for housing in the region. Because housing supply would not be expected to change as a direct result of these actions, housing vacancy rates would be expected to decrease and housing prices could increase slightly. However, these impacts would be moderated by the relative size of the Jacksonville MSA and by the construction of additional residential buildings.

Taxes and Revenues

The cumulative effects of implementation of the Preferred Alternative and completion of BRAC 1993 and BRAC 1995 actions would have a positive fiscal impact on local governments in the Jacksonville MSA. Increases in economic activity and regional population would increase local property values and expand the local tax base.

Local government expenditures would also increase because additional services and facilities would have to be provided to new residents. However, the increase in taxes generated should more than offset these additional expenditures.

Education

As described in previous sections, the cumulative impact of the Preferred Alternative and completion of the BRAC 1993 and BRAC 1995 actions would result in an increase in the regional population. This population increase would have a moderate impact on the provision of educational services by increasing the total number of students attending public schools in the region. The total impact on school districts would be limited by the length of time over which the expansion would occur and the relative size of the Jacksonville area. In addition, any increase in expenditures made by local school districts to accommodate these new students would be expected to be covered by the increase in local tax revenues.

Emergency and Medical Services

The cumulative effects of the Preferred Alternative and the BRAC actions would have a minor adverse impact on the provision of fire, police, and ambulance services in the city of Jacksonville. The transfer of NAS Cecil Field from Navy ownership to private or local government ownership would increase the area requiring services from local police, fire and ambulance

corps, thus increasing manpower and equipment needs. Negative effects of the increase in the area served by local emergency services would be slightly offset by the transfer of all public safety buildings and equipment (e.g., firehouses, police stations, vehicles) at NAS Cecil Field to the city of Jacksonville (CFDC 1996).

The cumulative population effects would also increase the demand for emergency and medical services in the region. However, local government revenues generated by the increase in property tax collections, in conjunction with the transfer of buildings and equipment, should more than offset any financial burdens placed on the providers of emergency and medical services in the region.

Recreation

Cumulatively, disposal and reuse of the station and the other BRAC actions would have a positive impact on the provision of recreational services in the city of Jacksonville. The cumulative population effects of these actions would increase the demand for recreational facilities throughout the region. However, the increase in recreational facilities available to the general public should more than offset this increase in demand.

4.7.8 Mitigation Measures

No significant adverse socioeconomic impacts will result from implementation of the Preferred Alternative. Therefore, no mitigation is proposed.

4.7.9 Environmental Justice

Consistent with Exec. Order No. 12,898, 59 Fed. Reg. 7629 (1994), amended by Exec. Order No. 12,946, 60 Fed. Reg. 6381 (1995), Navy has identified and addressed disproportionately high and adverse human health or environmental effects of actions on minority and low-income populations. The Navy:

- Ensured that all programs or activities under its control that receive federal financial assistance and that affect human health or the environment do not directly or indirectly use criteria, methods, or practices that discriminate on the basis of race, color, or national origin;

- Analyzed the human health, economic, and social effects of Department of Navy actions, including effects on minority communities and low-income communities;

- Ensured that whenever feasible, mitigation measures outlined or analyzed in the EIS address significant and adverse environmental effects of proposed federal actions on minority communities and low-income communities;

- Ensured that opportunities for community input in the NEPA process were provided, including identifying potential effects and mitigation measures in consultation with affected communities, and improve the accessibility of meetings, crucial documents, and notices; and

- Ensured that the public, including minority communities and low-income communities, had adequate access to public information relating to human health or environmental planning, regulation, and enforcement.

The purpose of this FEIS is to address potential environmental, social, and economic impacts associated with the disposal of NAS Cecil Field and subsequent reuse of the property pursuant to the reuse scenarios prepared by CFDC. Minority and low-income communities will not be disproportionately affected by the proposed action.

NAS Cecil Field is located in Duval and Clay counties. None of the areas directly contiguous with the station are considered to be minority or low-income neighborhoods. Neighborhoods directly adjacent to the facility are delineated by the 1990 Census of Population and Housing and include census tracts 137.21, 137.22, and 137.98 located in Duval County, and Census Tracts 301.00 and 302.00 located in Clay County.

Based on 1990 census tract information and definitions utilized by HUD, these tracts, while serving diverse populations, are not predominantly (i.e., greater than 50%) minority or low-income tracts. Table 4-37 shows the percentage of minority and low-income residents living in census tracts adjacent to NAS Cecil Field. Approximately 2.6 to 14.8% of the households in these census tracts are minority households. Approximately 19.7 to 30.8% of the households are low-income households.

Further analysis indicates that the minority population percentage of the affected area is not substantially greater than the minority population percentages of Clay and Duval counties. The minority population of Clay County is 8.2%. Affected tracts (301.00 and 302.00) have minority populations ranging from 4.7 to 4.8%. The minority population of Duval County is 27.2%. Affected tracts (137.21, 137.22, and 137.98) have minority populations ranging from 2.6 to 14.8%.

Analysis of affected low-income populations indicates that the low-income percentages of the areas surrounding the station are substantially greater than the low-income population

Table 4-37

MINORITY AND LOW-INCOME STATUS OF RESIDENTS LIVING IN CENSUS TRACTS ADJACENT TO NAS CECIL FIELD[a]

Census Tract	Total Residents	White	Black	American Indian	Asian	Other	Hispanic Origin	Percent Minority	Percent of Households Considered Low-Income[a]
137.21	2,838	2,703	89	15	24	7	50	6.5	29.7
137.22	9,771	8,547	738	39	362	85	226	14.8	19.7
137.98	3,897	3,823	44	11	11	8	28	2.6	27.2
301.00	10,960	10,539	296	48	52	25	97	4.7	30.8
302.00	6,100	5,899	81	26	36	58	89	4.8	20.5

[a] Low-Income households defined as those earning less than two-thirds of the county median household income.

Source: U.S. Bureau of the Census 1992.

percentages for Clay and Duval counties. Approximately 8.8% of Clay County is considered low income. Affected tracts 301.00 and 302.00 have low-income populations of 20.5 to 30.8%. Approximately 15.2% of Duval County is considered low income, while the affected tracts near the station, tracts 137.21, 137.22, and 137.98, have low-income populations of 19.7 to 29.7%.

Although the low-income populations surrounding the station are meaningfully greater than for Clay and Duval counties as a whole, implementation of the Preferred Alternative would not disproportionately impact human health or the environment in these areas. The socioeconomic and community service benefits derived from implementation of this plan, as discussed in Section 4.7, would be readily available for use by low-income populations. The plan provides employment opportunities for a variety of technical and non-technical skills, including light and heavy industrial, commercial, and aviation activities.

The plan proposes that large areas be set aside for recreational pursuit. Most of the recreation activities associated with the plan, such as ball fields, basketball courts, and the passive recreation opportunities of the Natural and Recreation Corridor, would be open to the public at no cost.

Proposed land uses that would be considered incompatible with surrounding low-density residential uses are internal to the site and buffered from surrounding residential development by more compatible land uses. In the Yellow Water Area, FAR proposed in the plan would provide a buffer between the proposed areas of industrial use and the surrounding low-density residential uses.

The impact of potentially adverse conditions, such as increased traffic, would not be limited to the low-income census tracts surrounding the site, but would be distributed throughout the community. Similarly, projected increases in CO emissions would be associated with VMT and would be distributed throughout the community.

While the adverse impact of aircraft noise and emissions would be greatest on the census tracts surrounding the site, the impact would be less than pre-closure conditions.

Because none of the neighborhoods adjacent to NAS Cecil Field are minority or low-income areas, none of the proposed ARSs would disproportionately affect minority or low-income neighborhoods surrounding the station. In addition, the large majority of impacts associated with reuse of NAS Cecil Field would not be significant when compared with pre-closure conditions.

As discussed in Section 1, ample opportunity for community input into the preparation of this FEIS was provided. CFDC held several meetings in the Jacksonville area, and Navy held a public information/scoping meeting on February 9, 1995, and a public hearing on the DEIS on

May 27, 1997. In addition to extensive media coverage of the Preferred Alternative, both CFDC and Navy have conducted public mailings that included civic leagues, planning district commissions, and public interest groups representing minority and low-income populations.

4.7.10 Environmental Justice for Children

In accordance with Exec. Order No. 13,045, "Protection of Children from Environmental Health Risks and Safety Risks," 62 Fed. Reg. 19885 (1997), the Preferred Alternative for NAS Cecil Field was assessed for environmental health risks and safety risks that may disproportionately affect children.

Because the plan proposes a mixed-use, non-residential development, children would not reside at the site in the future. However, children would likely visit the proposed park and recreational area and the Natural and Recreation Corridor proposed for the west side of the site, where hazardous waste areas have been identified. In the park and recreation area, hazardous waste sites are confined to the golf course. An additional 13 hazardous waste sites have been identified in the Natural and Recreation Corridor on the Main Station, and three have been identified at the Yellow Water Area.

However, these recreational areas are isolated from the surrounding residential population, and children would not have an opportunity to frequent these areas on a daily basis. The Natural and Recreation Corridor would be developed for passive recreational uses and would not include activities that attract children, such as ball fields and playgrounds.

Prior to any lease or transfer of property, Navy must complete a parcel-specific EBS. Based on the findings of the parcel-specific EBS and following approval by EPA and FDEP, Navy would make a parcel-specific FOSL or FOST. In addition, because Navy will comply with all relevant environmental statutes for investigation, remediation, closure, and/or removal of hazardous material, hazardous wastes, and petroleum-product contamination and process units regulated under CERCLA, 42 U.S.C. §§ 9601-9675 (1994); RCRA, 42 U.S.C. §§ 6901-6992k (1994); Fla. Admin. Code Ann. Ch. 62-770; and TSCA, 15 U.S.C. §§ 2601-2692 (1994); the health and safety risks to children would be mitigated.

Therefore, implementation of the Preferred Alternative would not be expected to pose environmental health risks and safety risks that would disproportionately affect children.

4.8 Transportation

This section summarizes the potential impacts to the transportation systems surrounding NAS Cecil Field resulting from the implementation of various reuse scenarios proposed by CFDC. The transportation systems analyzed include roadways, air, and rail facilities.

Road Network

The impact of the various reuse scenarios on local and regional roads was evaluated using the standard analysis techniques of projecting trip generation, trip distribution, and trip assignment. The number of vehicular trips generated from a specific land use was estimated based on employment, square footage, number of dwelling units, or development acreage. Trip generation rates were estimated from the Institute of Transportation Engineers (ITE) Trip Generation Manual (ITE 1991). Each proposed reuse scenario advocated a different theme, mixture, and intensity of development. Consequently, the various scenarios generate different intensities of aggregated trip volumes.

Based on the conceptual nature of the reuse scenarios, it is difficult to identify specific improvements to the on-station transportation network that would be necessary to better facilitate traffic circulation. Because redevelopment plans are conceptual and provide no specific structural schematics for the reuse alternatives, the internal transportation layout is assumed to be similar to the existing layout. It is assumed that as new developments evolve, additional access routes to the external transportation system may be necessary.

The trips that were projected to be generated from new land uses developed on the property were distributed onto the roadways within the established region of influence based on the assumption that route choice will attempt to minimize travel distance, time, and congestion by selecting routes with minimal existing traffic volumes and adequate levels of service. The residential distribution of projected employment generated through reuse plan implementation was assumed to be similar to that of the distribution of civilian personnel currently employed at NAS Cecil Field. This assumption is based on the fact that the majority of trips would be home-based work trips, with the realization that trips related to raw materials delivery, product shipment, and other business-related trips could be potentially misrepresented by this distribution.

Future traffic conditions were based on projections supplied by the Jacksonville Metropolitan Planning Organization (MPO) to reflect projected changes in population, land use, socioeconomics, and anticipated improvements to the roadway network. Projected traffic under

each plan was added to various roadway projections, and the LOS was calculated for each major road segment within the region of influence to reflect the impact of the Preferred Alternative and each ARS. LOS parameters are based on Florida's Level of Service Standards and Guidelines Manual for Planning (FDOT 1995).

Mass Transit

Following the closure of NAS Cecil Field, transit service may prove unfeasible due to the relatively low development densities on the southwestern side of the city of Jacksonville. Without a large trip generator consisting of a relatively high number of captive riders (riders with limited options to mass transit), JTA may find that insufficient numbers exist, at least in the initial redevelopment stages, to provide service to the project area.

Rail Facilities

The proximity of major rail facilities to NAS Cecil Field, along with existing rail rights-of-way on the property, would provide a beneficial attribute to redevelopment. The industrial/mixed use nature of a scenario would be enhanced by the development potential associated with existing and new rail corridors. These rail lines could act as vital transportation corridors offering newly developed land uses with competitive advantages in product transport and distribution capabilities.

Airport Facilities

If the airfields on the station are to be reused for aviation-related purposes, an FAA airspace analysis and airport master plan would be necessary to evaluate the specific effects that the reuse would have on safe and efficient use of airspace. The flights related to reuse activities would have to be integrated into the airspace control system for commercial, military, and general aviation flights within the Jacksonville region. Generalized LTO projections have been provided by the CFDC for those alternatives proposing reuse of aviation infrastructure.

4.8.1 Preferred Alternative

Roadway Network

At the completion of Phase 1 development, approximately 9,352 average daily and 733 peak-hour trips would be expected. Phase 2 development would generate approximately 15,007 average daily trips and 1,930 peak-hour trips. At completion of Phase 2, approximately 24,359 average daily trips and 2,663 peak-hour trips would be generated. Table 4-38 displays trips generated for proposed land uses under the Preferred Alternative. Figures 4-13 and 4-14 display the traffic conditions associated with the Preferred Alternative. Trips projected to be generated by the Preferred Alternative were added to the Jacksonville MPO's projected traffic volumes for 2004 and 2010.

Most roadways within the region influenced by the Preferred Alternative would experience a slight increase in traffic volumes over the MPO's projected levels. Normandy Boulevard and 103rd Street, which provide direct access to the redevelopment site, would experience increases in traffic volumes over MPO's projected levels of 26% and 37%, respectively. In most cases, however, the Preferred Alternative would not result in a significant modification of projected LOS on the roads. Table 4-39 displays the MPO's projected traffic volumes, traffic volumes resulting from redevelopment, and the associated LOSs.

The only roads that would experience significant LOS changes would be portions of Chaffee Road, Normandy Boulevard, and 103rd Street. Most deficiencies would occur at the end of Phase 2, and would be addressed by already planned improvements to the regional roadway network discussed in Section 4.8.7.

Mass Transit

Mass transit service to the southwestern extent of the Jacksonville service district may be canceled due to a lack of sufficient ridership; the relative seclusion of the property would potentially result in a subsequent lack of ridership to support service in the initial phases of redevelopment. Transportation demand/supply management programs, such as flexible work schedules, carpooling incentives, parking fees, and reduced parking space availability, may promote the use of alternative transportation modes while serving as a mitigation effort for traffic volumes generated from reuse.

Table 4-38

TRIP GENERATION FOR THE PREFERRED ALTERNATIVE

Land Use Activity[1]	ITE Code	Unit Variable	Unit Size	Daily Trip Ends	Peak-Hour Trip Ends	Trip Reduction Factors		Total Trip Ends	
						Internal Capture	Pass-By Capture	Discounted Daily Trip Ends[5]	Discounted Peak-Hour Trip Ends[5]
Phase 1: 1998-2004									
Warehouse/Distribution	150	1,000 sf (92.9 m^2)	1,000,000 (92,900)	4,022	124	20%	0%	3,218	999
Business Park Users	770	1,000 sf (92.9 m^2)	250,000 (23,225)	3,504	376	20%	0%	2,803	301
Manufacturing	140	1,000 sf (92.9 m^2)	250,000 (23,225)	958	187	10%	0%	862	168
Air Manufacturing/Repair[2]	140	1,000 sf (92.9 m^2)	100,000 (9,290)	375	75	10%	0%	337	68
Aviation (Air Cargo)	022	flights/day	151	198	36	5%	0%	188	34
Aviation (FArNG)[3]	501	employees	25	44	10	0%	0%	40	9
Parks and Recreation[4]	413	acres (ha)	1,464 (592)	732	NA	10%	0%	658	NA
Natural Corridor Park/Rec.	413	acres (ha)	1,480 (599)	740	NA	10%	0%	666	NA
Golf Course	430	acres (ha)	18 (7.3)	645	60	10%	0%	580	54
Total				**11,218**	**864**			**9,352**	**733**
Phase 2: 2005-2010									
Warehouse/Distribution	150	1,000 sf (92.9 m^2)	1,500,000 (139,350)	5,862	807	20%	0%	4,690	646
Business Park Users	770	1,000 sf (92.9 m^2)	250,000 (23,225)	3,504	376	20%	0%	2,803	301
Manufacturing	140	1,000 sf (92.9 m^2)	500,000 (46,450)	1,928	374	10%	0%	1,735	337
Air Manufacturing/Repair[2]	140	1,000 sf (92.9 m^2)	200,000 (18,580)	763	150	10%	0%	687	135
Aviation (Air Cargo)	022	flights/day	246	339	71	0%	0%	322	67
Commercial	820	1,000 sf (92.9 m^2)	100,000 (9,290)	7,067	656	10%	25%	4,770	443
Total				**19,463**	**2,434**			**15,007**	**1,930**
Total Phase 1 and Phase 2				**30,681**	**3,298**			**24,359**	**2,663**

Table 4-38 (Cont.)

1 Land use categories, square footage, and acreage estimates for Phase 1 and 2 development were taken from Figure 6.1 of the NAS Cecil Field Base Reuse Plan (CFDC 1996) and are shown in Tables 2-2 and 2-3 of this FEIS. In addition, parks and recreation and golf course land use categories have been added as described in the Reuse Plan.

2 ITE Land Use Code 140 (manufacturing) was used to approximate trip generation characteristics for the air manufacturing/repair land use category.

3 Because National Guard units typically function with a minimal amount of people during an average weekday, it was estimated that 25 unit members are employed at the facility on an average weekday. Trips for the facility were estimated using the trip generation rate for ITE Land Use Code 501 (military bases).

4 The parks and recreation land use category includes areas for passive and active recreational activities such as hiking, camping, and horseback riding.

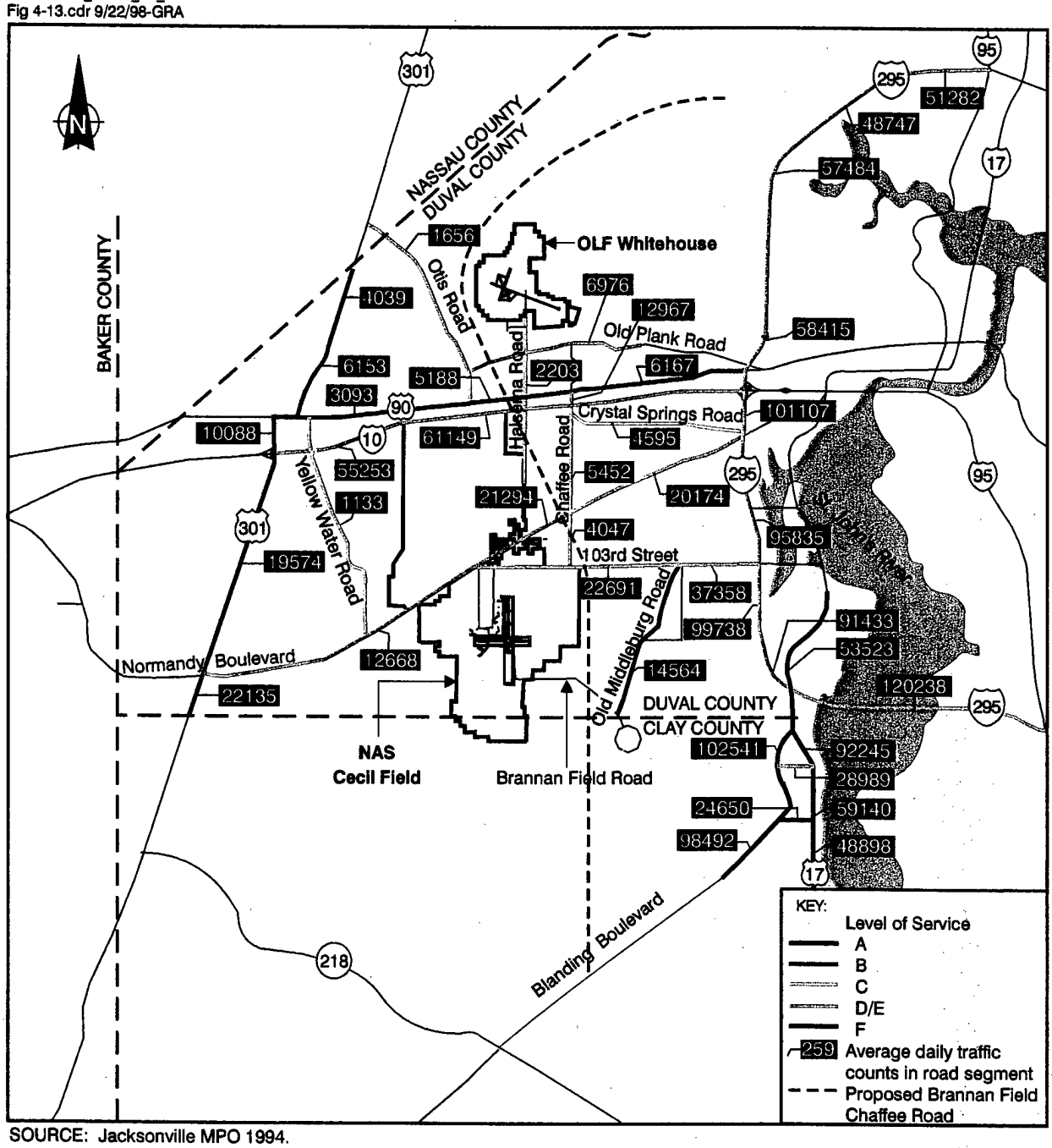
5 Total trip ends were discounted to reflect internal capture rates and pass-by capture rates. Internally captured trips are trips that do not reach the external roadway network and therefore are not considered new trips on the roadway network. Pass-by capture trips are trips made as intermediate stops on the way from an origin to a destination. These trips are attracted from traffic passing the site on an adjacent street (a pass-by capture rate was applied only to the commercial development category). The number of new trips on the external roadway network was identified by applying internal capture and pass-by capture rates.

Key:

ha = Hectares.
ITE = Institute of Transportation Engineers.
m^2 = Square meters.
NA = PM peak-hour data not available.
sf = Square feet.

Sources: ITE 1991; CFDC 1996.

02: 000822_VM06_00_90-B0009
Fig 4-13.cdr 9/22/98-GRA

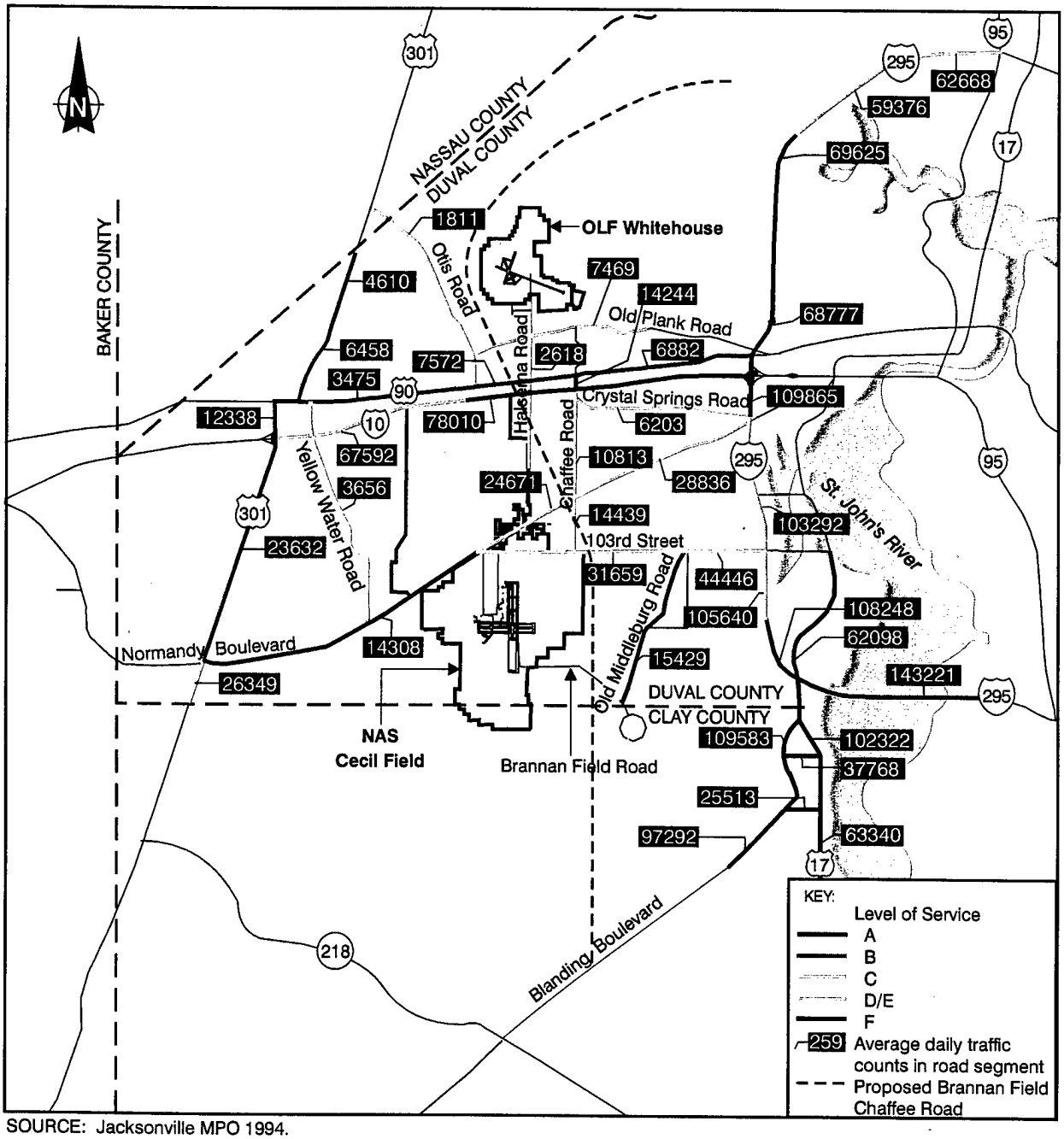


SOURCE: Jacksonville MPO 1994.

SCALE
0 18,500 37,000 Feet

Figure 4-13 TRAFFIC CONDITIONS IN ROAD SEGMENTS IN THE VICINITY OF NAS CECIL FIELD PREFERRED ALTERNATIVE, PHASE 1

02: 000822_VM06_00_90-B0009
Fig 4-14.cdr 9/22/98-GRA



SOURCE: Jacksonville MPO 1994.

SCALE
0 18,500 37,000 Feet

Figure 4-14 TRAFFIC CONDITIONS IN ROAD SEGMENTS IN THE VICINITY OF NAS CECIL FIELD PREFERRED ALTERNATIVE, PHASE 2

Table 4-39

PROJECTED LEVELS OF SERVICE AND TRAFFIC VOLUMES FOR THE PREFERRED ALTERNATIVE[a]

Road Name	Segment	Phase 1 (1998-2004)				Phase 2 (2005-2010)			
		Projected Average Daily Traffic Volumes Without Proposed Base Redevelopment[b]	LOS	Average Daily Traffic Volumes Including Volume Generated From Proposed Base Redevelopment	LOS	Projected Average Daily Traffic Volumes Without Proposed Base Redevelopment[b]	LOS	Average Daily Traffic Volumes Including Volume Generated From Proposed Base Redevelopment	LOS
Beaver Street West (SR 10)	US 301 - SR 199 (Otis Road)	3,092	B	3,093	B	3,472	B	3,475	B
Beaver Street (SR 10)	SR 199 (Otis Road) - Chaffee Road	5,163	B	5,188	B	7,506	B	7,572	B
Beaver Street West	Chaffee Road - I-295	6,130	B	6,167	B	6,793	B	6,882	B
I-10	US 301 - CSX Railroad	55,216	D	55,253	D	67,490	E	67,592	E
I-10	CSX - I-295	60,962	E	61,149	E	77,564	F	78,010	F
Normandy Boulevard	US 301 - 103rd Street	12,561	D	12,668	D	14,024	E	14,308	F
Normandy Boulevard	103rd Street - Chaffee Road	19,332	C	21,294	D	19,489	C	24,671	D
Normandy Boulevard	Chaffee Road - Herlong Road	18,498	C	20,174	C	24,409	C	28,836	C
103rd Street (SR 134)	Normandy Boulevard - Old Middleburg Road	19,465	D	22,691	D	23,141	D	31,659	D
103rd Street (SR 134)	Old Middleburg Road - I-295	35,545	D	37,358	D	39,656	D	44,446	E
Chaffee Road	Normandy Boulevard - 103rd Street	3,712	C	4,047	C	13,633	C	14,439	C
Chaffee Road	I-10 - Normandy Boulevard	5,018	C	5,452	C	9,666	C	10,813	D

Key at end of table.

Table 4-39

PROJECTED LEVELS OF SERVICE AND TRAFFIC VOLUMES FOR THE PREFERRED ALTERNATIVE[a]

Road Name	Segment	Phase 1 (1998-2004)				Phase 2 (2005-2010)			
		Projected Average Daily Traffic Volumes Without Proposed Base Redevelopment[b]	LOS	Average Daily Traffic Volumes Including Volume Generated From Proposed Base Redevelopment	LOS	Projected Average Daily Traffic Volumes Without Proposed Base Redevelopment[b]	LOS	Average Daily Traffic Volumes Including Volume Generated From Proposed Base Redevelopment	LOS
Chaffee Road	Beaver Street - I-10	12,887	D	12,967	E	14,034	E	14,244	F
Yellow Water Road	Normandy Boulevard - Beaver Street	1,123	C	1,133	C	3,623	C	3,656	C
Otis Road	Nassau County Line - 103rd Street	1,646	C	1,656	C	1,787	C	1,811	C
Old Plank Road	Otis Road - Jones Road	6,973	D	6,976	D	7,462	D	7,469	D
Halsema Road	South of Whitehouse - Beaver Street	2,170	C	2,202	C	2,533	C	2,618	C
Crystal Springs Road	Chaffee Road - Lenox Avenue	4,428	C	4,595	C	5,761	D	6,203	D
Old Middleburg Road	Clay County Line - 103rd Street	14,516	F	14,564	F	15,308	F	15,429	F
Blanding Boulevard (SR 21)	Clay County Line -I-295	102,002	F	102,541	F	108,161	F	109,583	F
Blanding Boulevard	Wells Road - Duval County Line	97,954	F	98,492	F	95,870	F	97,292	F
Wells Road	Blanding Boulevard - DeBarry Avenue	28,945	E	28,989	E	37,651	F	37,768	F
Kingsley Avenue (SR 224)	Blanding Boulevard - DeBarry Avenue	24,606	F	24,650	F	25,396	F	25,513	F

Key at end of table.

Table 4-39

PROJECTED LEVELS OF SERVICE AND TRAFFIC VOLUMES FOR THE PREFERRED ALTERNATIVE[a]

Road Name	Segment	Phase 1 (1998-2004)				Phase 2 (2005-2010)			
		Projected Average Daily Traffic Volumes Without Proposed Base Redevelopment[b]	LOS	Average Daily Traffic Volumes Including Volume Generated From Proposed Base Redevelopment	LOS	Projected Average Daily Traffic Volumes Without Proposed Base Redevelopment[b]	LOS	Average Daily Traffic Volumes Including Volume Generated From Proposed Base Redevelopment	LOS
College Drive (SR 224)	Blanding Boulevard - Remington Court	16,839	F	16,848	F	25,784	F	25,807	F
College Drive	Remington Court - Bald Eagle Road	12,446	D	12,455	D	15,934	F	15,958	F
I-295	SR 13 - SR 15	120,081	D	120,238	D	142,806	E	143,221	E
I-295	SR 15 - SR 21	91,172	E	91,433	E	107,559	F	108,248	F
I-295	SR 21 - SR 134	98,589	E	99,738	E	102,607	E	105,640	E
I-295	SR 134 - SR 228	95,666	E	95,828	E	102,865	E	103,292	E
I-295	SR 228 - I-10	100,987	E	101,107	E	109,548	F	109,865	F
I-295	I-10 - SR 15	58,208	D	58,415	D	68,229	F	68,777	F
I-295	SR 15 - SR 104	57,469	D	57,484	D	69,589	F	69,625	F
I-295	SR 15 - SR 115	48,738	D	48,747	D	59,352	D	59,376	D
I-295	SR115 - I-95	51,260	D	51,282	D	62,567	E	62,668	E
Roosevelt Boulevard (US 17)	Clay County Line - SR 134	53,476	F	53,523	F	61,974	F	62,098	F
US 301 S	Clay County Line - SR 228	21,999	B	22,135	B	25,989	C	26,349	C
US 301 S	SR 228 - I-10	19,531	B	19,574	B	23,523	B	23,632	B

Key at end of table.

Table 4-39

PROJECTED LEVELS OF SERVICE AND TRAFFIC VOLUMES FOR THE PREFERRED ALTERNATIVE[a]

Road Name	Segment	Phase 1 (1998-2004)				Phase 2 (2005-2010)			
		Projected Average Daily Traffic Volumes Without Proposed Base Redevelopment[b]	LOS	Average Daily Traffic Volumes Including Volume Generated From Proposed Base Redevelopment	LOS	Projected Average Daily Traffic Volumes Without Proposed Base Redevelopment[b]	LOS	Average Daily Traffic Volumes Including Volume Generated From Proposed Base Redevelopment	LOS
US 301 S	I-10 - US90	10,065	B	10,088	B	12,281	B	12,338	B
N US 301	US 90 - N. Baldwin City Limits	6,133	B	6,153	B	6,407	B	6,458	B
N US 301	N. Baldwin City Limits - Nassau County Line	4,021	B	4,039	B	4,564	B	4,610	B
US 17	Clay County Line - Wells Road	92,187	F	92,245	F	102,177	F	102,322	F
US 17	Wells Road - SR 224	59,125	F	59,140	F	78,997	F	79,033	F
US 17 Bridge	Doctors Inlet Bridge	48,883	F	48,898	F	63,302	F	63,340	F

[a] Shaded rows indicate road segments that would experience a deterioration in LOS as a result of redevelopment of NAS Cecil Field.
[b] Future projections of regional traffic growth conducted by the Jacksonville MPO, assuming closure of NAS Cecil Field with no redevelopment activity.

Key:

LOS = Level of service.
SR = State Road.

Sources: Jacksonville MPO 1996; Ecology and Environment, Inc. 1998.

Rail Facilities

No rail service is currently planned for this alternative, but freight service could become feasible as development occurs. A planned transportation corridor is identified in this plan to utilize the existing rail right-of-way. If this or another right-of-way is secured, it could be utilized to provide rail as well as vehicular access to the land uses on the northern portion of the base. Should the installation of rail facilities prove feasible, it would provide businesses on the property access to the CSX line to the north, and would provide alternative options for raw material deliveries and shipment of finished products.

Airport Facilities

The Preferred Alternative proposes reuse of existing runways. This reuse would provide for general aviation and cargo activities to utilize existing aviation-related infrastructure. The volume and types of existing and projected air traffic are presented in Table 4-40.

The station is being incorporated into the overall Florida Aviation System Plan. As noted previously, the FAA will have to develop an airport master plan coordinating airspace utilization, safety, and air traffic control requirements. Therefore, no significant impacts to air facilities would result.

4.8.2 Alternative Reuse Scenario 1

Roadway Network

At the completion of Phase 1 development under ARS 1, approximately 3,679 average daily trips and 364 peak-hour trips would be expected. Phase 2 development would generate approximately 2,803 average daily trips and 301 peak-hour trips. At the completion of Phase 2 approximately 6,482 average daily trips and 665 peak-hour trips would be generated. Table 4-41 displays trips generated for proposed land uses in ARS 1.

Under ARS 1, roadways within the region would experience some increases in traffic volumes over the MPO's projected traffic levels. Although ARS 1 results in the smallest increase in traffic volumes, deterioration of LOS would be experienced on portions of Normandy Boulevard and Chaffee Road. Table 4-42 displays projected baseline traffic volumes, traffic volumes resulting from station redevelopment, and associated LOSs for ARS 1. Figures 4-15 and 4-16 display the traffic conditions resulting from Phase 1 and Phase 2 of ARS 1.

Mass Transit

Based on the limited amount of development proposed in ARS 1, it is unlikely that the necessary density could be achieved to justify continued transit service.

Rail Facilities

No rail facilities are proposed for this reuse alternative.

Airport Facilities

Use of airport facilities under ARS 1 would be limited to helicopter operations. No significant impacts would occur.

4.8.3 Alternative Reuse Scenario 2

Roadway Network

Traffic generated from the new land uses proposed in ARS 2 would result in approximately 4,997 average daily trips and 466 peak-hour trips by the end of Phase 1. Phase 2 development would generate a total of approximately 3,812 average daily trips and 503 peak-hour trips. Projected traffic for Phase 1 and Phase 2 development would be 8,809 average daily trips and 969 peak-hour trips. Table 4-43 displays trips generated for proposed land uses in ARS 2.

Roadways within the region influenced by ARS 2 would experience an increase in traffic volumes over the MPO's projected traffic levels. In most cases, this would not result in a significant modification of LOS on the roads. However, deterioration of LOS would be experienced on portions of Normandy Boulevard and Chaffee Road. Table 4-44 displays the MPO's projected traffic volumes, traffic volumes resulting from the redevelopment of the property, and their associated LOSs. Figures 4-17 and 4-18 display the traffic conditions resulting from Phases 1 and 2 of ARS 2.

The projected deterioration of LOSs on specific roadways would be addressed through already planned roadway improvements in the area surrounding the station, as discussed in Section 3.8. Therefore, ARS 2 would result in no significant impacts.

Table 4-40

PRE-CLOSURE AND PROJECTED ANNUAL AIRCRAFT OPERATIONS FOR THE PREFERRED ALTERNATIVE

Aircraft Type	Current LTO Cycles	Projected LTO Cycles	
		Phase 1	Phase 2
Pre-closure Operations			
C-12	736	NA	NA
F/A-18	133,206	NA	NA
S-3	38,269	NA	NA
T-34C	2,944	NA	NA
Projected Operations			
AH-64	NA	1,450	3,300
UH-60	NA	425	875
OH-58	NA	1,325	875
Single-Engine Piston	NA	10,000	15,000
Twin-Engine Piston	NA	10,000	20,000
Turbo Prop	NA	15,000	25,000
Corporate Jet	NA	15,000	20,000
Large Jet	NA	5,000	10,000
TOTAL	175,155	58,200	95,050

Key:

LTO = Landings and takeoffs.
NA = Not applicable.

Source: EPA 1992.

Table 4-41

TRIP GENERATION FOR ARS 1

Land Use Activity[1]	ITE Code	Unit Size	Daily Trip Ends	PM Peak-Hour Trip Ends	Trip Reduction Factor	Total Trip Ends[5]	
						Discounted Daily Trip Ends	Discounted PM Peak-Hour Trip Ends
Phase 1: 1998-2004							
Aviation (FArNG)[2]	501	25 employees	44	10	10%	40	9
Market-Driven[3]	770	250,000 sf (23,226 m^2)	3,504	376	20%	2,803	301
Parks/Recreation[4]	413	573 acres (232 ha)	286	NA	10%	256	NA
Golf Course	430	18	645	60	10%	580	54
Total Trips			4,479	446		3,679	364
Phase 2: 2005-2010							
Market-Driven	770	250,000 sf (23,226 m^2)	3,504	376	20%	2,803	301
Total Trips			3,504	376		2,803	301
Total Phase 1 and Phase 2 Trips			7,983	822		6,482	665

1 Land use activities, square footage, and acreage estimates for Phase 1 and 2 development were collected from Arthur Andersen and Co., et al., n.d., and are shown in Tables 2-4 and 2-5.

2 Because National Guard units typically function with a minimal amount of people during an average weekday, it was estimated that 25 unit members are employed at the facility on an average weekday. Trips for the facility were estimated using the trip generation rate for ITE Land Use Code 501 (military bases).

3 ITE Code 770 (business park) was used for estimating trips generated by the market-driven development land use category because ITE Code 770 provides for a variety of land use activities.

4 The parks and recreation land use category includes areas for passive and active recreational activities such as hiking, camping, and horseback riding.

5 Total trip ends were discounted to reflect internal capture rates. Internally captured trips are trips that do not reach the external roadway network and therefore are not considered new trips on the roadway network.

Key:

ha	=	Hectares.
ITE	=	Institute of Transportation Engineers.
m^2	=	Square meters.
NA	=	PM peak-hour data not available.
sf	=	Square feet.

Sources: ITE 1991; CFDC 1996; Ecology and Environment, Inc. 1998.

Table 4-42

PROJECTED LEVELS OF SERVICE AND TRAFFIC VOLUMES FOR ARS 1[a]

Road Name	Segment	Phase 1 (1998-2004)				Phase 2 (2005-2010)			
		Projected Average Daily Traffic Volumes Without Proposed Base Redevelopment[b]	LOS	Average Daily Traffic Volumes Including Volumes Generated From Proposed Base Redevelopment	LOS	Projected Average Daily Traffic Volumes Without Proposed Base Redevelopment[b]	LOS	Average Daily Traffic Volumes Including Volumes Generated From Proposed Base Redevelopment	LOS
Beaver Street West (SR 10)	US 301 - SR 199 (Otis Road)	3,092	B	3,093	B	3,472	B	3,474	B
Beaver Street (SR 10)	SR 199 (Otis Road) - Chaffee Road	5,163	B	5,173	B	7,506	B	7,526	B
Beaver Street West	Chaffee Road - I-295	6,130	B	6,145	B	6,793	B	6,821	B
I-10	US 301 - CSX Railroad	55,216	D	55,231	D	67,490	E	67,518	E
I-10	CSX - I-295	60,962	E	61,028	E	77,564	F	77,689	F
Normandy Boulevard	US 301 - 103rd Street	12,561	D	12,603	D	14,024	E	14,103	F
Normandy Boulevard	103rd Street - Chaffee Road	19,332	C	20,095	C	19,489	C	20,938	D
Normandy Boulevard	Chaffee Road - Herlong Road	18,498	C	19,151	C	24,409	C	25,648	C
103rd Street (SR 134)	Normandy Boulevard - Old Middleburg Road	19,465	D	20,721	D	23,141	D	25,523	D
103rd Street (SR 134)	Old Middleburg Road - I-295	35,545	D	36,251	F	39,656	D	40,996	E
Chaffee Road	Normandy Boulevard - 103rd Street	3,712	C	3,843	C	13,633	C	13,881	C
Chaffee Road	I-10 - Normandy Boulevard	5,018	C	5,187	C	9,666	C	9,986	D
Chaffee Road	Beaver Street - I-10	12,887	D	12,918	E	14,034	E	14,093	F
Yellow Water Road	Normandy Boulevard - Beaver Street	1,123	C	1,128	C	3,623	C	3,635	C

Key at end of table.

Table 4-42

PROJECTED LEVELS OF SERVICE AND TRAFFIC VOLUMES FOR ARS 1[a]

Road Name	Segment	Phase 1 (1998-2004)				Phase 2 (2005-2010)			
		Projected Average Daily Traffic Volumes Without Proposed Base Redevelopment[b]	LOS	Average Daily Traffic Volumes Including Volumes Generated From Proposed Base Redevelopment	LOS	Projected Average Daily Traffic Volumes Without Proposed Base Redevelopment[b]	LOS	Average Daily Traffic Volumes Including Volumes Generated From Proposed Base Redevelopment	LOS
Otis Road	Nassau County Line - 103rd Street	1,646	C	1,649	C	1,787	C	1,794	C
Old Plank Road	Otis Road - Jones Road	6,973	D	6,974	D	7,462	D	7,464	D
Halsema Road	South of Whitehouse - Beaver Street	2,170	C	2,183	C	2,533	C	2,557	C
Crystal Springs Road	Chaffee Road - Lenox Avenue	4,428	C	4,493	C	5,761	D	5,884	D
Old Middleburg Road	Clay County Line - 103rd Street	14,516	F	14,535	F	15,308	F	15,347	F
Blanding Boulevard (SR 21)	Clay County Line - I-295	102,002	F	102,212	F	108,161	F	108,559	F
Blanding Boulevard	Wells Road - Duval County Line	97,954	F	98,164	F	95,870	F	96,267	F
Wells Road	Blanding Boulevard - DeBarry Avenue	28,945	E	28,962	E	37,651	F	37,684	F
Kingsley Avenue (SR 224)	Blanding Boulevard - DeBarry Avenue	24,606	F	24,623	F	25,396	F	25,429	F
College Drive (SR 224)	Blanding Boulevard - Remington Court	16,839	F	16,843	F	25,784	F	25,790	F
College Drive	Remington Court - Bald Eagle Road	12,446	D	12,449	D	15,934	F	15,946	F
I-295	SR 13 - SR 15	120,081	D	120,142	D	142,806	E	142,922	E
I-295	SR 15 - SR 21	91,172	E	91,274	E	107,559	F	107,751	F

Key at end of table.

Table 4-42

PROJECTED LEVELS OF SERVICE AND TRAFFIC VOLUMES FOR ARS 1[a]

Road Name	Segment	Phase 1 (1998-2004)				Phase 2 (2005-2010)			
		Projected Average Daily Traffic Volumes Without Proposed Base Redevelopment[b]	LOS	Average Daily Traffic Volumes Including Volumes Generated From Proposed Base Redevelopment	LOS	Projected Average Daily Traffic Volumes Without Proposed Base Redevelopment[b]	LOS	Average Daily Traffic Volumes Including Volumes Generated From Proposed Base Redevelopment	LOS
I-295	SR 21 - SR 134	98,589	E	99,036	E	102,607	E	103,455	E
I-295	SR 134 - SR 228	95,666	E	95,729	E	102,865	E	102,984	E
I-295	SR 228 - I-10	100,987	E	101,034	E	109,548	F	109,637	F
I-295	I-10 - SR 15	58,208	D	58,289	D	68,229	F	68,382	F
I-295	SR 15 - SR 104	57,469	D	57,474	D	69,589	F	69,599	F
I-295	SR 15 - SR 115	48,738	D	48,741	D	59,352	D	59,358	D
I-295	SR 115 - I-95	51,260	D	51,268	D	62,567	E	62,582	E
Roosevelt Boulevard (US17)	Clay County Line - SR 134	53,476	F	53,494	F	61,974	F	62,008	F
US 301 S	Clay County Line - SR 228	21,999	B	22,052	B	25,989	C	26,089	C
US 301 S	SR 228 - I-10	19,531	B	19,547	B	23,523	B	23,553	B
US 301 S	I-10 - US 90	10,065	B	10,073	B	12,281	B	12,297	B
N US 301	US90 - N. Baldwin City Limits	6,133	B	6,141	B	6,407	B	6,421	B
N US 301	N. Baldwin City Limits - Nassau County Line	4,021	B	4,028	B	4,564	B	4,577	B
US 17	Clay County Line - Wells Road	92,187	F	92,208	F	102,177	F	102,218	F
US 17	Wells Road - SR 224	59,125	F	59,131	F	78,997	F	79,008	F
US 17 Bridge	Doctors Inlet Bridge	48,883	F	48,890	F	63,302	F	63,312	F

Key at end of table.

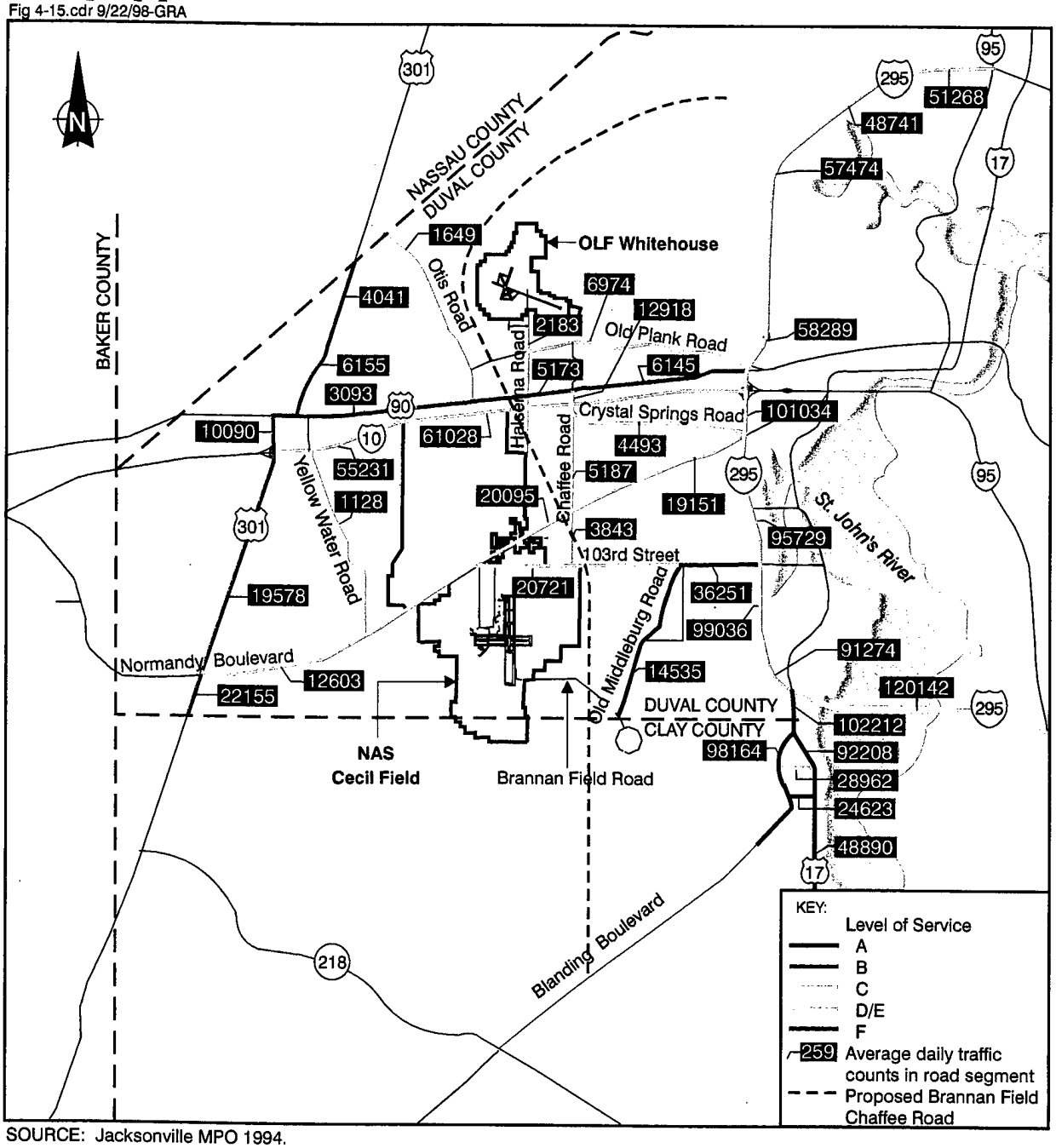
[a] Shaded rows indicate road segments that would experience a deterioration in LOS as a result of redevelopment of NAS Cecil Field.
[b] Future projections of regional traffic growth conducted by the Jacksonville MPO, assuming closure of NAS Cecil Field with no redevelopment activity.

Key:

ARS = Alternative Reuse Scenario.
LOS = Level of service.
SR = State Road.

Sources: Jacksonville MPO 1996; Ecology and Environment, Inc. 1998.

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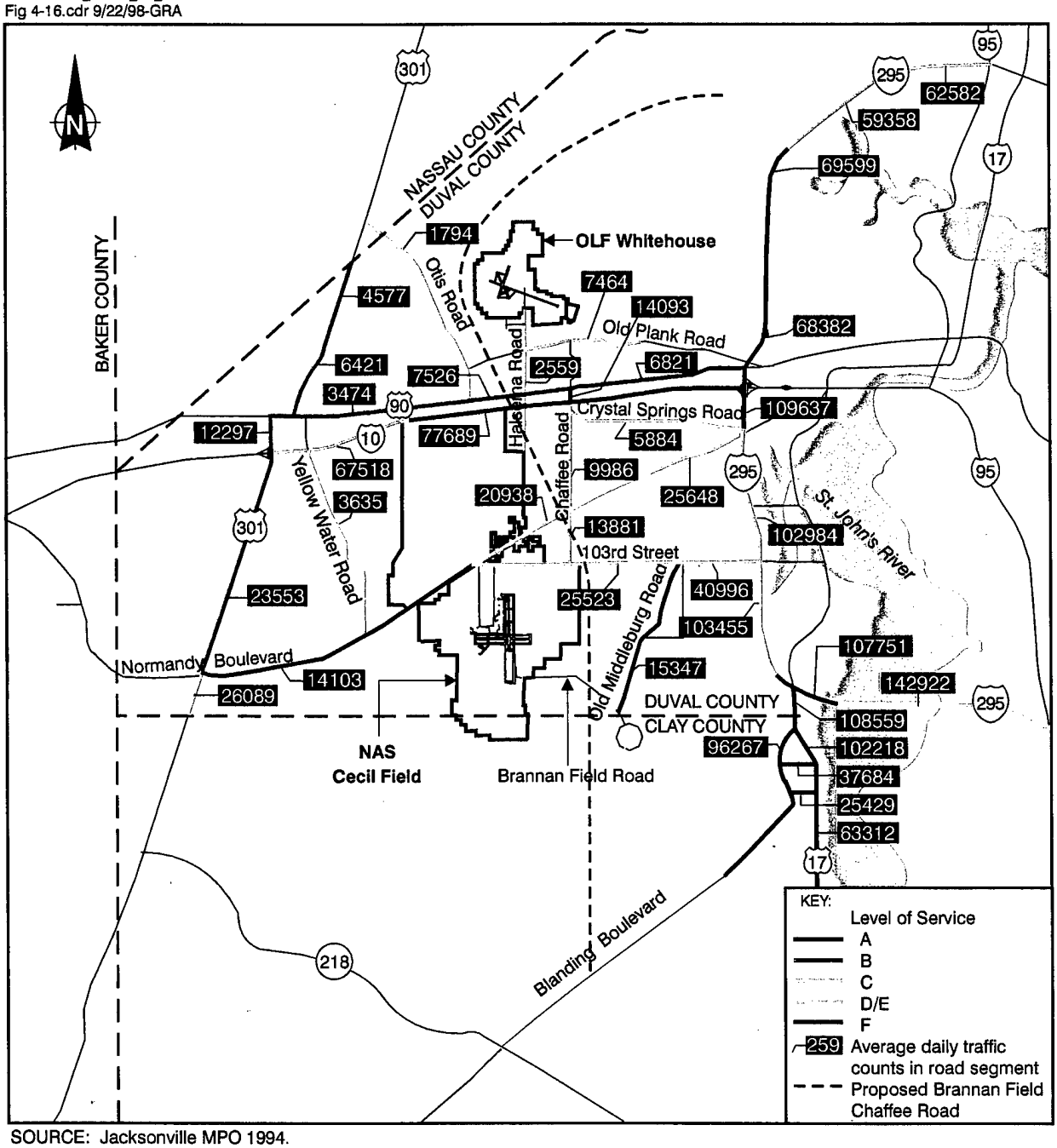


SOURCE: Jacksonville MPO 1994.

SCALE
0 18,500 37,000 Feet

Figure 4-15 TRAFFIC CONDITIONS IN ROAD SEGMENTS IN THE VICINITY OF NAS CECIL FIELD ARS 1, PHASE 1

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Fig 4-16.cdr 9/22/98-GRA



SOURCE: Jacksonville MPO 1994.

SCALE
0 18,500 37,000 Feet

Figure 4-16 TRAFFIC CONDITIONS IN ROAD SEGMENTS IN THE VICINITY OF NAS CECIL FIELD ARS 1, PHASE 2

Table 4-43

TRIP GENERATION FOR ARS 2

Land Use Activity[1]	ITE Code	Unit Size	Daily Trip Ends	PM Peak-Hour Trip Ends	Trip Reduction Factor	Total Trip Ends[7]	
						Discounted Daily Trip Ends	Discounted PM Peak-Hour Trip Ends
Phase 1: 1998-2004							
Aviation (FArNG)[2]	501	25 employees	44	10	10%	40	9
Aviation (Air Cargo)[3]	022	151 flights/day	198	36	5%	188	34
Aviation Manufacturing and Repair[4]	140	100,000 sf (9,290 m^2)	375	75	10%	337	68
Market-Driven[5]	770	250,000 sf (23,226 m^2)	3,504	376	20%	2,803	301
Parks/Recreation[6]	413	2,332 acres (944 ha)	1,166	NA	10%	1,049	NA
Golf Course	430	18	645	60	10%	580	54
Total Trips			5,932	557		4,997	466
Phase 2: 2005-2010							
Aviation (Air Cargo)	022	246 flights/day	339	71	5%	1,322	67
Aviation Manufacturing and Repair	140	200,000 sf (18,580 m^2)	763	150	10%	687	135
Market-Driven	770	250,000 sf (23,226 m^2)	3,504	376	20%	2,803	301
Total Trips			4,606	597		3,812	503
Total Phase 1 and Phase 2 Trips			10,538	1,154		8,809	969

Key at end of table.

Table 4-43 (Cont.)

1 Land use activities, square footage, and acreage estimates for Phase 1 and 2 development were collected from Arthur Andersen and Co., et al., n.d., and are shown in Tables 2-6 and 2-7.

2 Because National Guard units typically function with a minimal amount of people during an average weekday, it was estimated that 25 unit members are employed at the facility on an average weekday. Trips for the facility were estimated using the trip generation rate for ITE Land Use Code 501 (military bases).

3 FEIS: Tables 2-3 and 4-39. Flights per day based on projected annual flights of civilian (does not include military helicopters) aircraft divided by 365.

4 ITE Land Use Code 140 (manufacturing) was used to approximate trip generation conditions for the air manufacturing/repair land use category.

5 ITE Code 770 (business park) was used for estimating trips generated by the market-driven development land use category because ITE Code 770 provides for a variety of land use activities.

6 The parks and recreation land use category includes areas for passive and active recreational activities such as hiking, camping, and horseback riding.

7 Total trip ends were discounted to reflect internal capture rates. Internally captured trips are trips that do not reach the external roadway network and therefore are not considered new trips on the roadway network.

Key:

ha	=	Hectares.
ITE	=	Institute of Transportation Engineers.
m^2	=	Square meters.
NA	=	PM peak-hour data not available.
sf	=	Square feet.

Sources: ITE 1991; CFDC 1996; Ecology and Environment, Inc. 1998.

Table 4-44

PROJECTED LEVELS OF SERVICE AND TRAFFIC VOLUMES FOR ARS 2[a]

Road Name	Segment	Phase 1 (1998-2004)				Phase 2 (2005-2010)			
		Projected Average Daily Traffic Volumes Without Base Redevelopment[b]	LOS	Average Daily Traffic Volume Including Volume Generated From Proposed Base Redevelopment	LOS	Projected Average Daily Traffic Volumes Without Base Redevelopment[b]	LOS	Average Daily Traffic Volume Including Volume Generated From Proposed Base Redevelopment	LOS
Beaver Street West (SR 10)	US 301 - SR 199 (Otis Road)	3,092	B	3,093	B	3,472	B	3,473	B
Beaver Street (SR 10)	SR 199 (Otis Road) - Chaffee Road	5,163	B	5,173	B	7,506	B	7,526	B
Beaver Street West	Chaffee Road - I-295	6,130	B	6,144	B	6,793	B	6,824	B
I-10	US 301 - CSX Railroad	55,216	D	55,230	D	67,490	E	67,521	E
I-10	CSX - I-295	60,962	E	61,026	E	77,564	F	77,703	F
Normandy Boulevard	US 301 - 103rd Street	12,561	D	12,601	D	14,024	E	14,113	E
Normandy Boulevard	103rd Street - Chaffee Road	19,332	C	20,072	C	19,489	C	21,103	C
Normandy Boulevard	Chaffee Road - Herlong Road	18,498	C	19,131	C	24,409	C	25,788	C
103rd Street (SR 134)	Normandy Boulevard - Old Middleburg Road	19,465	D	20,682	D	23,141	C	25,795	C
103rd Street (SR 134)	Old Middleburg Road - I-295	35,545	D	36,533	D	39,656	D	41,148	D
Chaffee Road	Normandy Boulevard - 103rd Street	3,712	C	3,839	C	13,633	C	13,909	C
Chaffee Road	I-10 - Normandy Boulevard	5,018	C	5,181	C	9,666	C	10,023	D

Key at end of table.

Table 4-44

PROJECTED LEVELS OF SERVICE AND TRAFFIC VOLUMES FOR ARS 2[a]

Road Name	Segment	Phase 1 (1998-2004)				Phase 2 (2005-2010)			
		Projected Average Daily Traffic Volumes Without Base Redevelopment[b]	LOS	Average Daily Traffic Volume Including Volume Generated From Proposed Base Redevelopment	LOS	Projected Average Daily Traffic Volumes Without Base Redevelopment[b]	LOS	Average Daily Traffic Volume Including Volume Generated From Proposed Base Redevelopment	LOS
Chaffee Road	Beaver Street - I-10	12,887	D	12,917	E	14,034	E	14,099	E
Yellow Water Road	Normandy Boulevard - Beaver Street	1,123	C	1,126	C	3,623	C	3,639	C
Otis Road	Nassau County Line - 103rd Street	1,646	C	1,650	C	1,787	C	1,793	C
Old Plank Road	Otis Road - Jones Road	6,973	D	6,974	D	7,462	D	7,465	D
Halsema Road	South of Whitehouse - Beaver Street	2,170	C	2,182	C	2,533	C	2,559	C
Crystal Springs Road	Chaffee Road - Lenox Avenue	4,428	C	4,491	C	5,761	D	5,899	D
Old Middleburg Road	Clay County Line - 103rd Street	14,516	F	14,534	F	15,242	F	15,281	F
Blanding Boulevard (SR 21)	Clay County Line - I-295	102,002	F	102,205	F	108,161	F	108,631	F
Blanding Boulevard	Wells Road - Duval County Line	97,954	F	98,157	F	95,870	F	96,313	F
Wells Road	Blanding Boulevard - DeBarry Avenue	28,945	E	28,961	E	37,651	F	37,687	F
Kingsley Avenue (SR 224)	Blanding Boulevard - DeBarry Avenue	24,606	F	24,622	F	25,396	F	25,432	F

Key at end of table.

Table 4-44

PROJECTED LEVELS OF SERVICE AND TRAFFIC VOLUMES FOR ARS 2[a]

Road Name	Segment	Phase 1 (1998-2004)				Phase 2 (2005-2010)			
		Projected Average Daily Traffic Volumes Without Base Redevelopment[b]	LOS	Average Daily Traffic Volume Including Volume Generated From Proposed Base Redevelopment	LOS	Projected Average Daily Traffic Volumes Without Base Redevelopment[b]	LOS	Average Daily Traffic Volume Including Volume Generated From Proposed Base Redevelopment	LOS
College Drive (SR 224)	Blanding Boulevard - Remington Court	16,839	F	16,842	F	25,784	F	25,790	F
College Drive	Remington Court - Bald Eagle Road	12,446	D	12,449	D	15,934	F	15,940	F
I-295	SR 13 - SR 15	120,081	D	120,140	D	142,806	E	142,935	F
I-295	SR 15 - SR 21	91,172	E	91,270	E	107,559	F	107,773	F
I-295	SR 21 - SR 134	98,589	E	99,022	E	102,607	E	103,552	E
I-295	SR 134 - SR 228	95,666	E	95,727	E	102,865	E	102,998	E
I-295	SR 228 - I-10	100,987	E	101,032	E	109,548	F	109,647	F
I-295	I-10 - SR 15	58,208	D	58,286	D	68,229	F	68,400	F
I-295	SR 15 - SR 104	57,469	D	57,474	D	69,589	F	69,601	F
I-295	SR 15 - SR 115	48,738	D	48,740	D	59,352	D	59,359	D
I-295	SR115 - I-95	51,260	D	51,267	D	62,567	E	62,584	E
Roosevelt Boulevard (US 17)	Clay County Line - SR 134	53,476	F	53,494	F	61,974	F	62,012	F
US 301 S	Clay County Line - SR 228	21,999	B	22,051	B	25,989	C	26,101	C
US 301 S	SR 228 - I-10	19,531	B	19,547	B	23,523	B	23,557	B

Key at end of table.

Table 4-44

PROJECTED LEVELS OF SERVICE AND TRAFFIC VOLUMES FOR ARS 2[a]

Road Name	Segment	Phase 1 (1998-2004)				Phase 2 (2005-2010)			
		Projected Average Daily Traffic Volumes Without Base Redevelopment[b]	LOS	Average Daily Traffic Volume Including Volume Generated From Proposed Base Redevelopment	LOS	Projected Average Daily Traffic Volumes Without Base Redevelopment[b]	LOS	Average Daily Traffic Volume Including Volume Generated From Proposed Base Redevelopment	LOS
US 301 S	I-10 - US 90	10,065	B	10,074	B	12,281	B	12,299	B
N US 301	US90 - N. Baldwin City Limits	6,133	B	6,331	B	6,407	B	6,423	B
N US 301	N. Baldwin City Limits - Nassau County Line	4,021	B	4,028	B	4,564	B	4,578	B
US 17	Clay County Line - Wells Road	92,187	F	92,208	F	102,177	F	102,222	F
US 17	Wells Road - SR 224	59,125	F	59,130	F	78,997	F	79,009	F
US 17 Bridge	Doctors Inlet Bridge	48,883	F	48,956	F	63,302	F	63,312	F

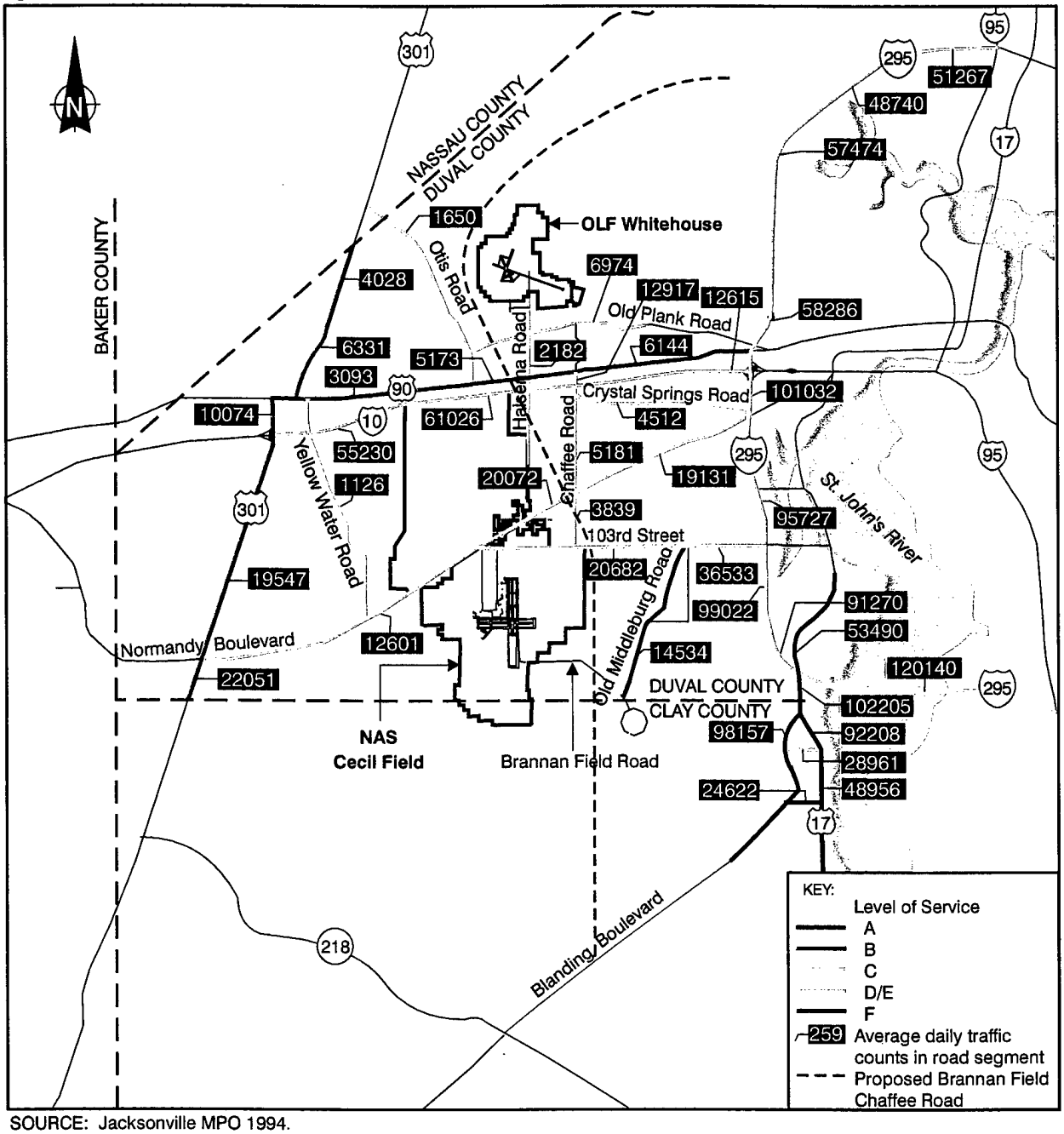
[a] Shaded rows indicate road segments that would experience a deterioration in LOS as a result of redevelopment of NAS Cecil Field.
[b] Future projections of regional traffic growth conducted by the Jacksonville MPO, assuming closure of NAS Cecil Field with no redevelopment activity.

Key:

ARS = Alternative Reuse Scenario.
LOS = Level of service.
SR = State Road.

Sources: Jacksonville MPO 1996; Ecology and Environment, Inc. 1998.

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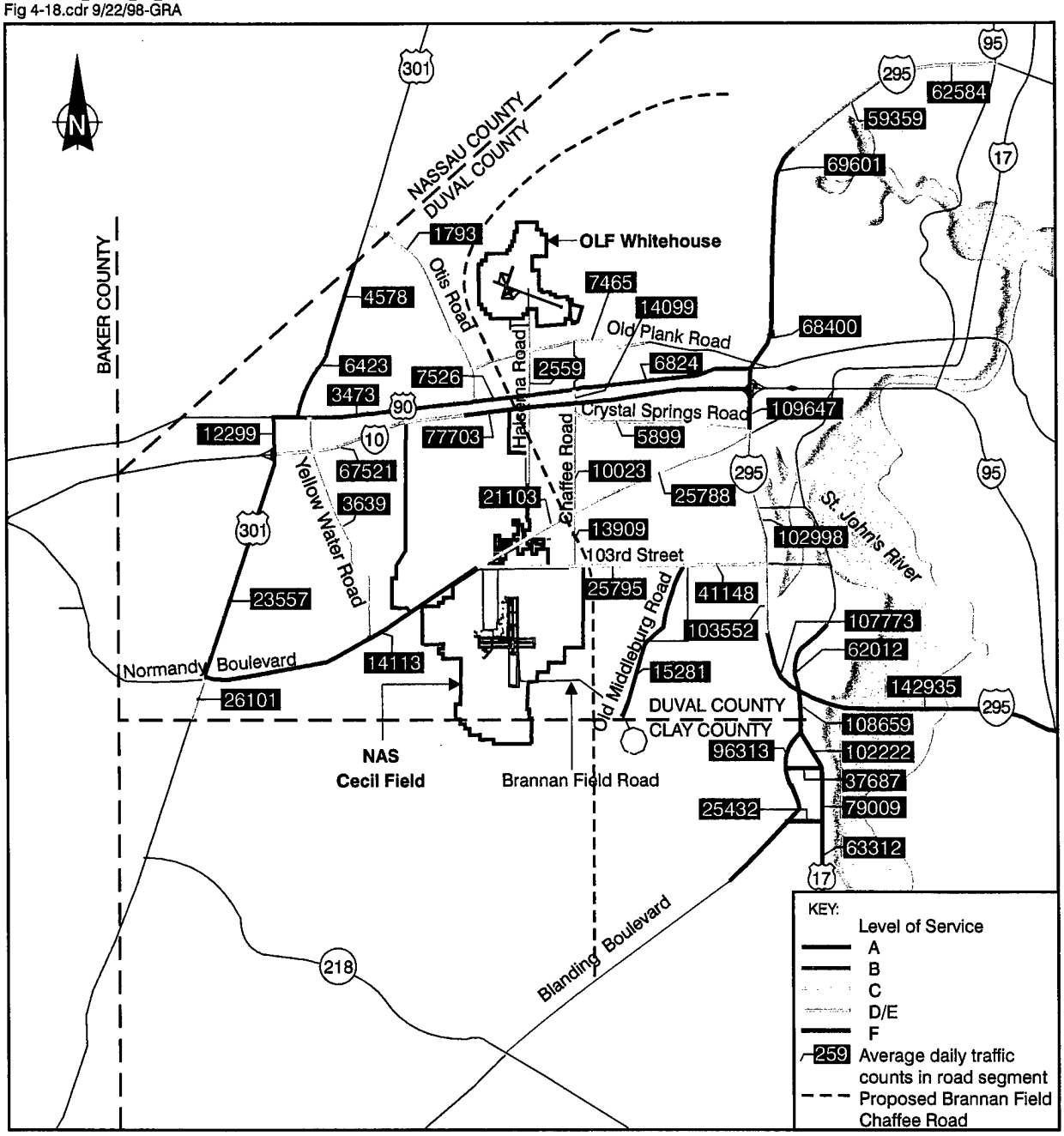


SOURCE: Jacksonville MPO 1994.

SCALE
0 18,500 37,000 Feet

Figure 4-17 TRAFFIC CONDITIONS IN ROAD SEGMENTS IN THE VICINITY OF NAS CECIL FIELD ARS 2, PHASE 1

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Fig 4-18.cdr 9/22/98-GRA



SOURCE: Jacksonville MPO 1994.

SCALE
0 18,500 37,000 Feet

Figure 4-18 TRAFFIC CONDITIONS IN ROAD SEGMENTS IN THE VICINITY OF NAS CECIL FIELD ARS 2, PHASE 2

Mass Transit

Mass transit service to this southwestern portion of Jacksonville would likely be canceled due to a lack of sufficient ridership to support service during the initial phases of redevelopment.

Rail Facilities

No rail facilities are proposed for this reuse alternative.

Airport Facilities

ARS 2 proposes reuse of the existing runways for general aviation and cargo activities to utilize existing aviation-related infrastructure. The volume and types of air traffic generated from this alternative are the same as those associated with the Preferred Alternative (see Table 4-40).

The station is presently being incorporated into the overall Florida Aviation System Plan. As was noted previously, the FAA would have to develop an airport master plan to coordinate airspace utilization, safety, and air traffic control requirements. Therefore, no impacts to air facilities would occur as a result of ARS 2.

4.8.4 Alternative Reuse Scenario 3

Roadway Network

ARS 3 would produce the greatest amount of traffic from new land uses among the alternatives. At full buildout of Phase 1 development, approximately 16,996 average daily trips would be expected to be generated, while 2,222 peak-hour trips would be expected. Phase 2 development would generate approximately 38,336 average daily trips and 4,352 peak-hour trips. Completion of Phase 2 would result in 55,332 daily trips and 6,574 peak-hour trips. Phase 2 development would include land uses that are major trip generators such as commercial and residential uses. Table 4-45 displays trips generated by proposed land uses in ARS 3.

Of the scenarios evaluated, increase in traffic volume and deterioration in LOS would be most significant in ARS 3. Full buildout of Phase 2 development would result in significant traffic loadings associated with residential and commercial activities. Nearly all roadway segments along Normandy Boulevard, 103rd Street, and Chaffee Road would experience a deterioration in LOS. Table 4-46 displays the MPO's projected traffic volumes, traffic volumes

Table 4-45

TRIP GENERATION FOR ARS 3

Land Use Activity[1]	ITE Code	Unit Size	Daily Trip Ends	PM Peak-Hour Trip Ends	Trip Reduction Factors		Total Trip Ends[3]	
					Internal Capture	Pass-By Capture	Discounted Daily Trip Ends	Discounted PM Peak-Hour Trip Ends
Phase 1: 1998-2004								
Business Park Uses	770	250,000 sf (23,226 m^2)	3,504	376	20%	0%	2,803	301
Manufacturing	140	250,000 sf (23,226 m^2)	758	187	10%	0%	862	168
Light Industrial	110	1,000,000 sf (92,903 m^2)	7,366	1,297	20%	0%	5,893	1,038
Planned Residential	270	750 units	6,602	661	0%	0%	6,602	661
Parks/Recreation[2]	413	570 acres (231 ha)	285	NA	10%	0%	256	NA
Golf Course	430	18	645	60	10%	0%	580	54
Total Trips			19,360	2,581			16,996	2,222
Phase 2: 2005-2010								
Business Park Uses	770	300,000 sf (27,871 m^2)	4,177	440	20%	0%	3,342	352
Manufacturing	140	500,000 sf (46,452 m^2)	1,928	374	10%	0%	1,735	337
Light Industrial	110	1,000,000 sf (92,903 m^2)	7,366	1,297	20%	0%	5,893	1,038
Planned Residential	270	2,500	20,009	1,937	0%	0%	20,009	1,937
Commercial	820	200,000 sf (18,581 m^2)	10,900	1,020	10%	25%	7,357	688
Total Trips			44,380	5,068			38,336	4,352
Total Phase 1 and Phase 2 Trips			63,740	7,649			55,332	6,574

Key at end of table.

Table 4-45 (Cont.)

1 Land use activities, square footage, and acreage estimates for Phase 1 and 2 development were collected from Arthur Andersen and Co., et al., n.d., and are shown in Tables 2-8 and 2-9.

2 The parks and recreation land use category includes areas for passive and active recreational activities such as hiking, camping, and horseback riding.

3 Total trip ends were discounted to reflect internal capture rates and pass-by capture rates. Internally captured trips are trips that do not reach the external roadway network and therefore are not considered new trips on the roadway network. Pass-by capture trips are trips made as intermediate stops on the way from an origin to a destination. These trips are attracted from traffic passing the site on an adjacent street (a pass-by capture rate was applied only to the commercial development category). The number of new trips on the external roadway network was identified by applying internal capture and pass-by capture rates. An internal capture rate was applied to all land uses except the planned residential category.

Key:

ha	=	Hectares.
ITE	=	Institute of Transportation Engineers.
m^2	=	Square meters.
NA	=	PM peak-hour data not available.
sf	=	Square feet.

Sources: ITE 1991; CFDC 1996; Ecology and Environment, Inc. 1998.

Table 4-46

PROJECTED LEVELS OF SERVICE AND TRAFFIC VOLUMES FOR ARS 3[a]

Road Name	Segment	Phase 1 (1998-2004)				Phase 2 (2005-2010)			
		Projected Average Daily Traffic Volumes Without Proposed Base Redevelopment[b]	LOS	Average Daily Traffic Volumes Including Volume Generated From Proposed Base Redevelopment	LOS	Projected Average Daily Traffic Volumes Without Proposed Base Redevelopment[b]	LOS	Average Daily Traffic Volumes Including Volume Generated From Proposed Base Redevelopment	LOS
Beaver Street West (SR 10)	US 301 - SR 199 (Otis Road)	3,092	B	3,095	B	3,472	B	3,479	B
Beaver Street (SR 10)	SR 199 (Otis Road) - Chaffee Road	5,163	B	5,213	B	7,506	B	7,666	B
Beaver Street West	Chaffee Road - I-295	6,130	B	6,206	B	6,793	B	7,034	B
I-10	US 301 - CSX Railroad	55,216	D	55,293	D	67,490	E	67,733	E
I-10	CSX - I-295	60,962	E	61,306	E	77,564	F	78,651	F
Normandy Boulevard	US 301 - 103rd Street	12,561	D	12,779	D	14,024	E	14,698	F
Normandy Boulevard	103rd Street - Chaffee Road	19,332	C	23,321	D	19,489	C	32,104	D
Normandy Boulevard	Chaffee Road - Herlong Road	18,498	C	21,907	C	24,409	C	35,187	D
103rd Street (SR 134)	Normandy Boulevard - Old Middleburg Road	19,465	D	26,023	D	23,141	D	43,880	F
103rd Street (SR 134)	Old Middleburg Road - I-295	35,545	D	39,233	D	39,656	D	51,318	E
Chaffee Road	Normandy Boulevard - 103rd Street	3,712	C	4,394	C	13,633	C	15,790	C
Chaffee Road	I-10 - Normandy Boulevard	5,018	C	5,901	C	9,666	C	12,458	D
Chaffee Road	Beaver Street - I-10	12,887	D	13,048	E	14,034	E	14,543	F

Key at end of table.

Table 4-46

PROJECTED LEVELS OF SERVICE AND TRAFFIC VOLUMES FOR ARS 3[a]

Road Name	Segment	Phase 1 (1998-2004)				Phase 2 (2005-2010)			
		Projected Average Daily Traffic Volumes Without Proposed Base Redevelopment[b]	LOS	Average Daily Traffic Volumes Including Volume Generated From Proposed Base Redevelopment	LOS	Projected Average Daily Traffic Volumes Without Proposed Base Redevelopment[b]	LOS	Average Daily Traffic Volumes Including Volume Generated From Proposed Base Redevelopment	LOS
Yellow Water Road	Normandy Boulevard - Beaver Street	1,123	C	1,143	C	3,623	C	3,695	C
Otis Road	Nassau County Line - 103rd Street	1,646	C	1,664	C	1,787	C	1,846	C
Old Plank Road	Otis Road - Jones Road	6,973	D	6,979	D	7,462	D	7,481	D
Halsema Road	South of Whitehouse - Beaver Street	2,170	C	2,236	C	2,533	C	2,739	C
Crystal Springs Road	Chaffee Road - Lenox Avenue	4,428	C	4,768	C	5,761	D	6,837	D
Old Middleburg Road	Clay County Line - 103rd Street	14,516	F	14,613	F	15,242	F	15,549	F
Blanding Boulevard (SR 21)	Clay County Line - I-295	102,002	F	103,097	F	108,161	F	111,622	F
Blanding Boulevard	Wells Road - Duval County Line	97,954	F	99,049	F	95,870	F	99,331	F
Wells Road	Blanding Boulevard - DeBarry Avenue	28,945	E	29,035	E	37,651	F	37,937	F
Kingsley Avenue (SR 224)	Blanding Boulevard - DeBarry Avenue	24,606	F	24,695	F	25,396	F	25,682	F
College Drive (SR 224)	Blanding Boulevard - Remington Court	16,839	F	16,857	F	25,784	F	25,841	F

Key at end of table.

Table 4-46

PROJECTED LEVELS OF SERVICE AND TRAFFIC VOLUMES FOR ARS 3[a]

Road Name	Segment	Phase 1 (1998-2004)				Phase 2 (2005-2010)			
		Projected Average Daily Traffic Volumes Without Proposed Base Redevelopment[b]	LOS	Average Daily Traffic Volumes Including Volume Generated From Proposed Base Redevelopment	LOS	Projected Average Daily Traffic Volumes Without Proposed Base Redevelopment[b]	LOS	Average Daily Traffic Volumes Including Volume Generated From Proposed Base Redevelopment	LOS
College Drive	Remington Court - Bald Eagle Road	12,446	D	12,464	D	15,934	F	15,991	F
I-295	SR 13 - SR 15	120,081	D	120,400	D	142,806	E	143,817	F
I-295	SR 15 - SR 21	91,172	E	91,703	E	107,559	F	109,237	F
I-295	SR 21 - SR 134	98,589	E	100,924	E	102,607	E	109,993	F
I-295	SR 134 - SR 228	95,666	E	95,995	E	102,865	E	103,906	E
I-295	SR 228 - I-10	100,987	E	101,232	E	109,548	F	110,320	F
I-295	I-10 - SR 15	58,208	D	58,631	D	68,229	F	69,564	F
I-295	SR 15 - SR 104	57,469	D	57,498	D	69,589	F	69,681	F
I-295	SR 15 - SR 115	48,738	D	48,756	D	59,352	D	59,410	D
I-295	SR115 - I-95	51,260	D	57,299	D	62,567	E	62,234	E
Roosevelt Boulevard (US17)	Clay County Line - SR 134	53,476	F	53,571	F	61,974	F	62,275	F
US 301 S	Clay County Line - SR 228	21,999	B	23,284	B	25,989	C	26,865	C
US 301 S	SR 228 - I-10	19,531	B	19,615	B	23,523	B	23,788	B
US 301 S	I-10 - US90	10,065	B	10,109	B	12,281	B	14,561	B
N US 301	US 90 - N. Baldwin City Limits	6,133	B	6,172	B	6,407	B	6,532	B

Key at end of table.

Table 4-46

PROJECTED LEVELS OF SERVICE AND TRAFFIC VOLUMES FOR ARS 3[a]

Road Name	Segment	Phase 1 (1998-2004)				Phase 2 (2005-2010)			
		Projected Average Daily Traffic Volumes Without Proposed Base Redevelopment[b]	LOS	Average Daily Traffic Volumes Including Volume Generated From Proposed Base Redevelopment	LOS	Projected Average Daily Traffic Volumes Without Proposed Base Redevelopment[b]	LOS	Average Daily Traffic Volumes Including Volume Generated From Proposed Base Redevelopment	LOS
N US 301	N. Baldwin City Limits - Nassau County Line	4,021	B	4,056	B	4,564	B	4,676	B
US 17	Clay County Line - Wells Road	92,187	F	92,299	F	102,177	F	102,532	F
US 17	Wells Road - SR 224	59,125	F	59,154	F	78,997	F	79,091	F
US 17 Bridge	Doctors Inlet Bridge	48,883	F	48,912	F	63,302	F	63,396	F

[a] Shaded rows indicate road segments that would experience a deterioration in LOS as a result of redevelopment of NAS Cecil Field.
[b] Future projections of regional traffic growth conducted by the Jacksonville MPO, assuming closure of NAS Cecil Field with no redevelopment activity.

Key:

ARS = Alternative Reuse Scenario.
LOS = Level of service.
NA = Not applicable.

Sources: Jacksonville MPO 1996; Ecology and Environment, Inc. 1998.

resulting from redevelopment and the associated LOSs. Figures 4-19 and 4-20 display the traffic conditions resulting from Phases 1 and 2 of ARS 3.

Although the LOS would be expected to deteriorate on many roadways, especially those related to Phase 2 development, mitigation opportunities would be available. The integration of new roadway construction (i.e., Brannan Field-Chaffee Road) and improvements to existing roadways would increase roadway capacities. Additionally, implementation of transportation demand/supply management techniques, such as ridesharing incentives, parking fees, and flexible work shifts, would offer alternative congestion management.

Mass Transit

Mass transit service to the southwestern extent of the Jacksonville service area could initially be canceled due to a lack of sufficient ridership to support service during the initial phases of redevelopment. Due to the development of major trip destinations in the second phase of this alternative, transit service could eventually be determined to be feasible. Transportation demand/supply management programs, such as flexible work schedules, ridesharing incentives, parking fees, and reduced parking space availability, could promote the use of alternative transportation modes, while reducing traffic volumes generated from reuse.

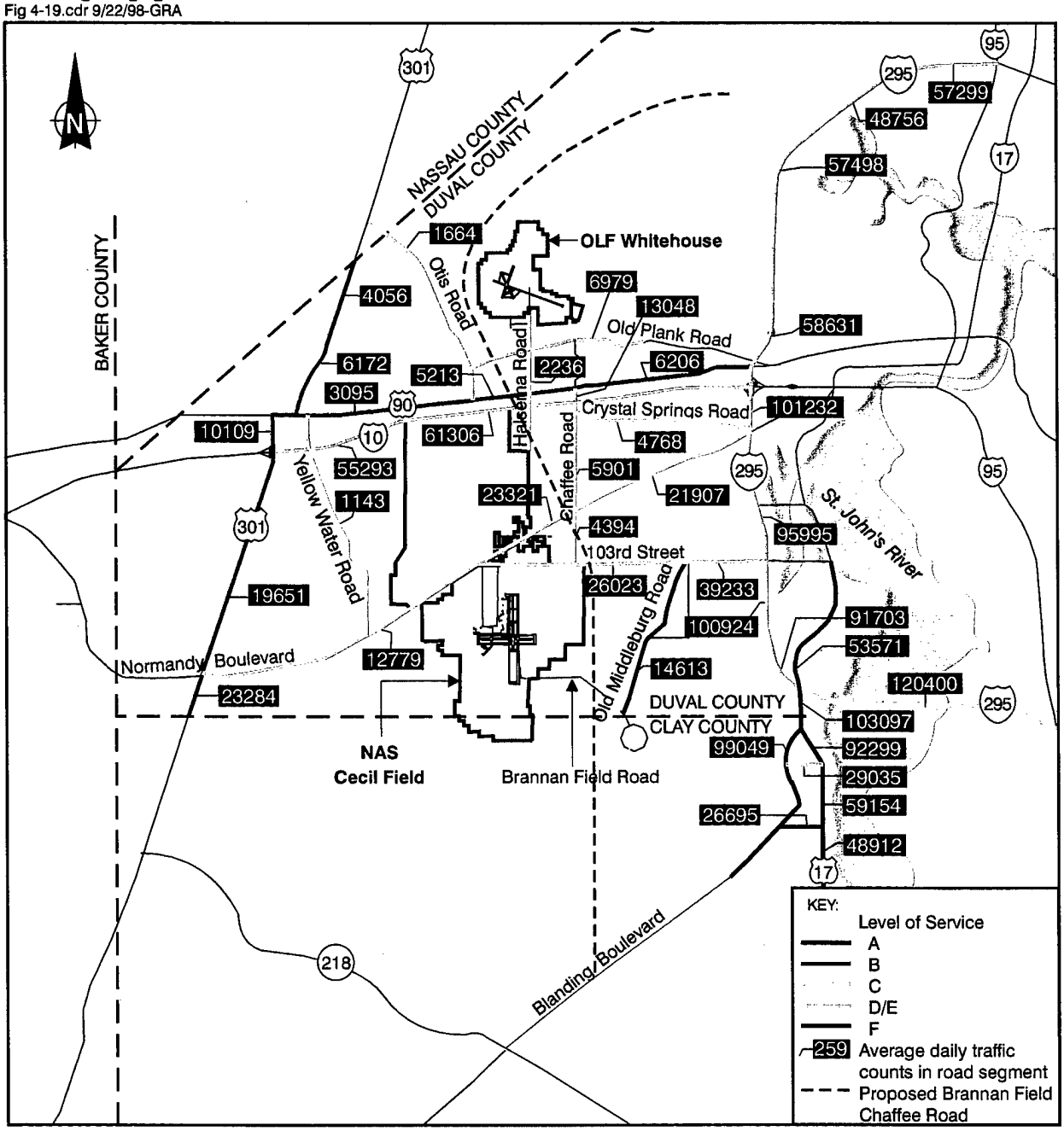
Rail Facilities

No rail service is currently planned for this alternative, but freight service could become feasible as development proceeds. A planned transportation corridor is identified in this reuse scenario to utilize the existing rail right-of-way. If this or another right-of-way is secured, it could be utilized to provide rail as well as vehicular access to the land uses on the northern portion of the base. Should the installation of rail facilities prove feasible, it would provide access to the CSX line to the north, and it would provide alternative options for raw material deliveries and shipment of finished products.

Airport Facilities

No airport facilities are proposed for this reuse scenario.

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Fig 4-19.cdr 9/22/98-GRA

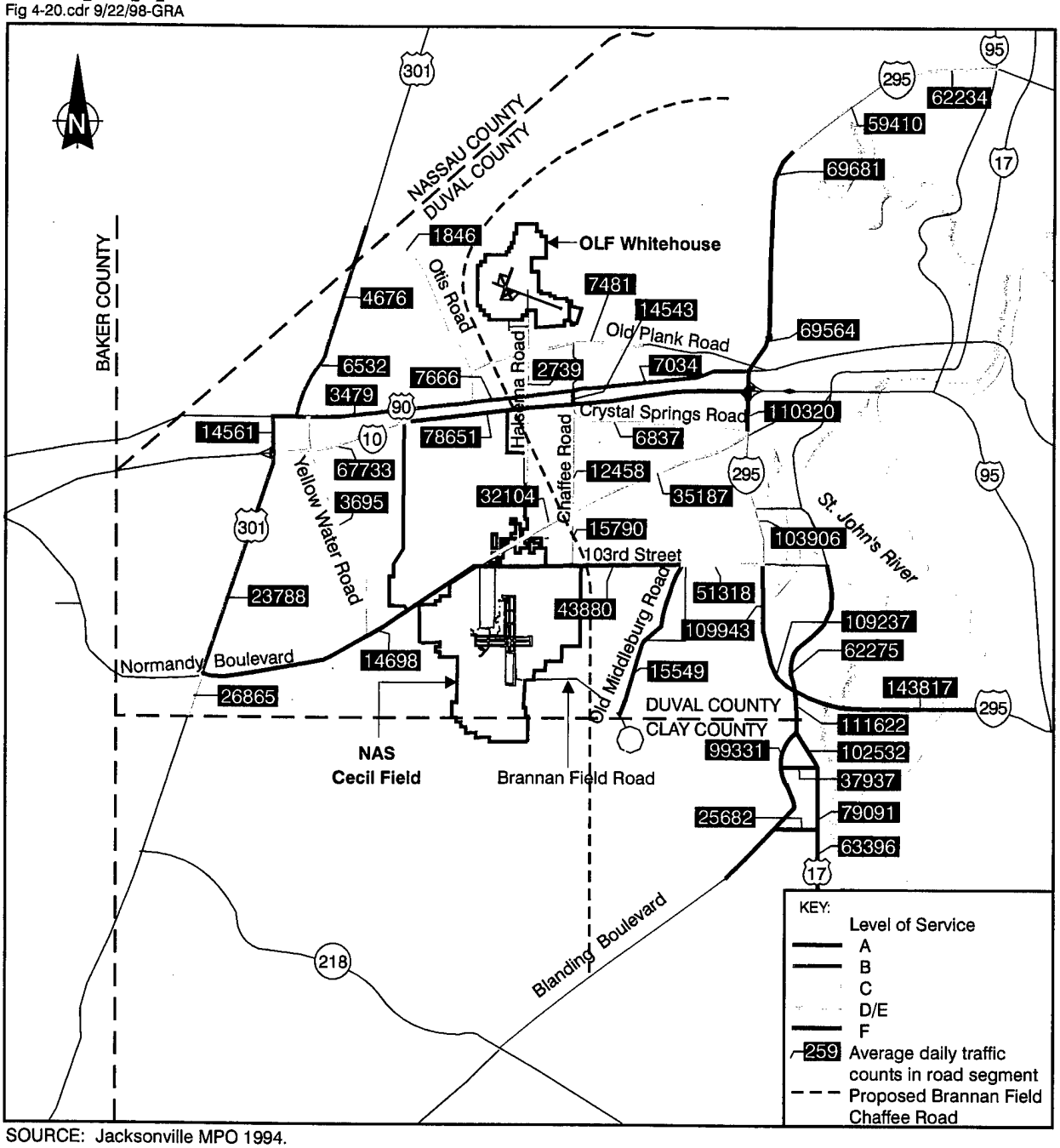


SOURCE: Jacksonville MPO 1994.

SCALE
0 18,500 37,000 Feet

Figure 4-19 TRAFFIC CONDITIONS IN ROAD SEGMENTS IN THE VICINITY OF NAS CECIL FIELD ARS 3, PHASE 1

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Fig 4-20.cdr 9/22/98-GRA



SOURCE: Jacksonville MPO 1994.

Figure 4-20 TRAFFIC CONDITIONS IN ROAD SEGMENTS IN THE VICINITY OF NAS CECIL FIELD ARS 3, PHASE 2

4.8.5 Alternative Reuse Scenario 4

Roadway Network

Implementation of ARS 4 would result in more traffic than the Preferred Alternative and less traffic than ARS 3. Traffic generated from the new land uses proposed in ARS 4 would produce approximately 13,047 average daily trips by the end of Phase 1, with 2,127 peak-hour trips. Phase 2 development would generate a total of 15,007 average daily trips and 1,928 peak-hour trips. Projected trips for Phase 1 and Phase 2 development would be 28,054 average daily trips and 4,055 peak-hour trips. Table 4-47 displays the projected number of trips generated under ARS 4.

Roadways within the region influenced by ARS 4 would experience an increase in traffic volumes over the MPO's projected traffic levels. In most cases, ARS 4 would not result in a significant modification of LOS. Deterioration in LOS would occur for roadway segments along Normandy Boulevard, 103rd Street, and Chaffee Road. Table 4-48 displays the MPO's projected traffic volumes, traffic volumes resulting from redevelopment, and the associated LOSs. Figures 4-21 and 4-22 display the traffic conditions resulting from Phases 1 and 2 of the ARS 4.

Roadway LOS would be expected to deteriorate, especially related to Phase 2 development, along portions of Normandy Boulevard, 103rd Street, and Chaffee Road.

Mass Transit

Mass transit service to this area could be canceled due to a lack of sufficient ridership to support service in the initial period of redevelopment. Transportation demand/supply management programs, such as flexible work schedules, carpooling incentives, parking fees, and reduced parking space availability, could promote the use of alternative transportation modes, while serving as a mitigation for traffic volumes generated from reuse.

Rail Facilities

No rail service is currently planned for this alternative, but freight service could become feasible as development occurs. A planned transportation corridor is identified in this reuse scenario to utilize the existing rail right-of-way. If this or another right-of-way is secured, it could be utilized to provide rail as well as vehicular access to the land uses on the northern portion of the base. Should the installation of rail facilities prove feasible, it would provide businesses on the property access to the CSX line to the north, and would provide alternative options for raw material deliveries and shipment of finished products.

Airport Facilities

Similar to the Preferred Alternative, ARS 4 proposes reuse of existing runways at the station. This reuse would provide for general aviation activities to utilize existing aviation-related infrastructure. Projected volume and types of air traffic generated from this alternative are presented in Table 4-40.

The station is being incorporated into the overall Florida Aviation System Plan. As was noted previously, the FAA would need to develop an airport management plan coordinating airspace utilization, safety, and air traffic control requirements. Therefore, no significant impacts to air facilities would occur.

4.8.6 No-Action Alternative

Roadway Network

Implementation of this alternative would not result in any significant adverse impacts to roadways. No traffic would be generated; therefore, roadway LOS would not deteriorate.

Mass Transit

With no redevelopment at the site, mass transit ridership in the area would decrease from pre-closure levels.

Airport Facilities

No significant adverse impact.

Table 4-47

TRIP GENERATION FOR ARS 4

Land Use Activity[1]	ITE Code	Unit Size	Daily Trip Ends	PM Peak-Hour Trip Ends	Trip Reduction Factors		Total Trip Ends[6]	
					Internal Capture	Pass-By Capture	Discounted Daily Trip Ends	Discounted PM Peak-Hour Trip Ends
Phase 1: 1998-2004								
State Department of Corrections	571	1,950 employees	3,510	1,326	0%	0%	3,510	1,326
Juvenile Justice	571	100 employees	180	68	0%	0%	180	68
Warehouse/Distribution	150	1,000,000 sf (92,903 m^2)	4,022	124	20%	0%	3,218	99
Business Park Uses	770	250,000 sf (23,226 m^2)	3,504	376	20%	0%	2,803	301
Air Manufacturing and Repair[2]	140	100,000 sf (9,290 m^2)	375	75	10%	0%	337	68
Aviation (Air Cargo)[3]	022	151 flights/day	198	36	5%	0%	188	34
Aviation (FArNG)[4]	501	25 employees	44	10	10%	0%	40	9
Manufacturing	140	250,000 sf (23,226 m^2)	958	187	10%	0%	862	168
Parks/Recreation[5]	413	2,955 acres (1,196 ha)	1,477	NA	10%	0%	1,329	NA
Golf Course	430	18	645	60	10%	0%	580	54
Total Trips			15,671	2,262			13,047	2,127
Phase 2: 2005-2010								
Warehouse/Distribution	150	1,500,000 sf (139,355 m^2)	5,862	807	20%	0%	4,690	646
Business Park Uses	770	250,000 sf (23,226 m^2)	3,504	376	20%	0%	2,803	301
Air Manufacturing and Repair	140	200,000 sf (18,581 m^2)	763	150	10%	0%	687	135
Aviation (Air Cargo)	022	246 flights/day	339	71	5%	0%	322	67
Manufacturing	140	500,000 sf (46,452 m^2)	1,928	374	10%	0%	1,735	337

Key at end of table.

Table 4-47

TRIP GENERATION FOR ARS 4

Land Use Activity[1]	ITE Code	Unit Size	Daily Trip Ends	PM Peak-Hour Trip Ends	Trip Reduction Factors		Total Trip Ends[6]	
					Internal Capture	Pass-By Capture	Discounted Daily Trip Ends	Discounted PM Peak-Hour Trip Ends
Commercial	820	100,000 sf (9,290 m^2)	7,067	656	10%	25%	4,770	442
Total Trips			17,535	2,060			15,007	1,928
Total Phase 1 and Phase 2 Trips			33,206	4,322			28,054	4,055

1 Land use activities, square footage, and acreage estimates for Phase 1 and 2 development were collected from Arthur Andersen and Co., et al., n.d., and are shown in Tables 2-10 and 2-11.

2 ITE Land Use Code 140 (manufacturing) was used to approximate trip generation conditions for the air manufacturing/repair land use category.

3 FEIS: Tables 2-3 and 4-39. Flights per day based on projected annual flights of civilian (does not include military helicopters) aircraft divided by 365.

4 Because National Guard units typically function with a minimal amount of people during an average weekday, it was estimated that 25 unit members are employed at the facility on an average weekday. Trips for the facility were estimated using the trip generation rate for ITE Land Use Code 501 (military bases).

5 The parks and recreation land use category includes areas for passive and active recreational activities such as hiking, camping, and horseback riding.

6 Total trip ends were discounted to reflect internal capture rates and pass-by capture rates. Internally captured trips are trips that do not reach the external roadway network and therefore are not considered new trips on the roadway network. Pass-by capture trips are trips made as intermediate stops on the way from an origin to a destination. These trips are attracted from traffic passing the site on an adjacent street (a pass-by capture rate was only applied to the commercial development category). The number of new trips on the external roadway network was identified by applying internal capture and pass-by capture rates. An internal capture rate was applied to all land uses except the State Department of Corrections and Juvenile Justice categories.

Key:

ha = Hectares.
ITE = Institute of Transportation Engineers.
m^2 = Square meters.
NA = PM peak-hour data not available.
sf = Square feet.

Sources: ITE 1991; CFDC 1996; Ecology and Environment, Inc. 1998.

Table 4-48

PROJECTED LEVELS OF SERVICE AND TRAFFIC VOLUMES FOR ARS 4[a]

Road Name	Segment	Phase 1 (1998-2004)				Phase 2 (2005-2010)			
		Projected Average Daily Traffic Volumes Without Base Redevelopment[b]	LOS	Average Daily Traffic Volumes Including Proposed Volume Generated From Proposed Base Redevelopment	LOS	Projected Average Daily Traffic Volumes Without Base Redevelopment[b]	LOS	Average Daily Traffic Volumes Including Volume Generated From Proposed Base Redevelopment	LOS
Beaver Street West (SR 10)	US 301 - SR 199 (Otis Road)	3,092	B	3,094	B	3,472	B	3,476	B
Beaver Street (SR 10)	SR 199 (Otis Road) - Chaffee Road	5,163	B	5,199	B	7,506	B	7,583	B
Beaver Street West	Chaffee Road - I-295	6,130	B	6,185	B	6,793	B	6,909	B
I-10	US 301 - CSX Railroad	55,216	D	55,270	D	67,490	E	67,606	E
I-10	CSX - I-295	60,962	E	61,209	E	77,564	F	78,087	F
Normandy Boulevard	US 301 - 103rd Street	12,561	D	12,718	D	14,024	E	14,357	F
Normandy Boulevard	103rd Street - Chaffee Road	19,332	C	22,196	D	19,489	C	25,553	D
Normandy Boulevard	Chaffee Road - Herlong Road	18,498	C	20,944	C	24,409	C	29,590	C
103rd Street (SR 134)	Normandy Boulevard - Old Middleburg Road	19,465	D	24,172	D	23,141	D	33,109	F
103rd Street (SR 134)	Old Middleburg Road - I-295	35,545	D	38,191	D	39,656	D	45,262	E
Chaffee Road	Normandy Boulevard - 103rd Street	3,712	C	4,202	C	13,633	C	14,670	C
Chaffee Road	I-10 - Normandy Boulevard	5,018	C	5,652	C	9,666	C	11,008	D

Key at end of table.

Table 4-48

PROJECTED LEVELS OF SERVICE AND TRAFFIC VOLUMES FOR ARS 4[a]

Road Name	Segment	Phase 1 (1998-2004)				Phase 2 (2005-2010)			
		Projected Average Daily Traffic Volumes Without Base Redevelopment[b]	LOS	Average Daily Traffic Volumes Including Proposed Volume Generated From Proposed Base Redevelopment	LOS	Projected Average Daily Traffic Volumes Without Base Redevelopment[b]	LOS	Average Daily Traffic Volumes Including Volume Generated From Proposed Base Redevelopment	LOS
Chaffee Road	Beaver Street - I-10	12,887	D	13,003	D	14,034	E	14,279	F
Yellow Water Road	Normandy Boulevard - Beaver Street	1,123	C	1,137	C	3,623	C	3,661	C
Otis Road	Nassau County Line - 103rd Street	1,646	C	1,660	C	1,787	C	1,815	C
Old Plank Road	Otis Road - Jones Road	6,973	D	6,977	D	7,462	D	7,471	D
Halsema Road	South of Whitehouse - Beaver Street	2,170	C	2,217	C	2,533	C	2,632	C
Crystal Springs Road	Chaffee Road - Lenox Avenue	4,428	C	4,673	C	5,761	D	6,279	D
Old Middleburg Road	Clay County Line - 103rd Street	14,516	F	14,585	F	15,308	F	15,393	F
Blanding Boulevard (SR 21)	Clay County Line - I-295	102,002	F	102,787	F	108,161	F	109,825	F
Blanding Boulevard	Wells Road - Duval County Line	97,954	F	98,739	F	95,870	F	97,534	F
Wells Road	Blanding Boulevard - DeBarry Avenue	28,945	E	29,009	D	37,651	F	37,788	F
Kingsley Avenue (SR 224)	Blanding Boulevard - DeBarry Avenue	24,606	F	24,670	D	25,396	F	25,533	F

Key at end of table.

Table 4-48

PROJECTED LEVELS OF SERVICE AND TRAFFIC VOLUMES FOR ARS 4[a]

Road Name	Segment	Phase 1 (1998-2004)				Phase 2 (2005-2010)			
		Projected Average Daily Traffic Volumes Without Base Redevelopment[b]	LOS	Average Daily Traffic Volumes Including Proposed Volume Generated From Proposed Base Redevelopment	LOS	Projected Average Daily Traffic Volumes Without Base Redevelopment[b]	LOS	Average Daily Traffic Volumes Including Volume Generated From Proposed Base Redevelopment	LOS
College Drive (SR 224)	Blanding Boulevard - Remington Court	16,839	F	16,851	F	25,784	F	25,811	F
College Drive	Remington Court - Bald Eagle Road	12,446	D	12,459	D	15,934	F	15,961	F
I-295	SR 13 - SR 15	120,081	D	120,310	D	142,806	E	143,292	F
I-295	SR 15 - SR 21	91,172	E	91,553	E	107,559	F	108,365	F
I-295	SR 21 - SR 134	98,589	E	100,265	E	102,607	E	106,157	E
I-295	SR 134 - SR 228	95,666	E	95,902	E	102,865	E	103,366	E
I-295	SR 228 - I-10	100,987	E	101,162	E	109,548	F	109,919	F
I-295	I-10 - SR 15	58,208	D	58,511	D	68,229	F	68,871	F
I-295	SR 15 - SR 104	57,469	D	57,490	D	69,589	F	69,633	F
I-295	SR 15 - SR 115	48,738	D	48,751	D	59,352	D	59,379	D
I-295	SR115 - I-95	51,260	D	51,291	D	62,567	E	62,631	E
Roosevelt Boulevard (US 17)	Clay County Line - SR 134	53,476	F	53,544	F	61,974	F	62,119	F
US 301 S	Clay County Line - SR 228	21,999	B	22,198	B	25,989	C	26,410	C
US 301 S	SR 228 - I-10	19,531	B	19,591	B	23,523	B	23,651	B
US 301 S	I-10 - US 90	10,065	B	10,097	B	12,281	B	12,349	B

Key at end of table.

Table 4-48

PROJECTED LEVELS OF SERVICE AND TRAFFIC VOLUMES FOR ARS 4[a]

Road Name	Segment	Phase 1 (1998-2004)				Phase 2 (2005-2010)			
		Projected Average Daily Traffic Volumes Without Base Redevelopment[b]	LOS	Average Daily Traffic Volumes Including Proposed Volume Generated From Proposed Base Redevelopment	LOS	Projected Average Daily Traffic Volumes Without Base Redevelopment[b]	LOS	Average Daily Traffic Volumes Including Volume Generated From Proposed Base Redevelopment	LOS
N US 301	US 90 - N. Baldwin City Limits	6,133	B	6,162	B	6,407	B	6,467	B
N US 301	N. Baldwin City Limits - Nassau County Line	4,021	B	4,048	B	4,564	B	4,618	B
US 17	Clay County Line - Wells Road	92,187	F	92,267	F	102,177	F	102,348	F
US 17	Wells Road - SR 224	59,125	F	59,147	F	78,997	F	79,042	F
US 17 Bridge	Doctors Inlet Bridge	48,883	F	48,905	F	63,302	F	63,347	F

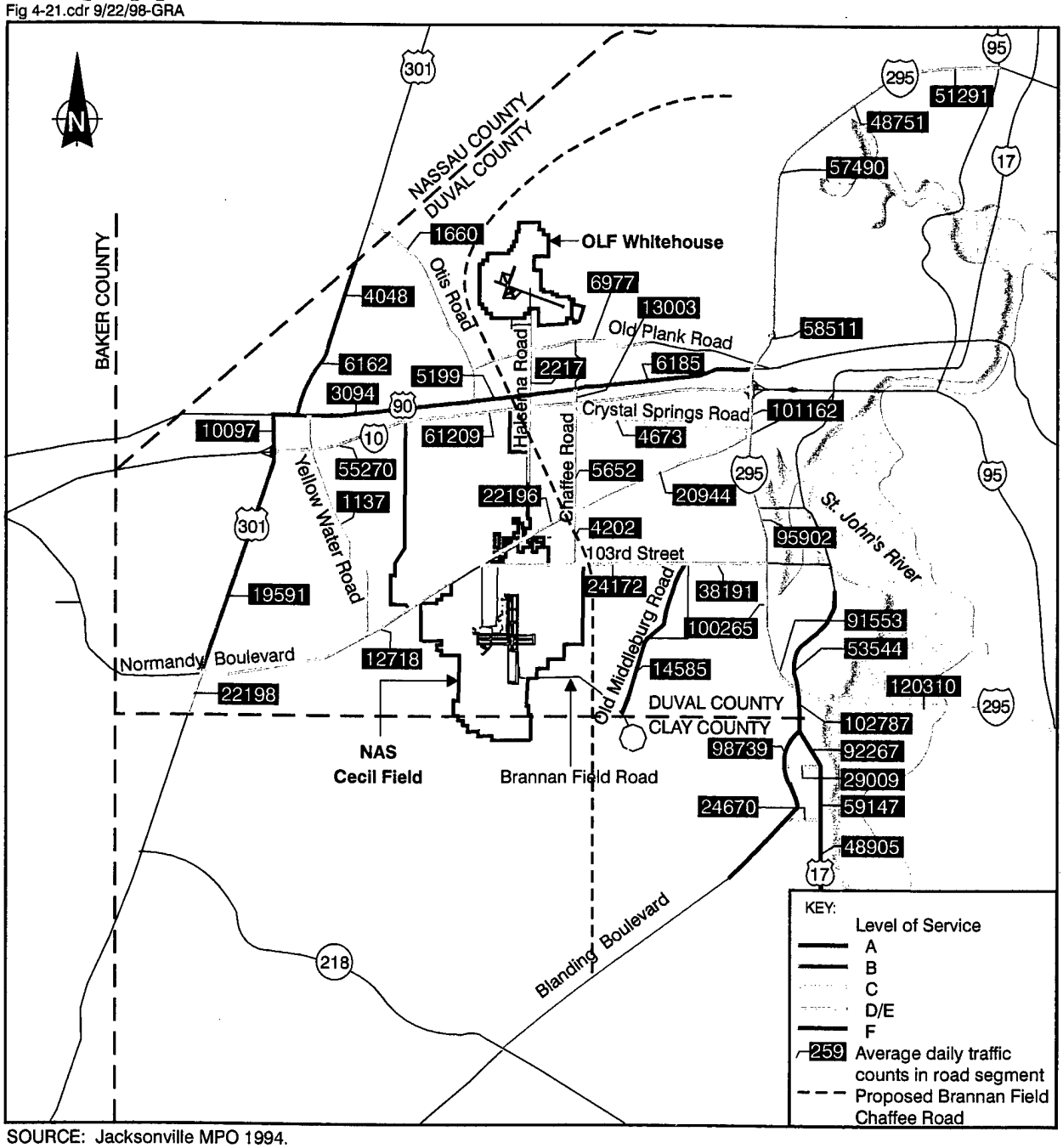
[a] Shaded rows indicate road segments that would experience a deterioration in LOS as a result of redevelopment of NAS Cecil Field.
[b] Future projections of regional traffic growth conducted by the Jacksonville MPO, assuming closure of NAS Cecil Field with no redevelopment activity.

Key:

ARS = Alternative Reuse Scenario.
LOS = Level of service.
SR = State Road.

Source: Jacksonville MPO 1996.

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Fig 4-21.cdr 9/22/98-GRA

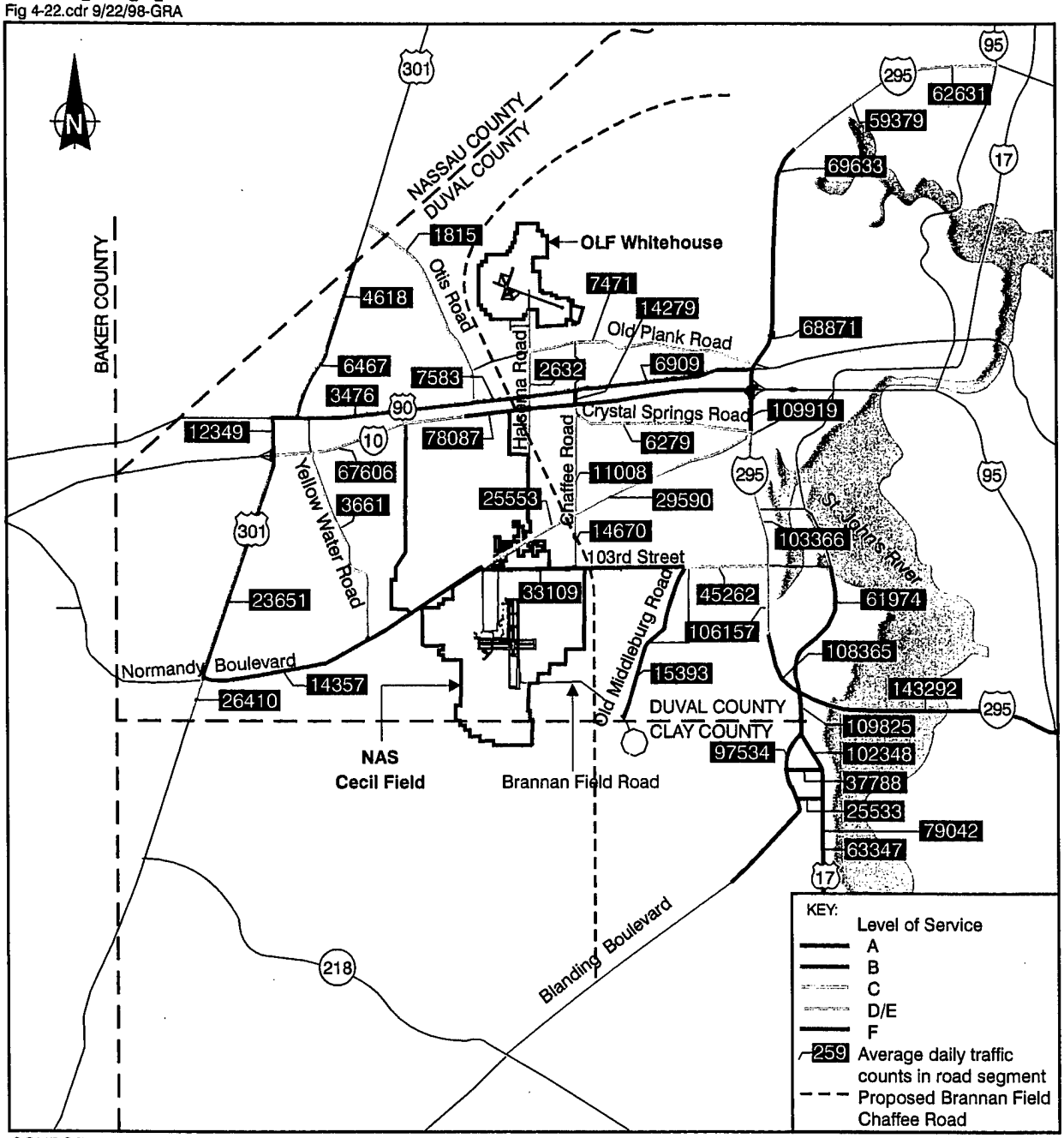


SOURCE: Jacksonville MPO 1994.

SCALE
0 18,500 37,000 Feet

Figure 4-21 TRAFFIC CONDITIONS IN ROAD SEGMENTS IN THE VICINITY OF NAS CECIL FIELD ARS 4, PHASE 1

02: 000822_VM06_00_90-B0009
Fig 4-22.cdr 9/22/98-GRA



SOURCE: Jacksonville MPO 1994.

SCALE
0 18,500 37,000 Feet

Figure 4-22 TRAFFIC CONDITIONS IN ROAD SEGMENTS IN THE VICINITY OF NAS CECIL FIELD ARS 4, PHASE 2

4.8.7 Cumulative Impacts

Roadway Network

Reasonably foreseeable traffic growth is included in the Jacksonville MPO's regional projections. As such, the analysis presented provides a cumulative assessment of traffic impacts. No other major projects would occur in the foreseeable future that could further affect regional traffic volumes.

Mass Transit

There are no reasonably foreseeable actions that would result in cumulative effects to mass transit services when added to the impacts associated with the Preferred Alternative.

Rail Facilities

There are no reasonably foreseeable actions that would result in cumulative impacts to rail facilities.

Airport Facilities

Cumulatively, airport operations would decrease in the region after the closure of NAS Cecil Field and reuse under the Preferred Alternative. No significant adverse impacts would occur that could not be addressed by the FAA's plan to incorporate the facility into the Florida Aviation System Plan.

4.8.8 Mitigation Measures

In general, high-traffic volumes and deficient LOSs are currently experienced on roadways in the southeast portion of Cecil Field's region of influence. This unsatisfactory situation is partially a result of increased residential development activity in northeastern Clay County and inadequate capacity to accommodate the increased number of home-to-work trips from these residences to jobs within the city of Jacksonville.

To mitigate projected traffic problems in this area, FDOT plans to develop a new road in its regional transportation plan. This roadway, named Brannan Field-Chaffee Road, is proposed to add a four-lane divided arterial segment between I-10 and Blanding Boulevard, in Clay County (Jacksonville MPO 1994). This roadway segment will add capacity for approximately 17,600 vehicles per average daily volume (assuming an LOS C on the roadway) (FDOT 1995) to

the regional system and will integrate an additional route choice alternative to redirect volumes from the more congested components of the existing system (e.g., Blanding Boulevard, U.S. 17). Construction of this facility has been approved and is listed in the city's Transportation Improvement Plan (see Table 3-22). Funding for right-of-way acquisition has been allocated, but to date, funding for construction has not (Burney 1996).

Because traffic increases will occur gradually as redevelopment projects are completed, JEDC will be responsible for assessing potential traffic effects of new projects as part of the local review and approval process. Depending on the level of anticipated impact, mitigation could be in the form of off-site geometric improvements to roads to support greater traffic volumes, or implementation of transportation-demand management techniques, such as staggered work hours, to minimize commuting impacts.

4.9 Infrastructure and Utilities

The following section provides a discussion of projected impacts on utility services including water supplies, wastewater systems, stormwater management, electric power distribution, steam generation and distribution, jet fuel facilities, compressed air distribution, and solid waste disposal due to the proposed action.

4.9.1 Preferred Alternative

Water and Sewer

In the short term, impacts to existing water and sewer infrastructure systems would not be significant. The current systems are adequate for serving users of station property in the first phase of redevelopment. However, long-term implementation of the Preferred Alternative would necessitate significant changes to existing water and sewer systems. The most extensive improvements would be required at the Yellow Water Area to serve new industrial uses.

The permitted withdrawal rate at the Main Station is 2.4 mgd (9,084,000 liters per day) and the maximum production capacity is 8.2 mgd (31,037,000 liters per day), with an average withdrawal rate of 0.612 mgd (2,316,420 liters per day). At 12-year buildout, approximately 1,400 workers would be employed at the Main Station. Assuming a daily water usage of 98 gallons (370.9 liters) per person per day for light-industrial activities and 142 gallons (537.5 liters) per person per day for heavy-industrial uses (U.S. Bureau of Census 1986), water demand at the Main Station would be 0.197 mgd (745,645 liters per day). At the Yellow Water Area, the

permitted withdrawal rate from water production wells is 0.270 mgd (1,021,950 liters per day) and maximum production capacity is 2.5 mgd (9,462,500 liters per day), with 0.105 mgd (397,425 liters per day) average withdrawal rate. At 12-year buildout, approximately 1,799 workers would be expected. Assuming a daily water usage of 47 gallons per day (177.9 liters per day) for commercial use and 120 gallons per day (454.2 liters per day) for light/heavy-industrial workers (Boland 1995), the water demand by workers would be 0.202 mgd (764,570 liters per day). Therefore, total net water usage under the Preferred Alternative would be expected to be 0.399 mgd (1,510,215 liters per day). With a total permitted withdrawal rate of 2.67 mgd (10,105,950 liters per day) under existing water consumption use permits, the overall excess capacity would be 2.27 mgd (8,591,950 liters per day).

The existing production wells have sufficient capacity to serve redevelopment of NAS Cecil Field. However, the long-term objective is to connect to the city's water distribution system and develop an on-site treatment facility and a new potable water well field while utilizing NAS Cecil Field's existing distribution system (Lund 1996). Several notable issues of concern are posed by the existing system. The water lines are approximately 40 years old and of unknown condition. The integrity of the 40-year-old ductile iron well casing, which may be vulnerable to contamination, is questionable. Fuel tanks that serve the pumps at the well need to be replaced. The water system has inadequate flow and pressure for fire fighting, primarily because of undersized 6-in (15.24-cm) mains. According to the construction drawings, the water main at the Yellow Water Area is made of asbestos cement (CFDC 1996).

The Navy operates an independent WWTP for all sewage generated at the Main Station and the Yellow Water Area. The plant has a Class B operator's license with wastewater discharge permits issued by EPA (NPDES) and FDEP/Jacksonville. The WWTP has a capacity to treat 1.2 mgd (4,542,000 liters per day) of wastewater. Assuming the wastewater generated by plant workers equals 80% of the water consumed (ICMA 1988), under the Preferred Alternative approximately 0.319 mgd (1,207,415 liters per day) of wastewater would be generated. Therefore, a surplus wastewater treatment capacity of 0.881 mgd (3,334,585 liters per day) would exists.

Although the sewer infrastructure is in good condition and functions adequately and the WWTP is projected to have surplus capacity, the long-term objectives of the Preferred Alternative would require significant improvements and ultimate connection to the city's system. Improvements would include extensions and expansions to new service areas, general upgrades and modifications for regulatory compliance, and consideration of alternative wastewater reuse programs for future water and wastewater customers. For example, a significant expansion to

the force main system would be required at the Yellow Water Area to service land areas proposed for industrial development. Projected activities in the area would generate approximately 0.161 mgd (609,385 liters per day) at 12-year buildout under the Preferred Alternative.

As part of the compliance schedule under the temporary WWTP operating permit, discharge into Rowell Creek during times of low flow and high temperature would be eliminated. However, the problem still exists because a $1.2 million corrective project was canceled by Navy as a result of the pending station closure. The other concern that would need to be addressed prior to any system reuse is the condition of the wastewater collection system. Most of the conveyance system is composed of 40-year-old piping (condition unknown), and infiltration/inflow problems occur during heavy rains.

Responsibility for water and sewage distribution and treatment at the NAS Cecil Field would be assumed by JEA in late 1998 (Lund 1996). Continuous operation and/or phase-out of existing water and sewer systems would depend on the timing and needs of future development activities. In the short term, existing water and sewer systems would be adequate to support the initial phase of redevelopment; however, long-term development objectives would necessitate modifications to the water and sewer systems (Riker 1998).

JEA plans to use NAS Cecil Field's existing water distribution system and certain water production wells and water treatment facilities. Continued use of the existing system would occur even after NAS Cecil Field's water distribution system is connected to the municipal system through a 20-in (50.8-cm) main along 103rd Street. JEA would expect to build a new water treatment facility on site within 3 to 5 years after assuming responsibility for the system. Part of the JEA plan would include using as much of the existing distribution system as feasible, with the long-term plan including abandonment of existing potable water wells and development of new wells on site (Riker 1998). Abandoned wells would be plugged and sealed, consistent with the provisions of Part 3, Water Wells, Drillers, and Contractors, Chapter 366 of the city's ordinance code, and appropriate rules of the Environmental Protection Board.

JEA intends to utilize the existing WWTP until Cecil Field's waste water conveyance system can be connected with the JEA sewer system. Although JEA has a 16-in sanitary sewer force main that terminates at the Bent Creek Subdivision just east of NAS Cecil Field, use of the force main would not be expected because of conveyance capacity problems within the system. However, JEA would propose to tie into Cecil Field's existing distribution system through a pumping station that would be installed at the WWTP. Pump station sewage would be transported through a 16- or 20-in (40.64- or 50.8-cm) line to a repump station near Shindler Road. From the repump station, sewage would be transported through a 24-in (60.96-cm) line, which

would connect to the city's system, and eventually be discharged into JDPU's District 3 WWTP. Currently, the plant has an excess capacity of 3.5 mgd (13,247,500 liters per day). JEA would expect to phase out use of the existing WWTP at NAS Cecil Field. The timing of phase-out would depend on future development demands, operating permits, and regulatory compliance (Lund 1996).

Under the Jacksonville 2010 Comprehensive Plan, water and sewer concurrency requirements are based on available capacity at the treatment facility. All of the city's water treatment and sewage treatment plants have available capacity (Hunt 1996).

Stormwater

In the short term, the stormwater drainage system would not be significantly affected; however, over the long term, sitewide and site-specific conveyance systems and retention/detention facilities would have to be designed and installed. Currently, stormwater runoff that does not permeate soil or drain into wetlands is directed into a well-developed system of open drainage swales. The open drainage swales serve as the primary method for controlling stormwater runoff at the Main Station and in the Yellow Water Area. The air operations area is served by a system of large, deep stormwater drain pipes that convey runoff under the runways to open ditches.

The current system of open drainage swales provides stormwater conveyance for over 2.9 million ft^2 (269,420 m^2) of building space. Approximately 82,000 ft^2 (7,618 m^2) of this building space is at the Yellow Water Area. Under the Preferred Alternative, final buildout would be expected to occupy approximately 5 million ft^2 (464,515 m^2). Most new development (impervious surface) would be planned for the Yellow Water Area. Currently, the Yellow Water Area has only 3% of the developed floor area (or approximately 82,000 ft^2 [7,618 m^2]) at NAS Cecil Field. This new development would require significant improvement of the station's drainage systems, particularly in the Yellow Water Area.

The Yellow Water Area has three natural drainage outlets: Yellow Water Creek, Brady Branch to St. Mary's River, and under Normandy Boulevard to Rowell Creek. Although the Preferred Alternative seeks to minimize disturbance to and loss of forested areas through site location, allocation of natural preservation areas, and low FAR, conversion of vegetative cover type from permeable to impermeable surfaces would lead to topographic disturbances and an increase in the magnitude of stormwater runoff requiring conveyance and treatment.

Following station closure, stormwater management would be subject to federal, state, and local regulations, as well as permit requirements. The ultimate receiving entity or individual

developers would be responsible for installation of adequate drainage facilities. With few exceptions, the treatment of stormwater runoff would be required for all development, redevelopment, and existing developed areas when expansion occurs. FDEP has adopted stormwater rules (Fla. Admin. Code Ann. Ch. 62-25 [1998]) to fulfill the state's responsibilities under Clean Water Act, 33 U.S.C. § 1288(a-j) (1994). The objective of the rules is to reduce discharge pollutants by requiring treatment for the first inch (2.54 cm) of runoff for sites of less than 100 ac (40.5 ha), or the first one-half inch (1.27 cm) of runoff for sites of 100 ac (40.5 ha) or more. This is usually accomplished through stormwater retention or detention with filtration. The requirements of Fla. Admin. Code Ann. Ch. 62-25 (1998) were delegated to the SJRWMD and are implemented locally under Rule 40C-42.

The SJRWMD has three rules that address stormwater (40C-4, 40C-40, and 40C-42). Rules 40C-4 and 40C-40 address management and storage of surface waters and peak rates of discharge, including issues such as wetland stormwater discharge, stormwater discharge facilities, closed conduits, and open channels. The third rule (40C-42) requires stormwater treatment systems to provide a level of treatment that meets the particular requirements of Fla. Admin. Code Ann. 40C-42.025 and ensures that the water quality in receiving bodies is not degraded below the minimum conditions necessary to maintain their classification as established in Fla. Admin. Code Ann. Ch. 62-302.

Furthermore, at the local level, the city of Jacksonville has adopted stormwater management regulations as part of its land development code, Chapter 654 of the City Ordinance Code. The land development procedures require that new developments not adversely affect adjacent lands or the receiving drainage system. If the existing drainage system does not have the capacity to accept increased runoff from the new development, on-site detention may be required. In addition, stormwater runoff (i.e., drainage) is subject to a level-of-service standard for concurrency compliance.

Concurrency compliance requirements for sites of 40 ac or more use soil conservation service (SCS) methodology to determine the amount of rainfall runoff for a 25-year storm. The SCS, or rational method, may be used to calculate rainfall runoff for sites of 10 to 40 ac (4.0 to 16.2 ha) for a 25-year storm. For sites smaller than 10 ac (4.0 ha), the rational method must be used to calculate runoff for a 100-year storm. In all cases, modeling must be performed for predevelopment and postdevelopment land use activity. Based on these calculations, the amount of required on-site detention is equal to the difference between the pre-development and post-development runoff (Brown 1996).

Natural Gas

No short-term impacts would occur within the natural gas distribution system. However, long-term natural gas demand would require expansion of the existing natural gas distribution system to serve newly developed areas. The gas distribution system and metering are owned, operated, and maintained by People's Gas, up to and including the meters. It is expected that the 16-in (40.64-cm) gas transmission line located at the station entrance would be able to provide unlimited supply to potential new users (CFDC 1996).

Electricity

The existing electrical power distribution system would be adequate to meet short-term electrical demand during the initial stage of redevelopment. However, long-term demand would require the ultimate receiving entity to make significant improvements to the existing electrical infrastructure, such as upgrading and expanding the overall distribution system and remetering the base to JEA's standards. The extent of upgrades made to the existing service distribution would depend on the specific needs of future development activities.

Steam

The steam distribution system originates from a central steam-generating plant, which houses three 40-year-old boilers capable of producing 95,000 lb/hr (43,091 kilograms per hour). The distribution system, which is insulated with asbestos and is in fair condition, serves industrial buildings, hangars, and some barracks. Under the Preferred Alternative, the steam-generating plant would be removed along with the aboveground steam lines, thus creating the need for a new method of heat production. To replace a centralized steam-producing plant, less expensive auxiliary boilers fed by gas line could be used (a practice currently being implemented), or electric or gas heating systems could be installed.

Compressed Air

Under the Preferred Alternative, no short- or long-term impacts on the compressed air systems would be expected. In general, the systems are in good condition. With scheduled maintenance and necessary repairs, the systems would be anticipated to be adequate for civilian aviation activities.

Aviation Fuel

As stated in Section 3.9, the aviation fuel facilities at the station, consisting of the 103rd Street pipeline and the North Fuel Farm (NFF), would be closed and not transferred for reuse. Therefore, under the Preferred Alternative the ultimate receiving entity or individual users would need to make capital improvements and establish systems for the receipt and storage of aviation fuel to support reuse of the airfield facilities.

Solid Waste

Based on projections generated by the City of Jacksonville Department of Public Utilities, Solid Waste Division (Perkins 1996), the Preferred Alternative would generate approximately 150,000 tons (136,078 tonnes) of waste. This would constitute a reduction of approximately 150,000 tons (136,078 tonnes) from existing generation rates. The city's waste collection services would be needed for land uses associated with the Preferred Reuse Scenario; however, this should not result in a significant impact.

4.9.2 Alternative Reuse Scenario 1

This alternative involves limited new development. All existing infrastructure assets would remain as under existing conditions. This alternative would create the least demand on utility services such as water, sewer, stormwater, and solid waste. However, under this alternative underused infrastructure assets would likely deteriorate. As a result, some areas would need improvements to serve long-term reuse.

4.9.3 Alternative Reuse Scenario 2

ARS 2 involves a low-intensity approach to redevelopment and emphasizes reuse of existing buildings within the developed area of the Main Station. Existing infrastructure assets would be removed and/or replaced to support redevelopment. Infrastructure improvements to the Yellow Water Area would not be expected; however, maintenance of existing infrastructure systems would be required to support light-industrial or other market-driven development at the former ordnance storage areas. Impacts to the existing utility system on the Main Station would be similar to those for ARS 1, although there would be a potential for more immediate reuse of the systems because of local interest and control of the redevelopment process. It would be expected that JEA would maintain its plans to assume responsibility for the water and sewer systems; however, proposed improvements could be delayed.

4.9.4 Alternative Reuse Scenario 3

ARS 3 involves redevelopment of NAS Cecil Field for commercial, industrial, and residential land use activities. The distinctive features of this scenario are large residential and commercial components and the lack of aviation facilities. Under this alternative, development would likely be more extensive because it would not be limited by aircraft operation activities. Significantly more infrastructure extensions and improvements would be required under ARS 3 than under the Preferred Alternative. As in the Preferred Plan, the long-term objectives of this scenario would necessitate connection to JEA's water and sewer systems and development of site-specific and sitewide stormwater management plans and facilities.

4.9.5 Alternative Reuse Scenario 4

ARS 4 involves redevelopment of NAS Cecil Field as described under the Preferred Alternative, but includes correctional and juvenile justice facilities in the Yellow Water Area and light-industry development at the Main Station. Infrastructure system improvements to the Yellow Water Area would be more extensive than in the Preferred Alternative at buildout and similar to the requirements under ARS 3. Impacts to the existing infrastructure system at the Main Station would be less extensive than under ARS 3 at buildout, and similar to the requirements under the Preferred Alternative. It would be expected that JEA's plan for provision of water and sewer facilities would be similar to that proposed in the Preferred Alternative.

4.9.6 No-Action Alternative

Infrastructure and utility systems at NAS Cecil Field would be used infrequently, and demand would be minimal. Therefore, no impact would occur.

4.9.7 Cumulative Impacts

The cumulative impact of redevelopment of NAS Cecil Field, combined with residential development east of NAS Cecil Field and JEA's previous commitments to its WWTP and water treatment and distribution system, would have the potential to affect existing sewer and water systems and increase the magnitude of stormwater runoff in the general area. However, the cumulative impact of these actions would not be expected to be significant.

At present, JEA has a 1.5-mgd (5,677,500-liter-per-day) commitment to its District 3 WWTP and a 10-mgd (37,850,000-liter-per-day) commitment to its North Grid water treatment and distribution system. Although JEA's commitments vary over time because of new project

commitments and elimination of old project commitments, no capacity problems are expected (Lund 1996). In addition, because stormwater management and retention are issues governed by existing development ordinances, it is expected that adequate measures for stormwater runoff retention would be implemented at the former station and on surrounding property.

There are no other reasonably foreseeable projects proposed in the southwest district that would cumulatively affect the capacity and distribution of these infrastructure systems.

4.9.8 Mitigation Measures

To address the potential effects of long-term redevelopment at the station on various elements of the infrastructure, JEDC will implement a series of site-specific plans to guide improvement/expansion of these systems (CFDC 1996). These include:

- A master potable water supply system plan;
- A master sanitary sewer system plan; and
- A master site drainage plan.

These plans will be incorporated into the city's overall capital improvement program approved by the City Council (see Section 4.1). Specific goals, objectives, and policies regarding these established plans are in the General Infrastructure Sub-Element of the NAS Cecil Field Element, which will be adopted as an amendment to the Jacksonville 2010 Comprehensive Plan. In order to implement long-term integration of station property into regional infrastructure systems, the city will also be required to amend its urban service area boundary, which defines areas with priority for public infrastructure investments. This will be accomplished through the Comprehensive Plan process. In addition, JEDC will ensure that new site-specific projects can be adequately served by infrastructure systems already in place or systems scheduled to be expanded and that all applicable regulatory requirements have been met.

4.10 Cultural Resources

4.10.1 Preferred Alternative

Archaeological Resources

As discussed in Section 3.10, four archaeologically sensitive areas were found at the Yellow Water Housing Area and OLF Whitehouse. These locations will be transferred to NAS Jacksonville and, therefore, will be retained by Navy. No known archaeological sites exist at

NAS Cecil Field. However, 15 archeologically sensitive areas have been identified at the Main Station and Yellow Water Area, and will be transferred to non-federal entities as part of the station's disposal and reuse. The following paragraphs assess the potential impacts to the 15 archaeologically sensitive areas based on the characteristics of land uses proposed under the Preferred Alternative.

Conservation. One potentially sensitive area is located in a portion of the Main Station designated for conservation. Because no new development would occur in this area, no impacts would occur.

Forestry. Two potentially sensitive areas are located in a portion of the Yellow Water Area designated for forestry management. If no new development occurs in this area, no impacts would occur. However, planting and harvesting of trees may affect archaeologically sensitive surfaces.

Forestry/Airport Reserve Areas. Eight potentially sensitive areas are located in portions of the Main Station designated for forestry management over the next 25 years. In the long term, these areas would be used for airport expansion if required. Given that no new development would occur in the foreseeable future, there would be no impacts to potential resources in these areas. In the long term, these areas could be affected by construction activities, tree planting, and harvesting.

Parks and Recreation. Two archaeologically sensitive areas are located in a portion of the Main Station designated as a parks and recreation area (i.e., the golf course). No substantial new development would occur in this area, given that the golf course is currently in place. Therefore, there would be no impacts to potential resources in this area. If additional recreational facilities are constructed at these two locations, the ground-disturbing activity may affect cultural resources.

Light-Industrial Uses. Two archaeologically sensitive areas are located in a portion of the Yellow Water Area designated for future light-industrial uses. Depending on site-specific location and design of individual developments, archaeologically sensitive areas may be affected by ground-disturbing activities.

Architectural Resources

All 457 standing structures (i.e., buildings and equipment) evaluated at the station were determined to be ineligible for inclusion in NRHP. In August 1995, the FDHR concurred with this finding (see Appendix C). Therefore, there would be no significant impact to architectural resources as a result of the Preferred Alternative.

4.10.2 Alternative Reuse Scenario 1

Archaeological Resources

Fifteen archaeologically sensitive areas correspond to zones slated for recreation/ forestry or parks/recreation. If ground-disturbing activities (i.e., tree harvesting or planting, construction of recreational facilities) occur at these areas, cultural resources may be affected.

Architectural Resources

Implementation of ARS 1 would not impact any significant architectural resources.

4.10.3 Alternative Reuse Scenario 2

Archaeological Resources

Fifteen archaeologically sensitive areas correspond to zones slated for recreation/ forestry or parks/recreation. If ground-disturbing activities (i.e., tree harvesting or planting, construction of recreational facilities) occur at these areas, cultural resources may be affected.

Architectural Resources

Implementation of ARS 2 would not impact any significant architectural resources.

4.10.4 Alternative Reuse Scenario 3

Archaeological Resources

Among the various alternatives, implementation of ARS 3 would result in the least potential for affecting archeological resources at the station. The following paragraphs assess the potential for impacts to sensitive areas based on the characteristics of land uses proposed under the Preferred Alternative.

Conservation. Six archaeologically sensitive areas are located in a portion of the Main Station designated for conservation. Because no new development would occur in this area, no impacts would result from implementation of ARS 3.

Parks and Recreation. Two archaeologically sensitive areas are located in a portion of the Main Station designated as a parks and recreation area (i.e., the golf course). No substantial new development would occur in this area, given that the golf course is currently in place. Therefore, there would be no impacts to potential resources in this area in the foreseeable future. However, if any recreational facilities are constructed in these two sensitive locations, cultural resources may be affected.

Residential Area. Three archaeologically sensitive areas are located in a portion of the Main Station designated for a new residential community. Based on the large amount of construction necessary to implement this proposal, existing cultural resources would likely be affected.

Light-Industrial Uses. Four archaeologically sensitive areas are located in a portion of the Yellow Water Area designated for future light-industrial uses. Depending on site-specific location and design of individual developments, existing cultural resources in these areas could be affected by construction activities.

Architectural Resources

Implementation of ARS 3 would not impact any significant architectural resources.

4.10.5 Alternative Reuse Scenario 4

Archaeological Resources

Implementation of ARS 4 would result in the same impacts as under the Preferred Alternative.

Architectural Resources

Implementation of ARS 4 would not impact any significant architectural resources.

4.10.6 No-Action Alternative

Implementation of this alternative would not result in any significant adverse impacts to archaeological or architectural resources.

4.10.7 Cumulative Impacts

There are no reasonably foreseeable actions in the area that could cumulatively affect cultural resources. All potential impacts are localized in nature and would occur exclusively on the former station property.

4.10.8 Mitigation Measures

To mitigate any potential future impacts to archaeological resources on the station property that could result from redevelopment activities, Navy has entered into a programmatic agreement with FDHR and the Advisory Council on Historic Preservation. This agreement outlines the measures to be taken and entities responsible for ensuring further investigation and mitigation of the 15 potentially sensitive areas identified if these areas are targeted for new development after disposal of the station. A copy of the signed Programmatic Agreement is included in Appendix E. According to this agreement, Navy is responsible for implementation of Sections 106 and 110 of the NHPA, 16 U.S.C. §§ 470(f) and 470(h-2) (1994); at the four sensitive areas that are being retained by Navy. Specifically, Navy will complete intensive archaeological surveys at these locations to determine if they contain archaeological deposits eligible for listing on NRHP (Krammerer 1998). The Navy will also continue to comply with NHPA provisions at the archaeologically sensitive locations until their disposal is completed.

The Programmatic Agreement contains legal restrictive devices that protect the 15 archaeologically sensitive areas following their disposal. The recipient (i.e., JEDC, as the ultimate receiving authority) of the disposed property would not conduct any ground-disturbing activities at the 15 locations without the prior written permission of the FDHR. The FDHR may require the recipient to conduct archaeological surveys and archaeological data recovery projects as a condition of such permission.

4.11 Hazardous Materials Management and Environmental Contamination

None of the proposed uses would impact completion of the remedial actions. While a remedial action may not preclude transfer of the property, the transfer agreement or deed would

include, as specified in 42 U.S.C. §§ 9620(h)(3) (1997), any necessary restrictions on property use to ensure protection of human health and environment and to ensure that use of the property by Navy personnel and contractors for required remedial investigations, actions, or oversight activities would not be disrupted. None of the proposed reuses would impact necessary deed restrictions and constraints.

The Navy would provide all property transferees with property transfer documents containing information on the existence, extent, and condition of ACM at NAS Cecil Field. Such information would include types and locations of ACM, results of any testing, description of asbestos control measures, any cost estimates, and any inventory updates. The Navy would also provide information on the presence of lead-based paint in target housing and community facilities in compliance with the Residential Lead-Based Paint Hazard Reduction Act of 1992, 42 U.S.C. § 4852(d)(1995).

Management of ACM and lead-based paint would be the responsibility of the new landowners. These potential environmental hazards would need to be managed or properly disposed of so that the conditions do not deteriorate and present a risk to human health.

4.11.1 Preferred Alternative

Proposed development at NAS Cecil Field under the Preferred Alternative would involve the use of hazardous materials and generation of hazardous wastes. Types of hazardous materials/wastes typical for these land uses and associated activities/processes are shown in Table 4-49. The quantity of hazardous material used or generated cannot be calculated at this time. However, in compliance with the Emergency Planning and Community Right to Know Act, 42 U.S.C. §§ 11002, storage of hazardous material above a threshold level would be required to be reported to a local emergency planning committee. This law requires emergency notification for accidental releases and reporting of toxic chemical releases. Storage, transportation, and disposal of hazardous waste would require compliance with RCRA, 42 U.S.C. §§ 6901-6992k (1994), as implemented through Florida hazardous waste management regulations contained in Fla. Stat. Ch. 403, Part IV (1997). Therefore, no significant impacts would be anticipated from hazardous materials and waste management.

Table 4-49

TYPICAL HAZARDOUS MATERIALS/WASTES BY LAND USE CATEGORY

Land Use	Alternative Reuse Scenarios					Waste-Generating Industries/Processes	Hazardous Materials/Wastes
	Preferred Reuse Plan	ARS 1	ARS 2	ARS 3	ARS 4		
General Aviation/ Helicopter Operations	X	X	X		X	Aircraft refueling; aircraft maintenance.	Fuels, solvents, paints, hydraulic fluids, degreasers, thinners, corrosives, compressed gases, adhesives, batteries.
Forestry	X	X	X		X	Equipment maintenance; weed and pest control.	Fuels, oils, solvents, paints, thinners, pesticides/herbicides.
Conservation/Open Space	X			X	X	Minimal to none.	Minimal to none.
Aviation-Related Services	X	X	X		X	Aircraft maintenance; administration/helicopter operations.	Fuels, solvents, paints, metals, hydraulic fluids, degreasers, thinners, corrosives, compressed gases, adhesives/sealants, batteries, sand-blast media, paint removers.
Parks and Recreation	X	X	X	X	X	Equipment maintenance; weed and pest control; landscaping; building maintenance.	Fuels, oils, solvents, paints, thinners, adhesives/sealants, herbicides/pesticides, fertilizers, household cleaners, chlorine.
Commercial	X			X	X	Building maintenance.	Household cleaners, solvents, paints, pesticides/herbicides.
Light Industry	X			X	X	Building maintenance; equipment storage and distribution.	Fuels, oils, solvents, paints, degreasers, cleaners, thinners.
Heavy Industry	X			X	X	Parts manufacturing and assembly; metal fabrication.	Solvents, lubricants, cleaners, corrosives, acids, heavy metals, catalysts, fuels.
Ordnance Storage		X				Ordnance storage.	Explosives, heavy metals.
Planned Residential				X		House and yard maintenance.	Paints, solvents, household cleaners.

Table 4-49

TYPICAL HAZARDOUS MATERIALS/WASTES BY LAND USE CATEGORY

Land Use	Alternative Reuse Scenarios					Waste-Generating Industries/Processes	Hazardous Materials/Wastes
	Preferred Reuse Plan	ARS 1	ARS 2	ARS 3	ARS 4		
Correctional Facility/ Juvenile Justice Facility					X	Building maintenance; shops.	Paints, solvents, household cleaners, thinners, pesticides/herbicides.
Market-Driven Development/ Business Park/Non-Aviation Incubator		X	X	X		Research and development; office/building maintenance.	Laboratory wastes.

Source: Ecology and Environment, Inc. 1998.

4.11.2 Alternative Reuse Scenario 1

Proposed development at NAS Cecil Field under ARS 1 would involve use of hazardous materials and generation of hazardous wastes. Types of hazardous materials/wastes typical for these land uses and their associated activities and processes are shown in Table 4-49. As stated under the Preferred Alternative discussion (Section 4.11.2), existing hazardous material and hazardous waste management regulations in Florida would be followed to ensure that no release of hazardous substances occurs that would adversely affect human health or the environment.

4.11.3 Alternative Reuse Scenario 2

Proposed development at NAS Cecil Field under ARS 2 would involve use of hazardous materials and generation of hazardous wastes. Types of hazardous materials/wastes typical for these land uses and their associated activities and processes are shown in Table 4-49. As stated in the Preferred Alternative discussion (Section 4.11.1), existing hazardous material and hazardous waste management regulations in Florida would be followed to ensure that no release of hazardous substances occurs that would adversely affect human health or the environment.

4.11.4 Alternative Reuse Scenario 3

Under ARS 3, various hazardous materials would be stored and used and various types of hazardous wastes would probably be generated. Types of hazardous materials/wastes typical for these land uses and their associated activities and processes are shown in Table 4-50. As stated in the Preferred Alternative discussion (Section 4.11.1), existing hazardous material and hazardous waste management regulations in Florida would be followed to ensure that no release of hazardous substances occurs that would adversely affect human health or the environment.

4.11.5 Alternative Reuse Scenario 4

Under ARS 4, various hazardous materials would be stored and used, and various types of hazardous wastes would probably be generated. Types of hazardous materials/wastes typical for these land uses and their associated activities and processes are shown in Table 4-50. As stated in the Preferred Alternative discussion (Section 4.11.1), existing hazardous material and hazardous waste management regulations in Florida would be followed to ensure that no release of hazardous substances occurs that would adversely affect human health or the environment.

4.11.6 No-Action Alternative

In caretaker status, the base would not store or use hazardous materials or generate any hazardous waste. Therefore, no impacts would be expected.

4.11.7 Cumulative Impacts

No cumulative impacts are associated with hazardous materials and waste management, or remediation of environmental contamination and environmental hazards.

4.11.8 Mitigation

No significant impacts would be expected. Therefore, no mitigation would be proposed.

5 Relationship of the Proposed Action to Federal, State, and Local Plans, Policies, and Controls

5.1 Applicable Statutes and Regulations

The following applicable statutes and regulations have been considered in the development of this FEIS.

Federal

- Defense Base Closure and Realignment Act of 1990, 10 U.S.C. § 2687 note (see Sec. 2905, Applicability of National Environmental Policy Act of 1969, and Sec. 2904, Closure and Realignment of Military Installations) (1994).
- National Environmental Policy Act (NEPA), 42 U.S.C. §§ 4321-4370(d) (1994).
- OPNAVINST 5090.1B, Department of the Navy, (November 1, 1994).
- Revitalizing Base Closure Communities – Base Closure Community Assistance, 32 C.F.R. Part 175(d)(3) (1997).
- Section 404 of the Clean Water Act, 33 U.S.C. §§ 1344(a-t)(1994).
- 33 C.F.R. Parts 320-333 (1997), U.S. Army Corps of Engineers Regulations implementing the permitting regulations of Section 404 of the Clean Water Act.
- Requirements for Preparation, Adoption, and Submittal of Implementation Plans, 40 C.F.R. Part 51.853(c)(2)(xiv)and (xix)(1998).
- Determining Conformity of Federal Actions to State or Federal Implementation Plans, 40 C.F.R. Part 93.153(c)(2)(xiv)and (xix) (1998).

- Operating Permits for Major Sources of Air Pollution, Fla. Admin. Code Ann. Ch. 62-213 (1997).

- Standards of Performance for New Stationary Sources, 40 C.F.R. Part 60 (1997).

- Regulations of Stormwater Discharge, Fla. Admin. Code Ann. Ch. 62-25 (1998).

- Section 402 of the Clean Water Act, 33 U.S.C. §§ 1342(a-p) (1994).

- Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C.§§ 9601-9675 (CERCLA) (SUPERFUND ACT) (1994).

- Residential Lead-Based Paint Hazard Reduction Act of 1992, 42 U.S.C. §4751 et seq. (1994).

- Resource Conservation and Recovery Act (RCRA), 42 U.S.C. §§ 6901-6992k (1994).

- President's Press Conference, July 2, 1993 (press release by President Clinton on his five-point plan to speed economic recovery in communities where military bases are slated to close).

- Stewart B. McKinney Homeless Assistance Act, 10 U.S.C. § 2687 note (Sec. 2905, Applicability of the National Environmental Policy Act of 1969, subsection (b), Management and Disposal of Property) (1997).

- Endangered Species Act of 1973, 16 U.S.C. §§ 1531-1544 (1996).

- Clean Air Act, 42 U.S.C. §§ 7401-7671q, *as amemded* (1994).

- Community Environmental Response Facilitation Act (CERFA), Pub. L. No. 102-426, 42 U.S.C. § 9601 note (1992) (codified as amending section 9620 of this title and enacting provisions set out as a note under section 9620 of this title).

- Community Environmental Response Facilitation Act (CERFA), Pub. L. No. 102-426, 42 U.S.C. § 9620(h)(4) (1992).

- Resource Conservation and Recovery, 40 C.F.R. Part 265 (1997).

- Residential Lead-Based Paint Hazard Reduction Act of 1992, U.S.C. § 4822(a). (1994).

- 41 C.F.R. Parts 101-47.402 and 101.-47.4913 (1997).

- Clean Water Act, 33 U.S.C. §§ 1251-1377 (1994).

- Clean Water Act, 33 U.S.C. §§ 1344(a-r) (1994).
- Clean Air Act, 42 U.S.C. §§ 7411(a-j) (1994).
- Exec. Order No. 12,898, 59 Fed. Reg. 7629 (1994) *amended by* Exec. Order No. 12,946, 60 Fed. Reg. 6381 (1995).
- Exec. Order No. 13,045, 62 Fed. Reg. 19885 (1997).
- Toxic Substances Control Act (TSCA), 15 U.S.C. §§ 2601-2692 (1994).
- Clean Water Act, 33 U.S.C. § 1342(a-p) (1994).
- National Historic Preservation Act (NHPA), 16 U.S.C. §§ 470(f) and (h-2) (1994).
- Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) (EPCRTKA), 42 U.S.C. § 11002.
- Community Environmental Response Facilitation Act (CERFA), Pub. L. No. 102-426, 42 U.S.C. § 9620(h)(3) (1994).
- Residential Lead-Based Paint Hazard Reduction Act of 1992, 42 U.S.C. § 4852(d). (1994).
- National Defense Authorization Act for Fiscal Year 1994, Pub. L. No. 103-160, 107 Stat.1547 (see Tables for Classification).
- Fish and Wildlife Coordination Act (FWCA) (Wildlife Conservation Act), 16 U.S.C. §§ 661 *et seq.* (1996).
- Coastal Zone Management Act of 1972 (CZMA), 16 U.S.C. §§ 1451-1467 (1996).
- Exec. Order No. 11,988, 3 C.F.R. Part 117 (1977) *amended by* Exec. Order No. 12,148, 3 C.F.R. (412) (1979).
- Exec. Order No. 11,990, 3 C.F.R. Part 121 (1977).

Florida State

- Florida Air and Water Pollution Control Act, Fla. Stat. Ch. 403.011-403.4154 (1997).
- Surface Water Improvement and Management Act, Fla. Stat. Ch. 373.241-373.4595 (1997).
- Fla. Admin. Code Ann. Ch. 62-212 (1997).

- Local Government Comprehensive Planning and Land Development Regulation Act, Fla. Stat. Ch. 163.3161-163.3244 (1997).
- Development of Regional Impact, Fla. Stat. Ch. 380.06 (1997).
- Fla. Stat. Ch. 288.03 (1997).
- Defense Conversion and Transition, Fla. Stat. Ch. 288.971-288.980 (1997).
- Florida State and Regional Planning Act, 1984 Fla. Sess. Law 257 (West) (codified in scattered sections of Fla. Stat, primarily in Ch. 23 and 160).
- Florida State Comprehensive Planning Act of 1972, Fla. Stat. Ch. 186.001-186.901 (1997).
- The Florida Environmental Land and Water Management Act of 1972, Fla. Stat. Ch. 380.012-380.10 (1997).
- Florida Coastal Management Act, Fla. Stat. Ch. 380.20-380.27 (1997).
- Statewide Multipurpose Hazardous Waste Facility Siting Act, Fla. Stat. Ch. 403.78-403.7893(1997).
- Permitting of Consumptive Uses of Water, Fla. Stat. Ch. 373.203-373.250 (1997).

5.2 Federal Regulatory Consistency Overview

This FEIS has been prepared in compliance with DBRAC, NEPA, OPNAVINST 5090.1B, the Deputy Secretary of Defense's Memorandum "Fast-Track Cleanup at Closing Installations", and Title XXIX of the National Defense Authorization Act for Fiscal Year 1994. The U.S. Department of Defense Final Rule for 30 C.F.R. Parts 90 and 91, which requires preparation of an EIS, specifies that environmental impacts of the proposed action and alternatives to the proposed action be evaluated, and provides guidance for defining the proposed action as the disposal of property and redevelopment, according to a local redevelopment plan or reasonable assumptions as to the likely reuse scenarios and their reasonable alternatives.

Also, in compliance with the President's Five-Part Plan; Title XXIX of the National Defense Authorization Act for Fiscal Year 1994 Pub. L. No. 103-160, 107 Stat. 1547 (see Tables for classification); the U.S. Department of Defense Final Rule for 32 C.F.R. Part 175(d)(3) (1997); and the Stewart B. McKinney Homeless Assistance Act, 10 U.S.C. § 2687 note (Sec. 2904, Closure and Realignment of Military Installations, and Sec. 2905, Applicability of the

National Environmental Policy Act of 1969); redevelopment of the NAS Cecil Field property for jobs creation and/or homeless assistance has been considered part of the property disposal process. The FEIS will be distributed for comment to all appropriate federal, state, and local agencies, organizations, and interested persons.

In compliance with the Clean Water Act and Exec. Order No. 11990, 3 C.F.R. Part 121 (1997) development in wetland areas would be minimized to the extent practical. Redevelopers would be required to obtain approvals or USACE permits for wetland alteration prior to construction. In addition, all development affecting wetlands will be consistent with the "no net loss" of wetlands policy in the *Jacksonville Comprehensive Plan*. Also, in compliance with the Clean Water Act, 33 U.S.C. § 1344(a-t), appropriate federal and local permits would be obtained by redevelopers to accommodate any future wastewater discharges resulting from station redevelopment.

In compliance with the Endangered Species Act, 16 U.S.C. §§ 1531-1544 (1996), and the Fish and Wildlife Coordination Act, 16 U.S.C. §§ 661 et seq. (1996), appropriate federal and state agencies were contacted to determine the potential for the proposed action to impact threatened or endangered species and fish and wildlife habitat (see Section 4.3 of this FEIS). In addition, in accordance with Section 7 of the Endangered Species Act, a biological assessment was prepared that documents the effects of the proposed action on species of concern. The biological assessment and Memorandum of Understanding for the Natural and Recreation Corridor, which are presented in Appendices D and G, respectively, were submitted to the USFWS for Section 7 consultation. Although the USFWS response letter does not represent a biological opinion as described in Section 7 of the Act, it does fulfill the requirements of the Act (see Appendix C). Therefore, no further action is required.

The rules guiding the determination of conformance of an action with the Clean Air Act of 1970, 42 U.S.C. §7401 *et seq.*, amended 1977 and 1990, are set forth in 40 C.F.R. Parts 6, 51, and 93. Because the proposed action entails disposal of NAS Cecil Field and transfer of the land to other parties, it is exempt from the General Conformity Rule. However, because Duval County is designated as a maintenance area for ozone, an analysis of the projected emissions of ozone precursor chemicals (VOCs and NO_x) was conducted. Analyses in this FEIS indicate that ozone precursor emissions will decrease compared with pre-closure emissions. Therefore, the action conforms with the Florida SIP. Although emissions of other criteria pollutants (i.e., CO and PM) would slightly increase as a result of traffic and construction associated with redevelopment activities, these emissions are not considered significant and would not affect Duval County's attainment designation for these pollutants. Compliance of future develop-

ment/redevelopment projects at the former station property with applicable air quality regulations would be the responsibility of Jacksonville RESD and the ultimate receiving entity or redevelopers.

In compliance with the NHPA, appropriate federal, state, and local agencies were contacted regarding the potential for the proposed action to impact cultural resources of historical or archaeological significance. Sixteen archaeologically sensitive areas (i.e., areas with a greater-than-average probability of containing prehistoric sites) have been identified at NAS Cecil Field in a cultural resource assessment. FDHR has accepted the conclusions of the assessment. Any future development that may affect these resources will be undertaken pursuant to a Programmatic Agreement that has been negotiated between Navy and the Florida DHR (see Appendix E).

In compliance with Exec. Order No. 11,988, 3 C.F.R. Part 117, amended by Exec. Order No. 12, 148, 3 C.F.R. Part 412 (1979), and the Coastal Zone Management Act of 1972, 16 U.S.C. §§ 1451-1467 (1996), the proposed action will not involve any new construction in a floodway or in flood hazard areas.

In compliance with CERCLA, RCRA, CERFA, and the Deputy Secretary of Defense Memorandum, an EBS has been completed. FOSLs or FOSTs (findings of suitability to transfer) will be prepared, stating that the property is suitable for lease or transfer without restrictions or outlining proposed restrictions on future use of the property. In addition, deeds prepared for transfer will state that Navy will be responsible for corrective measures found to be necessary after the date of transfer and provide clauses granting Navy access to the property to conduct such corrective actions.

5.3 State Regulatory Consistency Overview

The Florida Defense Conversion and Transition Act (DCTA) passed by the 1994 Florida Legislature as amendments to Fla. Stat. Ch. 288, enables local governments to file a single application using the federal EIS and a base reuse plan to satisfy Florida's growth management requirements. The single application satisfies the local comprehensive plan amendment process under the Local Government Comprehensive Planning and Land Development Act, Fla. Stat. Ch. 163, and the Development of Regional Impact (DRI) program under Fla. Stat. Ch. 380.06 (1997).

The Content Requirements of Military Base Reuse Plans under DCTA , Fla. Stat. Ch. 288.97, include a plan element, five-year facility plans, and plan support information.

- **Plan Elements:** Plan elements include future land use, transportation (all types), housing, general infrastructure, intergovernmental coordination, capital improvements, coastal management, recreation, and open space and conservation. These are the required elements of the comprehensive plan process under Fla. Stat. Ch. 163.

- **Five-Year Facility Plans:** Military reuse plans are required to identify the need and plans for the provisions of the following facilities and services for the next five years: roads, public transportation, drainage, potable water, solid waste sanitary sewers, and recreation and open space.

- **Plan Support Information:** Information consists of data and analysis on which the reuse plan was based and includes, at a minimum: characteristics of vacant land, projected population growth, existing and projected public facilities, projected impact to on- and off-site public facilities and services listed in paragraph B, projected use of vacant land and redevelopment of developed lands, and projected impacts of base reuse activities on natural resources.

The plan elements are required to meet the criteria under Fla. Admin. Code Ann. Rule 9J-5, which specifies the minimum criteria for review of local comprehensive plans and determination of compliance.

The Final Cecil Field Base Reuse Plan must also be consistent with the State Comprehensive Plan and the Regional Policy Plan as enacted in 1984 under the State and Regional Planning Act, Fla. Stat. Ch. 23 and 160. The regional plan links the state plan with the local plan. By rule, the goals included in the State Comprehensive Plan must be addressed and regionalized into regional and local plans. Polices of the regional plan and local plan must be consistent with each other and must further the goals of the state plan.

Furthermore, pursuant to the CZMA, the state of Florida adopted the Florida Coastal Management Program (FCMP), which was approved by the National Oceanic and Atmospheric Administration (NOAA) in 1981. Approval by NOAA empowers the state to review federal activities to ensure that they are in compliance with the state's approved management program. This review authority is referred to as federal consistency. The FCMP consists of a network of 23 Florida statutes administered by 10 state agencies and five water management districts. Consistency with these statutes will constitute consistency with the FCMP. The FEIS was circulated to various state agencies and determined to be consistent.

In compliance with the Florida Hazardous Waste Management Act, all clean activities have been coordinated with the FDEP as a member of the BRAC Cleanup Team.

In accordance with Florida's Environmental Resource Permitting Standards , new development occurring at the station property would require appropriate measures to prevent soil erosion during construction and to accommodate stormwater management after construction. Each developer of projects would be required to obtain appropriate state permits ensuring conformance with these standards.

5.4 Local Regulatory Consistency Review

To implement the Reuse Plan, the Jacksonville Economic Development Commission opted to use the provisions of Fla. Stat. Ch. 288.975, Military Base Reuse Plan. As a result, development concepts of the Final Base Reuse Plan would be amended to the Jacksonville 2010 Comprehensive Plan as a component of the NAS Cecil Field Transition Element. The Transition Element contains seven subelements designed to reflect the goals, objectives, and policies of the 2010 Comprehensive Plan. The NAS Cecil Field Base Reuse Plan, the Environmental Impact Statement for Disposal and Reuse of NAS Cecil Field, and the Transportation Supplement to the NAS Cecil Field Final Base Reuse Plan were used in development of the goals, objectives, and policies to be adopted. The Natural and Recreation Corridor Memorandum of Understanding is an attachment to the Transition Element.

Zoning and future land use at NAS Cecil Field will be under the Public Benefit and Facility (PBF) category. Proposed development locations depicted in the Base Reuse Plan would become land use activities permitted in the PBF category. By presenting the concepts of the Reuse Plan as land use activities, land use configurations at the site could be changed without a Comprehensive Plan amendment as long as the proposed activity is permitted within the PBF category. Upon adoption of the Transition Element as an amendment to the 2010 Comprehensive Plan, any subsequent relocation or reconfiguration of land uses would be subject to review and approval by the Jacksonville Planning and Development Department (PDD). The PDD would notify the Florida Department of Community Affairs and the Northeast Regional Planning Council at least 30 days prior to any relocation or reconfiguration. Subsequent changes inconsistent with the PBF category must be implemented, amended, and reviewed in accordance with Fla. Stat. Ch. 163 and other applicable administrative codes.

Upon adoption of the Transition Element, development at NAS Cecil Field would be capped until 2010 in accordance with the projected impacts discussed in this FEIS. The development cap would be imposed by (1) limiting floor-area ratios; (2) limiting trip generation; and (3) limiting new facility development pursuant to the Base Reuse Plan, EIS, or Transporta-

tion Supplement. Subsequent to 2010, additional development may occur in accordance with applicable federal, state, and local planning processes and regulations.

It is expected that Clay County, as an amendment to its Comprehensive Plan, would adopt the Conservation future land use category for the 641 acres of NAS Cecil Field in Clay County, all of which is within the Natural and Recreation Corridor overlay zone (Newton 1998).

Eventual implementation of the plan would be guided by the local land development regulations (LDRs) adopted in accordance with Fla. Stat. Ch. 163 and Fla. Admin. Code Ann. Rule 9J-24 . The LDRs guide the physical characteristics of site development through procedural requirements, design criteria, application reviews and approvals, and permit issuance. The development review process (for Jacksonville and Clay County) would include a comprehensive plan, zoning, and concurrency consistency determination; subdivision and/or site plan approval; and permit approval. Permits may be required from the local government, the water management district, and Florida's Health and Rehabilitative Services, among other entities. Applicable LDRs for the city of Jacksonville include:

- Chapter 656 Zoning Code;
- Chapter 656, Section 656.404, Site Plan Requirements;
- Chapter 655 Concurrency Management System; and
- Chapter 654 Code of Subdivision Regulations.

Applicable LDRs for Clay County include:

- Ordinance 93-16, Zoning;
- Ordinance 85-68, Subdivision Regulations;
- Ordinance 93-16 and 85-68, Site Plan Requirements; and
- Ordinance 92-19, Concurrency Management.

In the local development review process, principal reviewers and approval entities may include the Planning and Development Department, the Public Works Department, the Planning Commission, and the City and/or County Commission, depending on the specific components of an application for development at the former Cecil Field property.

6 Unavoidable Adverse Environmental Effects and Considerations that Offset Adverse Effects

Unavoidable adverse impacts associated with implementation of the Preferred Alternative include effects associated with site clearance, construction, and infrastructure installation/ improvement. Permanent as well as short-term environmental impacts may occur if the constrained land areas are not avoided and buffered from development. The Natural and Recreation Corridor will assist in offsetting these impacts via a wetland mitigation scenario that will preserve both uplands and wetlands on the west side of the station.

Early stages of redevelopment activity would involve demolition activity. Buildings with little or no evaluated potential for reuse, old steam lines, machinery, utilities, and other unnecessary structures would be demolished. Adverse environmental effects that would occur during demolition activities include periodic high noise levels, fugitive dust emissions, increased vehicular traffic, and a temporarily increased demand for solid waste disposal capacity. These effects, however, would be of short duration and would be contained in areas where specific redevelopment activities are proposed.

As new construction projects are undertaken on the property, temporary adverse environmental effects that may be expected include increased construction vehicle traffic, fugitive dust emissions, and increased noise levels. Considerations that offset these effects include their temporary duration and localized nature and the fact that individual developers would be required to undertake standard construction mitigation measures, such as control for soil erosion and fugitive dust emissions, through the local permitting process.

Redevelopment activities are expected to be phased in over a 12-year period. As a result, demands for nonpotable water, steam, and potable water supplies are expected to decrease substantially in the early stages of redevelopment. Peak demand under the full redevelopment scenario is still expected to be less than under pre-closure conditions.

Other minor adverse impacts that cannot be avoided during implementation of the Preferred Alternative include changes in vehicular traffic compared with pre-closure levels (see Section 4.8), air emissions from mobile sources (see Section 4.5), and loss of vegetation and soil disturbance at new construction sites (see Sections 4.2 and 4.3).

Considerations that offset these impacts are the projected beneficial economic impacts targeted at mitigating the effects of closure of NAS Cecil Field. Redevelopment of the station provides a greater potential for job creation and retention by taking full advantage of existing infrastructure at NAS Cecil Field. Further, the ultimate receiving entity will mitigate impacts through preparation of various plans for site-specific improvements and resource management at the station property, including a forestry management plan, master street plan, potable water supply system plan, sanitary sewer system plan, and master drainage plan.

7 Relationship Between Short-Term Uses of the Environment and Maintenance and Enhancement of Long-Term Productivity

Short-term uses of the environment under the proposed action include temporary impacts to the physical environment during site preparation and demolition/construction and short-term socioeconomic impacts, including maintenance/construction costs, expenditure of public funds for site improvements, and lost productivity and wages. The proposed redevelopment of NAS Cecil Field would enhance the site's long-term productivity by developing productive long-term uses; increasing the efficiency and effectiveness of the use of the property; providing land for needed industrial/economic development; improving aesthetic resources; and increasing economic activity, revenue generation, and employment in the surrounding Duval County/Clay County area.

Prior to redevelopment of the station property, existing buildings with no reuse potential would need to be demolished, existing infrastructure would need to be modified or removed, environmental restoration would be required, and vegetation would be removed to clear areas for redevelopment. Some wildlife would be displaced, and soils would be exposed to possible wind or stormwater erosion until the area is covered or replanted. Other wildlife would be permanently displaced as a result of alteration of habitats. Short-term environmental impacts would result from vehicle noise and emissions during the construction period, but these impacts would be mitigated to the extent possible. Appropriate soil erosion and sediment control plans and stormwater management plans would be prepared by redevelopers for applicable construction sites according to regulations of the city of Jacksonville and St. Johns River Water Management District (see Section 5.1 of this FEIS).

Long-term productivity of much of the forested area at the station would be maintained and potentially enhanced by continued forestry management, development location, and site

design, and preservation of the Natural and Recreation Corridor. These activities would retain the productivity of forestry resources and maintain the diversity of habitat types and overall biological productivity.

8 Irreversible and Irretrievable Commitments of Resources

Irreversible and irretrievable commitments of resources would be made by Navy, the ultimate receiving entity, and other entities to redevelop NAS Cecil Field. Resources committed would include building materials and supplies, C&D labor, funds for planning and engineering, approximately 17,202 acres (6,964 hectares) of federally owned land, and natural resources such as water, air, and electricity or gas for power. Preservation of the Natural and Recreation Corridor is a major component to mitigate against irreversible and irretrievable commitments of natural resources of NAS Cecil Field (see Appendix G).

The expenditure of public funds for site preparation and redevelopment activities would not be entirely irretrievable in that the investment would improve the desirability of the lands, increase the likelihood of redevelopment, and create the economic benefits that are a primary goal of the Preferred Alternative. As such, these public expenditures would be partially retrieved by implementation of Preferred Alternative as proposed.

Investments made by Navy to remediate site contamination and relocate existing personnel and support equipment (e.g., aircraft) would also entail an irretrievable commitment of funds. However, commitment of these funds would have a positive effect on future DoD budgets and expenditures.

9 Energy Requirements and Conservation Potential

The proposed action would result in a short-term decrease in energy demand by the facilities on the property. The demand for energy would increase following complete implementation of the Preferred Alternative but would not be expected to match pre-closure levels. Demolition of nonreusable buildings and upgrade of older buildings scheduled for reuse would result in much greater energy efficiency across the property.

Also, demolition of older structures to allow for the construction of more energy-efficient facilities would improve cooling and heating efficiencies to reduce the overall demand for electrical power on the station property. New facilities to be constructed would be designed with energy-efficient heating and cooling systems.

Although aircraft operations at the station would continue pursuant to implementation of the Preferred Alternative, the level of operations would be significantly reduced from pre-closure conditions (see Section 4.8.1). This would result in a net reduction in the overall use of aviation fuel in the Jacksonville area.

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6887 103rd Street
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Jennifer Parker
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403 Ferris Street
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A Public Notice

future investigations of the property. These constraints would be identified and imposed by the Army at the time of deed transfer. Currently, the facility is in compliance with all applicable federal environmental statutes and executive orders.

Implementation of the unencumbered alternative would have similar environmental effects as the encumbered disposal alternative. However, unencumbered disposal would require the Army to remediate for all site contamination, including the buried, non-friable asbestos-containing water distribution and sewage lines. These lines are not a hazard to human health or the environment, unless disturbed.

Implementation of the no-action alternative would perpetuate maintenance costs incurred by the Army. Additionally, no remedial actions would be taken for known contaminants on the site.

The EA results in a Finding of No Significant Impact (FNSI), therefore an Environmental Impact Statement (EIS) is not required for encumbered disposal of Nike KC–30.

DATES: Coments must be received on or before February 24, 1995.

ADDRESSEE: Persons wishing to comment may obtain a copy of the EA or inquire regarding the FNSI by writing to Mr. Alan Gehrt, Environmental Resources Branch, Planning Division, U.S. Army Corps of Engineers, Kansas City, 601 East 12th Street, Kansas City, Missouri 64106–2896.

FOR FURTHER INFORMATION: Questions regarding this FNSI may be directed to the U.S. Army Corps of Engineers, ATTN: Mr. Alan Gehrt, at (816) 426–3358.

Dated: January 19, 1995.

Lewis D. Walker,

Deputy Assistant Secretary of the Army, (Environment, Safety and Occupational Health) OASA (IL&E).

[FR Doc. 95–1869 Filed 1–24–95; 8:45 am]

BILLING CODE 3710–08–M

Department of the Navy

Notice of Intent To Prepare an Environmental Impact Statement for Disposal and Reuse of Naval Air Station Cecil Field, Florida

Pursuant to the National Environmental Policy Act as implemented by the Council on Environmental Quality Regulations (40 CFR parts 1500–1508), the Department of the Navy announces its intent to prepare an Environmental Impact Statement (EIS) to evaluate the potential environmental effects of disposal and reuse of Naval Air Station (NAS) Cecil Field, located in Duval and Clay Counties near Jacksonville, Florida.

In accordance with the Defense Base Closure and Realignment Act (DBCRA) (PL 101–510), as implemented by the 1993 Base Realignment And Closure process, the Navy has been directed to close and dispose of NAS Cecil Field and its associated Outlying Landing Field (OLF) at Whitehouse.

The proposed action to be evaluated in the EIS involves the disposal of land, buildings, and infrastructure at NAS Cecil Field, including OLF Whitehouse which is located approximately seven miles to the north. The Navy intends to analyze the environmental effects of disposal of NAS Cecil Field based upon reasonable reuse scenarios for the property. The community established a local redevelopment authority, identified as the Cecil Field Development Commission (CFDC), that is charged with planning appropriate new uses for the properties. The EIS will evaluate these alternative reuse scenarios, including the "no action" alternative (retention of the property in caretaker status). However, because of the process mandated by DBCRA, selection of the "no action" alternative would be considered impracticable for the Navy to implement.

The EIS will evaluate the impacts of disposal and reuse of NAS Cecil Field properties on the natural environment, including but not limited to, plant and wildlife habitats, water resources such as streams and wetlands, and air quality. It will also evaluate effects on the socioeconomic environment, including potential impacts to the regional economy, the local tax base, and land uses. In addition, as required by Section 106 of the National Historic Preservation Act, the Navy will be preparing a cultural resources survey to determine if any sensitive archaeological resources or historic buildings or structures will be affected by the proposed reuse.

The Navy is initiating a scoping process for the purpose of determining the scope of issues to be addressed and for identifying significant issues related to proposed reuse. The Navy will hold a public scoping meeting on February 9, 1995, beginning at 7:00 p.m. in the Main Drill Hall at the Post of Snyder, Florida Army National Guard Center, 9900 Normandy Boulevard, Jacksonville, Florida. The location of this meeting will also be advertised in local and regional newspapers.

A brief presentation will precede a request for public comment and will include a presentation on proposed uses that have been identified for the properties. Navy representatives will be available at this meeting to receive comments regarding issues of concern to the public. It is important that federal, state, and local agencies and interested individuals take this opportunity to identify environmental concerns that should be addressed during the preparation of the EIS. Further, because it is anticipated that the CFDC reuse-plan will not be completed until July, 1995, the scoping process offers an opportunity to incorporate public environmental concerns into the CFDC planning process.

Agencies and the public are also invited and encouraged to provide written comment in addition to, or in lieu of, oral comments at the scoping meeting. To be most helpful, scoping comments should clearly describe the specific issues or topics the commenter believes the EIS should address. In the interest of available time, each speaker will be asked to limit oral comments to five minutes. Written statements and/or questions regarding the scoping process should be mailed no later than March 11, 1995, to: Commanding Officer, Southern Division, Naval Facilities Engineering Command, P.O. Box 190010, North Charleston, SC 29419–9010, (Attn: Mr. Robert Teague, Code 203RT) telephone (803) 743–0785.

Dated: January 20, 1995.

L. R. McNees,

LCDR, JAGC, USN, Federal Register Liaison Officer.

[FR Doc. 95–1889 Filed 1–24–95; 8:45 am]

BILLING CODE 3810–FF–P

Government-owned Inventions; Availability for Licensing

AGENCY: Department of the Navy, DOD.

ACTION: Notice of availability of inventions for licensing.

SUMMARY: The inventions listed below are assigned to the United States Government as represented by the Secretary of the Navy and are made available for licensing by the Department of the Navy.

Copies of patents cited are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231, for $3.00 each. Requests for copies of patents must include the patent number.

Copies of patent applications cited are available from the National Technical Information Service (NTIS), Springfield, Virginia 22161 for $6.95 each ($10.95 outside North American Continent). Requests for copies of patent applications must include the patent application serial number. Claims are

In 1933, police radio changed crime forever



Bill Foley

Success must be reported in the endeavor to find a local angle to the O.J. Simpson story.

The Nicole Simpson 911 calls replayed on national television last week recalled that we are at the 62nd anniversary of the police radio in Jacksonville.

A little past the anniversary, but close enough.

Without police radios, of course, we would not have a 911 system.

And, of course, without radio, we would not have the miracle of television and would not be able to watch O.J. Simpson 24 hours a day.

Quite likely, however, we still would have crime.

Somehow crime survived the technological miracle of the police radio, which was introduced on the mean streets of Jacksonville in January 1933.

It was a technological breakthrough that would change crime forever.

Not end it, but change it.

The debut of police radio station WPFG came as crime, and public reaction to crime, swept the land. Jacksonville was no exception.

The nexus of Prohibition and the Great Depression had spawned the Fool's Gold Era of American Lawlessness. Fear, revulsion and a twisted glamour swirled into a tarnished caldron of public opinion.

Whatever evil lurked in the hearts of men those early years of the New Deal, technology exacerbated it. Radio and movies gave it dimension. The automobile gave it mobility. Freewheeling banditti of the hinterland begged the credibility of "Crime does not pay."

Crime was celebrated in the press and the pulps. Kidnappings, jewel thefts, bank robberies and a potpourri of bizarre misdoing commanded the headlines of the nation and captured its imagination.

John Dillinger terrorized the Midwest. Desperado Wilbur Underhill, the "Tri-State Terror," terrorized the Southwest. A monotonous litany of miscreants of the month terrorized hither and yon. Often the citizenry terrorized right back.

lice Radio WPFG would be Jacksonville's second radio station and its longest enduring.

Ironically, one of the first days WPFG was on the air, the city-owned WJAX itself brought down a desperado — perhaps the first nailed through the local ether.

Bandits tied up Doc Rawls at his Panama drug store the afternoon of that January Tuesday and held a gun on soda jerk Marvin Odom while they looted the cash register and fled in a speeding car.

J.G. Rawls was not a man to trifle with. He was a former county commissioner and well connected. Rawls and a friend jumped in a car and roared after the bandits. WJAX broadcast news of the robbery and the wild chase Georgia-ward.

Waycross Assistant Police Chief F.L. Martin picked up the WJAX flash and ran the bad guys into a telephone pole as soon as they roared into Waycross. The men were arrested. The loot was recovered. Radio had won a crime-fighting feather.

Veteran police communications officers R.C. Campbell and W.A. Mayhew were placed in charge of taking calls for the new radio system. Microphones were placed in the captain's office and detective headquarters at 711 Liberty St.

The system was installed by George P. Allen, chief of the police and fire signal bureau, and Jack Hawkins of WJAX in a money-saving move.

"By having the work done without the use of federal engineers, the city is saving about $1,500 in installation costs," the Jacksonville Journal reported.

At the end of the first year, about 20,000 calls had gone out over the system, covering offenses from vagrancy to homicide. Almost half of the calls came between 4 and 11 p.m.

Total cost of the system over the year, installation and operation, had been about $10,000. The Florida Times-Union said this had been recovered through the amount of stolen property reclaimed alone.

But the major impact had been on the morale of the department, the newspaper said. The radio had ensured the prompt dispatch of assistance to crime scenes, thereby discouraging crime on the one hand and increasing the chances of ar-

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PUBLIC NOTICE
U.S. DEPARTMENT OF THE NAVY
SCOPING MEETING FOR
ENVIRONMENTAL IMPACT STATEMENT FOR
DISPOSAL AND REUSE OF
NAVAL AIR STATION (NAS) CECIL FIELD, FLORIDA

The U.S Navy intends to prepare an Environmental Impact Statement (EIS) to evaluate the potential environmental effects of disposal and reuse of NAS Cecil Field, which is scheduled to close pursuant to the 1993 recommendations of the Defense Base Closure and Realignment Commission. The Navy requests comments for the purpose of determining the scope of issues to be addressed in the EIS. The Navy will hold a public scoping meeting to receive comments on Thursday, February 9, 1995 from 7:00 tp 9:00 p.m. at the Post of Snyder, 9900 Normandy Boulevard, Jacksonville, Florida. If needed, arrangements for attendance by the hearing impaired at this meeting may be made at least 48 hours in advance by contacting the office listed below. Agencies and the public are also invited to provide written comments on the scope of the EIS. Written comments should be mailed no later than March 8, 1995 to: Commander, Southern Division, Naval Facilities Engineering Command, P.O. Box 190010, North Charleston, SC 29419-9010, Attn: Code 203RT (Mr. Robert Teague, P.E.), (803) 743-0785.

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A-5

PUBLIC NOTICE

U.S. Department of the Navy
Draft Environmental Impact Statement (DEIS)
Disposal and Reuse of Naval Air Station NAS Cecil Field
Jacksonville, Florida

Pursuant to the National Environmental Policy Act (NEPA), the Navy will hold a public hearing on May 27, 1997, at 7:00 p.m. in the Main Drill Hall at the Post of Snyder, Florida Army National Guard Center, 9900 Normandy Boulevard, Jacksonville, Florida. The purpose of the hearing is to receive comments on the DEIS for the proposed disposal and reuse of NAS Cecil Field, which will be closed in accordance with the 1995 mandates of the Defense Base Closure and Realignment Commission. Following a presentation summarizing the finds of the DEIS, the public will be invited to make comments that will be addressed in a final EIS (FEIS) to be prepared by the Navy.

The DEIS has been distributed to various federal, state, and local officials and individuals. The DEIS is also available for review during normal business hours at the Jacksonville Main Library, 122 N. Ocean St., Jacksonville,FL; Wescott Branch Library, 6887 103rd St., Jacksonville, FL; and the Clay County Public Library, 403 Ferris St., Green Cove Springs, FL.

The public may also provide written comments on the DEIS. All written comments should be forwarded to: Commander, Southern Division, Naval Facilities Engineering Command, Attn.: Mr. Robert Teague, P.E. (Code 064), P.O. Box 190010, North Charleston, SC 29419-9010, phone: 803/820-5785, facsimile: 803/820-5993.

FLORIDA PUBLISHING COMPANY

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JACKSONVILLE, DUVAL COUNTY, FLORIDA

STATE OF FLORIDA }
COUNTY OF DUVAL }

Before the undersigned authority personally appeared _____

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Legal Advertising Representative of The Florida Times-Union,

a daily newspaper published at Jacksonville in Duval County, Florida; that the attached copy of advertisement, being a Legal Notice

in the matter of

Public Notice

Hearing, May 27, 1997

in the _____ Court,

was published in THE FLORIDA TIMES-UNION in the issues of

May 11

Affiant further says that the said The Florida Times-Union is a newspaper published at Jacksonville, in said Duval County, Florida, and that the said newspaper has heretofore been continuously published in said Duval County, Florida, The Florida Times-Union each day, has been entered as second class mail matter at the postoffice in Jacksonville, in said Duval County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that he has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in said newspaper.

Sworn to and subscribed before me this 12th day of May A.D. 19 97

Notary Public,
State of Florida at Large.
VERA JANIE LIPSEY
My Commission Expires COMMISSION # CC [illegible]
EXPIRES JUN 01 [illegible]

DA 444

B Listings of Wildlife and Plants at NAS Cecil Field

Table B-1

COMMON AND SCIENTIFIC NAMES OF AMPHIBIANS THAT OCCUR OR MAY OCCUR AT NAS CECIL FIELD

Common Name	Scientific Name
Southern Cricket Frog	*Acris gryllus gryllus*
Flatwoods Salamander	*Ambystoma cingulatum*
Marbled Salamander	*Ambystoma opacum*
Mole Salamander	*Ambystoma talpoideum*
Tiger Salamander	*Ambystoma tigrinum*
Two-toed Amphiuma	*Amphiuma means*
Oak Toad	*Bufo quercicus*
Southern Toad	*Bufo terrestris*
Southern Dusky Salamander	*Desmognathus auriculatus*
Greenhouse Frog	*Eleutherodactylus planirostris*
Two-lined Salamander	*Eurycea bislineata*
Dwarf Salamander	*Eurycea quadridigitata*
Eastern Narrow-mouthed Toad	*Gastrophryne carolinensis*
Green Treefrog	*Hyla cinerea*
Southern Spring Peeper	*Hyla crucifer bartramiana*
Pine Woods Treefrog	*Hyla femoralis*
Barking Treefrog	*Hyla gratiosa*
Squirrel Treefrog	*Hyla squirella*
Gray Treefrog	*Hyla versicolor*
Little Grass Frog	*Limnaoedus ocularis*
Striped Newt	*Notophthalmus perstriatus*
Central Newt	*Notophthalmus viridescens louisianensis*
Peninsular Newt	*Notophthalmus viridescens piaropicola*
Slimy Salamander	*Plethodon glutinosus*
Southern Chorus Frog	*Pseudacris nigrita*
Ornate Chorus Frog	*Pseudacris ornata*
Dwarf Siren	*Pseudobranchus striatus*
Rusty Salamander	*Pseudotriton montanus floridanus*
Florida Gopher Frog	*Rana areolata aesopus*

Table B-1

COMMON AND SCIENTIFIC NAMES OF AMPHIBIANS THAT OCCUR OR MAY OCCUR AT NAS CECIL FIELD

Common Name	Scientific Name
River Frog	*Rana heckscheri*
Southern Leopard Frog	*Rana sphenocephala*
Eastern Spadefoot Toad	*Scaphiopus holbrooki holbrooki*
Eastern Lesser Siren	*Siren intermedia intermedia*

Table B-2

COMMON AND SCIENTIFIC NAMES OF BIRDS THAT BREED OR MAY BREED AT NAS CECIL FIELD

Common Name	Scientific Name
Cooper's Hawk	*Accipiter cooperii*
Red-winged Blackbird	*Agelaius phoeniceus*
Bachman's Sparrow	*Aimophila aestivalis*
Wood Duck	*Aix sponsa*
Anhinga	*Anhinga anhinga*
Florida Scrub Jay	*Aphelocoma coerulescens*
Limpkin	*Aramus guarauna*
Ruby-throated Hummingbird	*Archilochus colubris*
Great Blue Heron	*Ardea herodias*
American Bittern	*Botaurus lentiginosus*
Great Horned Owl	*Bubo virginianus*
Cattle Egret	*Bubulcus ibis*
Red-tailed Hawk	*Buteo jamaicensis*
Red-shouldered Hawk	*Buteo lineatus*
Broad-winged Hawk	*Buteo platypterus platypterus*
Green-backed Heron	*Butorides virescens virescens*
Muscovy Duck	*Cairina moschata*
Chuck-will's Widow	*Caprimulgus carolinensis*
Northern Cardinal	*Cardinalis cardinalis*
Boat-tailed Grackle	*Cassidix major*
Turkey Vulture	*Cathartes aura*
Red-bellied Woodpecker	*Centurus carolinus*
Chimney Swift	*Chaetura pelagica*
Killdeer	*Charadrius vociferus*
Common Nighthawk	*Chordeiles minor*
Yellow-billed Cuckoo	*Coccyzus americana*
Common Flicker	*Colaptes auratus*
Rock Dove	*Columba livia*
Northern Bobwhite	*Colinus virginianus*

Table B-2

COMMON AND SCIENTIFIC NAMES OF BIRDS THAT BREED OR MAY BREED AT NAS CECIL FIELD

Common Name	Scientific Name
Eastern Wood Pewee	*Contopus virens*
Black Vulture	*Coragyps atratus*
Common Crow	*Corvus brachyrhynchos*
Fish Crow	*Corvus ossifragus*
Blue Jay	*Cyanocitta cristata*
Downy Woodpecker	*Dendrocopus pubescens*
Hairy Woodpecker	*Dendrocopus villosus*
Yellow-throated Warbler	*Dendroica dominica*
Prairie Warbler	*Dendroica discolor*
Pine Warbler	*Dendroica pinus*
Pileated Woodpecker	*Dryocopus pileatus*
Great Egret	*Egretta alba*
Little Blue Heron	*Egretta caerulea*
Tricolored Heron	*Egretta tricolor*
American Swallow-tailed Kite	*Elanoides forticatus*
Acadian Flycatcher	*Empidonax virescens*
Southeastern American Kestrel	*Falco sparverius paulus*
American Coot	*Fulica americana*
Common Moorhen	*Gallinula chloropus*
Common Yellowthroat	*Geothlypis trichas*
White Ibis	*Guara albus*
Blue Grosbeak	*Guiraca caerulea caerulea*
Bald Eagle	*Haliaeetus leucocephalus*
Wood Thrush	*Hylocichla mustelina*
Yellow-breasted Chat	*Icteria virens*
Orchard Oriole	*Icterus spurius*
Mississippi Kite	*Ictinia mississippiensis*
Least Bittern	*Ixobrychus exilis*
Loggerhead Shrike	*Lanius ludorvicianus*

Table B-2

COMMON AND SCIENTIFIC NAMES OF BIRDS THAT BREED OR MAY BREED AT NAS CECIL FIELD

Common Name	Scientific Name
Swainson's Warbler	*Limnothlypis swainsonii*
Belted Kingfisher	*Megaceryle alcyon*
Red-headed Woodpecker	*Melanerpes erythrocephalus*
Wild Turkey	*Meleagris gallopavo*
Northern Mockingbird	*Mimus polyglottos*
Brown-headed Cowbird	*Molothrus ater*
Great-crested Flycatcher	*Myiarchus crinitus*
Black-crowned Night Heron	*Nycticorax nycticorax*
Yellow-crowned Night Heron	*Nycticorax violacea*
Eastern Screech Owl	*Otus asio asio*
Osprey	*Pandion haliaetus*
Tufted Titmouse	*Parus bicolor*
Carolina Chickadee	*Parus carolinensis*
House Sparrow	*Passer domesticus*
Indigo Bunting	*Passerina cyanea*
American Woodcock	*Philohela minor*
Red-cockaded Woodpecker	*Picoides borealis*
Rufus-sided Towhee	*Pipilo erythrophthalmus*
Summer Tanager	*Piranga rubra*
Pied-billed Grebe	*Podilymbus podiceps*
Blue-gray Gnatcatcher	*Polioptila caerulea*
Purple Gallinule	*Porphyrula martinica*
Purple Martin	*Progne subis*
Prothonotary Warbler	*Protonotaria citrea*
Common Grackle	*Quiscalus quiscula*
King Rail	*Rallus elegans*
Virginia Rail	*Rallus limicola*
Eastern Bluebird	*Sialia sialis*
Brown-headed Nuthatch	*Sitta pusilla*

Table B-2

COMMON AND SCIENTIFIC NAMES OF BIRDS THAT BREED OR MAY BREED AT NAS CECIL FIELD

Common Name	Scientific Name
Field Sparrow	*Spizella pusilla*
Rough-winged Swallow	*Stelgidopteryx ruficollis*
Barred Owl	*Strix varia georgica*
Eastern Meadowlark	*Sturnella magna*
European Starling	*Sturnus vulgaris*
Carolina Wren	*Thryothorus ludovicianus*
Brown Thrasher	*Toxostoma rufum*
Eastern Kingbird	*Tyrannus tyrannus*
Common Barn Owl	*Tyto alba*
Bachman's Warbler	*Vermivora bachmanii*
Yellow-throated Vireo	*Vireo flavifrons*
White-eyed Vireo	*Vireo griseus*
Red-eyed Vireo	*Vireo olivaceus*
Hooded Warbler	*Wilsonia citrina*
Mourning Dove	*Zenaida macroura*

Table B-3

COMMON AND SCIENTIFIC NAMES OF FISH COLLECTED AT NAS CECIL FIELD BY THE U.S. FISH AND WILDLIFE SERVICE IN 1986

Common Name	Scientific Name
American Eel	*Anguilla rostrata*
Lake Chubsucker	*Erimyzon sucetta*
Redfin Pickerel	*Esox americanus*
Longnose Killifish	*Fundulus similis*
Mosquitofish	*Gambusia affinis*
Brown Bullhead	*Ictalurus nebolosus*
Channel Catfish	*Ictalurus punctatus*
Brook Silverside	*Labidesthes sicculus*
Florida Gar	*Lepisosteus platyrhincus*
Warmouth	*Lepomis gulosus*
Bluegill	*Lepomis macrochirus*
Dollar Sunfish	*Lepomis marginatus*
Redear Sunfish	*Lepomis microlophus*
Largemouth Bass	*Micropterus salmoides*
Golden Shiner	*Notemigonus crysoleucas*

Table B-4

COMMON AND SCIENTIFIC NAMES OF MAMMALS THAT OCCUR OR MAY OCCUR AT NAS CECIL FIELD

Common Name	Scientific Name
Southern Short-tailed Shrew	*Blarina carolinensis*
Eastern Coyote	*Canis latrans*
Beaver	*Castor canadensis*
Least Shrew	*Cryptotis parva*
Nine-banded Armadillo	*Dasypus novemcinctus*
Opossum	*Didelphis marsupialis*
Big Brown Bat	*Eptesicus fuscus*
Southeastern Pocket Gopher	*Geomys pinetis*
Southern Flying Squirrel	*Glaucomys volans*
Red Bat	*Lasiurus borealis*
Hoary Bat	*Lasiurus cinereus*
Northern Yellow Bat	*Lasiurus intermedius*
Seminole Bat	*Lasiurus seminolus*
River Otter	*Lutra canadensis*
Bobcat	*Lynx rufus*
Striped Skunk	*Mephitis mephitis*
House Mouse	*Mus musculus*
Long-tailed Weasel	*Mustela frenata*
North American Mink	*Mustela vison*
Southeastern Myotis	*Myotis austroriparius*
Florida Water Rat	*Neofiber alleni*
Eastern Wood Rat	*Neotoma floridana*
Evening Bat	*Nycticeius humeralis*
White-tailed Deer	*Odocoileus virginianus*
Marsh Rice Rat	*Oryzomys palustris*
Florida Mouse	*Peromyscus floridanus*
Cotton Mouse	*Peromyscus gossypinus*
Golden Mouse	*Peromyscus nuttalli*
Old Field Mouse	*Peromyscus polionotus*

Table B-4

COMMON AND SCIENTIFIC NAMES OF MAMMALS THAT OCCUR OR MAY OCCUR AT NAS CECIL FIELD

Common Name	Scientific Name
Eastern Pipistrel	*Pipistrellus subflavus*
Pine Vole	*Pitymys pinetorum*
Rafinesque's Big-eared Bat	*Plecotus rafinesquii*
Racoon	*Procyon lotor*
Norway Rat	*Rattus norregicus*
Black Rat	*Rattus rattus*
Eastern Harvest Mouse	*Reithrodontomys humulis*
Eastern Mole	*Scalopus aquaticus*
Gray Squirrel	*Sciurus carolinensis*
Southeastern Fox Squirrel	*Sciurus niger*
Hispid Cotton Rat	*Sigmodon hispidus*
Southeastern Shrew	*Sorex longirostris*
Spotted Skunk	*Spilogale putorius*
Wild Hog	*Sus scofa*
Eastern Cottontail	*Sylvilagus floridanus*
Marsh Rabbit	*Sylvilagus palustris*
Brazilian Free-tailed Bat	*Tadarida brasiliensis*
Gray Fox	*Urocyon cinereoargenteus*
Florida Black Bear	*Ursus americanus floridanus*
Red Fox	*Vulpes fulva*

Table B-5

COMMON AND SCIENTIFIC NAMES OF REPTILES THAT OCCUR OR MAY OCCUR AT NAS CECIL FIELD

Common Name	Scientific Name
Cottonmouth	*Agkistrodon piscivorus*
American Alligator	*Alligator mississippiensis*
Green Anole	*Anolis carolinensis*
Worm Snake	*Carphophis amoenus*
Florida Scarlet Snake	*Cemophora coccinea coccinea*
Florida Snapping Turtle	*Chelydra serpentina osceola*
Florida Cooter	*Chrysemys floridana floridana*
Peninsular Cooter	*Chrysemys floridana peninsularis*
Florida Red-bellied Turtle	*Chrysemys nelsoni*
Spotted Turtle	*Clemmys guttata*
Six-lined Racerunner	*Cnemidophorus sexlineatus*
Southern Black Racer	*Coluber constrictor priapus*
Eastern Diamondback Rattlesnake	*Crotalus adamanteus*
Florida Chicken Turtle	*Deirochelys reticularia chrysea*
Southern Ringneck Snake	*Diadophis punctatus punctatus*
Eastern Indigo Snake	*Drymarchon corais couperi*
Yellow Rat Snake	*Elaphe obsoleta quadrivittata*
Peninsular Mole Skink	*Eumeces egregius onocrepis*
Northern Mole Skink	*Eumeces egregius similus*
Southeastern Five-lined Skink	*Eumeces inexpectatus*
Broadhead Skink	*Eumeces laticeps*
Eastern Mud Snake	*Farancia abacura*
Rainbow Snake	*Farancia erytrogramma*
Gopher Tortoise	*Gopherus polyphemus*
Mediterranean Gecko	*Hemidactylus turcicus*
Eastern Hognose Snake	*Heterodon platyrhinos*
Southern Hognose Snake	*Heterodon simus*
Striped Mud Turtle	*Kinosternon bauri*
Florida Mud Turtle	*Kinosternon subrubrum steindachneri*

Table B-5

COMMON AND SCIENTIFIC NAMES OF REPTILES THAT OCCUR OR MAY OCCUR AT NAS CECIL FIELD

Common Name	Scientific Name
Florida Kingsnake	*Lampropeltis getulus floridana*
Scarlet Kingsnake	*Lampropeltis triangulum*
Eastern Coachwhip	*Masticophis flagellum*
Eastern Coral Snake	*Micrurus fulvius fulvius*
Sand Skink	*Neoseps reynoldsi*
Florida Green Water Snake	*Nerodia cyclopion floridana*
Red-bellied Water Snake	*Nerodia erythrogaster*
Florida Water Snake	*Nerodia fasciata pictiventris*
Brown Water Snake	*Nerodia taxispilota*
Rough Green Snake	*Opheodrys aestivus*
Eastern Slender Glass Lizard	*Ophisaurus attenuatus longicaudus*
Island Glass Lizard	*Ophisaurus compressus*
Eastern Glass Lizard	*Ophisaurus ventralis*
Florida Pine Gopher Snake	*Pituophis melanoleucus*
Striped Crayfish Snake	*Regina alleni*
Glossy Crayfish Water Snake	*Regina rigida*
Pine Woods Snake	*Rhadinaea flavilata*
Worm Lizard	*Rhineura floridana*
Southern Fence Lizard	*Sceloporus undulatus*
Florida Scrub Lizard	*Sceloporus woodi*
Ground Skink	*Scinella lateralis*
Swamp Snake	*Seminatrix pygaea*
Loggerhead Musk Turtle	*Sternotherus minor minor*
Stinkpot	*Sternotherus odoratus*
Short-tailed Snake	*Stilosoma extenuatum*
Florida Red-bellied Snake	*Storeria occipitomaculata*
Central Florida Crown Snake	*Tantilla relicta neilli*
Florida Box Turtle	*Terrapene carolina bauri*
Peninsular Ribbon Snake	*Thamnophis sauritus sackeni*

Table B-5

COMMON AND SCIENTIFIC NAMES OF REPTILES THAT OCCUR OR MAY OCCUR AT NAS CECIL FIELD

Common Name	Scientific Name
Eastern Garter Snake	*Thamnophis sirtalis*
Florida Softshell	*Trionyx ferox*
Eastern Smooth Earth Snake	*Virginia valeriae*

Table B-6

COMMON AND SCIENTIFIC NAMES OF PLANTS THAT OCCUR OR MAY OCCUR AT NAS CECIL FIELD

Common Name	Scientific Name
Trees	
Florida Maple	*Acer barbatum*
Red Maple	*Acer rubrum*
Silver Maple	*Acer saccharinum*
American Hornbeam	*Carpinus caroliniana*
Pignut Hickory	*Carya glabra*
Mockernut Hickory	*Carya tomentosa*
Hackberry	*Celtis spp.*
Redbud	*Cercis canadensis*
Flowering Dogwood	*Coernus florida*
Persimmon	*Diospyros virginiana*
Loblolly Bay	*Gorddonia lasianthus*
Red Cedar	*Juniperus virginiana*
Sweetgum	*Liquidambar styraciflua*
Southern Magnolia	*Magnolia gradiflora*
Sweetbay	*Magnolia virginiana*
Red Mulberry	*Morus rubra*
Blackgum	*Nyssa biflora*
Black Gum	*Nyssa sylvatica*
Eastern Hophornbeam	*Ostrya virginiana*
Redbay	*Persea borbonia*
Sand Pine	*Pinus clausa*
Shortleaf Pine	*Pinus echinata*
Slash Pine	*Pinus elliotii*
Spruce Pine	*Pinus glabra*
Longleaf Pine	*Pinus palustris*
Loblolly Pine	*Pinus taeda*
Laurel Cherry	*Prunus caroliniana*
Black Cherry	*Prunus serotina*

Table B-6

COMMON AND SCIENTIFIC NAMES OF PLANTS THAT OCCUR OR MAY OCCUR AT NAS CECIL FIELD

Common Name	Scientific Name
White Oak	*Quercus alba*
Bluejack Oak	*Quercus incana*
Laurel Oak	*Quercus laurifolia*
Turkey Oak	*Quercus laevis*
Sand Post Oak	*Quercus margaretta*
Blackjack Oak	*Quercus marlandica*
Swamp Chestnut Oak	*Quercus michauxii*
Chinkapin Oak	*Quercus muehlenbergii*
Water Oak	*Quercus nigra*
Runner Oak	*Quercus pumila*
Post Oak	*Quercus stellata*
Live Oak	*Quercus virginiana*
Cabbage Palm	*Sabal palmetto*
Willow	*Salix caroliniana*
Bald Cypress	*Taxodium distichum*
Pond Cypress	*Taxodium distichum var. nutans*
Basswood	*Tilia spp.*
Winged Elm	*Ulmus alata*
Florida Elm	*Ulmus americana v. floridana*
Slippery Elm	*Ulmus rubra*
Shrubs	
Devil's Walking Stick	*Aralia spinosa*
Tar Flower	*Befaria racemosa*
Gum Bumelia	*Bumelia lanuginosa*
Beautyberry	*Callicarpa americana*
Sedges	*Carex spp.*
Buttonbush	*Cephalanthus occidentalis*
Fringe-tree	*Chionanthus virginica*
Buckwheat	*Cliftonia monophylla*

Table B-6

COMMON AND SCIENTIFIC NAMES OF PLANTS THAT OCCUR OR MAY OCCUR AT NAS CECIL FIELD

Common Name	Scientific Name
Titi	*Cyrilla racemiflora*
Strawberry Bush	*Euonymus americanus*
Huckleberry	*Gaylussacia spp.*
Silverbells	*Halesia spp.*
St. John's Wort	*Hypericum spp.*
Carolina Holly	*Ilex ambigua*
Dahoon	*Ilex cassine*
Gallberry	*ilex glabra*
Myrtle Dahoon	*Ilex myrtifolia*
American Holly	*Ilex opaca*
Yaupon	*Ilex vomitoria*
Wild Indigo	*Indigofera spp.*
Gopher Apple	*Licania michauxii*
Stagger Bush	*Lyonia spp.*
Fetterbush	*Lyonia lucida*
Wax Myrtle	*Myrica cerifera*
Wild Olive	*Osmanthus americana*
Winged Sumac	*Rhus copallina*
Blue Stem Palmetto	*Sabal minor*
Sassafras	*Sassafras albidum*
Saw Palmetto	*Serenoa repens*
Horse Sugar	*Symplocos tinctoria*
Sparkleberry	*Vaccinium arboreum*
Blueberry	*Vaccinium spp.*
Herbaceous	
False Foxglove	*Agalinis spp.*
Alligator Weed	*Alternanthera philoxeroides*
Broomsedge	*Andropogon virginicus*
Wiregrass	*Aristida spp.*

Table B-6

COMMON AND SCIENTIFIC NAMES OF PLANTS THAT OCCUR OR MAY OCCUR AT NAS CECIL FIELD

Common Name	Scientific Name
Cane	*Arundinaria gigantea*
Asters	*Aster spp.*
Yellow Foxglove	*Aureolaria flava*
Water Hyssop	*Bacopa caroliniana*
Deer Tongue	*Carphephorus paniculatus*
Partridge Pea	*Cassias fasciculata*
Golden Aster	*Chrysopsis spp.*
Swamp Lilies	*Crinum americanum*
Sundew	*Drosera capillaris*
Spikerush	*Eleocharis spp.*
Beech Drops	*Epifagus virginiana*
Pinhead	*Eriocaulon spp.*
Wild Buckwheat	*Eriogonum tomentosum*
Dogfennel	*Eupatorium capillifolium*
Milk Peas	*Galactia spp.*
Bedstraw	*Galium spp.*
Yellow Jessamine	*Gelsemium spp.*
Dollarweeds	*Hydrocotyle spp.*
Bog Buttons	*Lachnocaulon spp.*
Pine Lily	*Lilium catesbaei*
Frog Bit	*Limnobium spongia*
Partridgeberry	*Mitchella repens*
Cinnamon Fern	*Osmunda cinnamonea*
Royal Fern	*Osmunda regalis*
Cutthroat Grass	*Panicum abscissum*
Smart Weed	*Polygonum hydropiperiodes*
Pickerel Weed	*Pontederia lanceolata*
Bracken Fern	*Pteridium aquilinum*
Pitcher Plants	*Sarracenia spp.*

Table B-6

COMMON AND SCIENTIFIC NAMES OF PLANTS THAT OCCUR OR MAY OCCUR AT NAS CECIL FIELD

Common Name	Scientific Name
Lizard's Tail	*Saururus cernuus*
Bullrush	*Scirpus spp.*
Greenbriar	*Smilax spp.*
Sarsaparilla vine	*Smilax pumila*
Goldenrod	*Solidago spp.*
Indian Grass	*Sorghastrum spp.*
Sphagnum Moss	*Sphagnum spp.*
Pinewoods Dropseed	*Sporobolus junceus*
Queen's Delight	*Stillingia sylvatica*
Trilliums	*Trillium spp.*
Goat's Rue	*Tephrosia virginiana*
Cattail	*Typha spp.*
Yellow-eyed Grass	*Xyris spp.*

C Agency Correspondence

United States Department of the Interior

FISH AND WILDLIFE SERVICE
6620 Southpoint Drive, South
Suite 310
Jacksonville, Florida 32216-0912

NOV 16 1994

Mr. Michael P. Losito, Ph.D.
Ecology and Environment, Inc.
Buffalo Corporate Center
368 Pleasantview Drive
Lancaster, NY 14086

RE: Information on Listed Species, Cecil Field NAS

FWS Log No: 1-4-95-067F
Request Date: November 4, 1994
Applicant: Ecology and Environment, Inc.
Counties: Clay and Duval

Dear Dr. Losito:

This responds to your above referenced letter requesting a list of federally threatened and endangered species that may be present within the areas specified. Data on site-specific occurrence of listed species is limited, therefore, your office may have to make a determination of occurrence. I have enclosed a list of designated species for the counties specified. The enclosed list does not include state listed species. The Florida Game and Fresh Water Fish Commission should be contacted to identify state listed species that may be present at this location. Additionally, you may wish to contact Mr. Hank Cockran, Environmental Department, Cecil Field NAS.

If you have further questions, please contact Mr. Marc Epstein at 904-232-2580.

Sincerely yours,
Michael M. Bentzien
Acting Field Supervisor

Enclosures

FLORIDA

FEDERALLY LISTED THREATENED AND ENDANGERED SPECIES,
AND CANDIDATE SPECIES

January 1994

COUNTY: DUVAL		
Bat, Rafinesque's Big-eared = Southeastern	*Plecotus rafinesquii*	C2
Bear, Florida Black	*Ursus americanus floridanus*	C2
Butterfly, Sweadner's Olive Hairstreak	*Mitoura gryneus sweadneri*	C2
Crayfish, Black Creek	*Procambarus pictus*	C2
Crownbeard, Variable-leaf	*Verbesina heterophylla*	C2
Eagle, Bald	*Haliaeetus leucocephalus*	E
Frog, Florida Crawfish = Gopher	*Rana areolata aesopus*	C2
Groove-bur, Incised	*Agrimonia incisa*	
Kestrel, Southeastern	*Falco sparverius paulus*	C2
Ladies-tresses, Green	*Spiranthes polyantha*	C2
Manatee, West Indian	*Trichechus manatus latirostris*	E/CH
Milkweed, Florida	*Matelea floridana*	C2
Milkweed, Southern	*Asclepias viridula*	C2
Plover, Piping	*Charadrius melodus*	T
Rail, Black	*Laterallus jamaicensis*	C2
Salamander, Flatwoods	*Ambystoma cingulatum*	C2
Sandgrass, Curtiss'	*Calamovilfa curtisii*	C2
Skipper, Eastern Beard Grass	*Atrytone arogos arogos*	C2

FLORIDA

FEDERALLY LISTED THREATENED AND ENDANGERED SPECIES, AND CANDIDATE SPECIES

January 1994

Snake, Eastern Indigo	*Drymarchon corais couperi*	T
Snake, Florida Pine	*Pituophis melanoleucus mugitus*	C2
Sparrow, Bachman's	*Aimophila aestivalis*	C2
Squirrel, Sherman's Fox	*Sciurus niger shermani*	C2
Stork, Wood	*Mycteria americana*	E
Sturgeon, Shortnose	*Acipenser brevirostrum*	E
Sunflower, Lake-side	*Helianthus carnosus*	C2
Tortoise, Gopher	*Gopherus polyphemus*	C2
Turtle, Green Sea	*Chelonia mydas*	T
Turtle, Hawksbill Sea	*Eretmochelys imbricata*	E
Turtle, Kemp's Ridley Sea	*Lepidochelys kempii*	E
Turtle, Leatherback Sea	*Dermochrlys coriacea*	E
Turtle, Loggerhead Sea	*Caretta caretta*	T
Woodpecker, Red-cockaded	*Picoides borealis*	E

FLORIDA

FEDERALLY LISTED THREATENED AND ENDANGERED SPECIES,
AND CANDIDATE SPECIES

January 1994

COUNTY: CLAY		
Bat, Rafinesque's Big-eared = Southeastern	*Plecotus rafinesquii*	C2
Bear, Florida Black	*Ursus americanus floridanus*	C2
Coneflower, Yellow (St. Johns Susan)	*Rudbeckia nitida*	C2
Crayfish, Black Creek	*Procambarus pictus*	C2
Crownbeard, Variable-leaf	*Verbesina heterophylla*	C2
Eagle, Bald	*Haliaeetus leucocephalus*	E
Frog, Florida Crawfish = Gopher	*Rana areolata aesopus*	C2
Hartwrightia	*Hartwrightia floridana*	C2
Jay, Florida Scrub	*Aphelocoma coerulescens coerulescens*	T
Kestrel, Southeastern American	*Falco sparverius paulus*	C2
Manatee, West Indian	*Trichechus manatus latirostris*	E/CH
Mouse, Florida	*Podomys floridanus*	C2
Muskrat, Round-tailed	*Neofiber alleni*	C2
Rail, Black	*Laterallus jamaicensis*	C2
Rhododendron, Chapman's	*Rhododendron chapmanii*	E
Skipper, Eastern Beard Grass	*Atrytone arogos arogor*	C2
Snake, Eastern Indigo	*Drymarchon corais couperi*	T
Snake, Florida Pine	*Pituophis melanoleucus mugitus*	C2

FLORIDA

FEDERALLY LISTED THREATENED AND ENDANGERED SPECIES, AND CANDIDATE SPECIES

January 1994

Sparrow, Bachman's	*Aimophila aestivalis*	C2
Spiny-pod, Florida	*Matelea floridana*	C2
Squirrel, Sherman's Fox	*Sciurus niger shermani*	C2
Stork, Wood	*Mycteria americana*	E
Sturgeon, Shortnose	*Acipenser brevirostrum*	E
Sunflower, Lake-side	*Helianthus carnosus*	C2
Tortoise, Gopher	*Gopherus polyphemus*	C2
Woodpecker, Red-cockaded	*Picoides borealis*	E

FLORIDA NATURAL AREAS INVENTORY

1018 Thomasville Road. Suite 200-C • Tallahassee, Florida 32303 • (904) 224-8207

13 December 1994

Ms. Elva Peppers
Ecology and Environment, Inc.
1203 Governor's Square Blvd.
Tallahassee, FL 32301

Dear Ms. Peppers,

This letter is in reference to your request for information from the Florida Natural Areas Inventory (FNAI). Enclosed are the "Element Occurrence Records" of species found on the Baldwin, Fiftone and Marietta 7.5 minute U.S.G.S. quadrangles. Also enclosed is an element occurence explanation sheet and a rank explanation sheet defining the FNAI Global/State Ranking and Federal/State legal status of each element.

The quantity and quality of data collected by the Florida Natural Areas Inventory are dependent on the research and observations of many individuals and organizations. In most cases, this information is not the result of comprehensive or site specific field surveys. Many natural areas in Florida have never been thoroughly surveyed, and new species of plants and animals are still being discovered. **For these reasons, the FNAI cannot provide a definitive statement on the presence, absence or condition of biological elements in any part of Florida.** Florida Natural Areas Inventory reports summarize the existing information known to FNAI at the time of the request. **They should never be regarded as final statements on the elements or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments.**

Information provided by this data base may not be published without prior written notification to the Florida Natural Areas Inventory and FNAI must be credited as an information source in these publications. FNAI data may not be resold for profit.

I hope this information is of use to you. Please call if you have any questions or if I can be of further assistance to you.

Sincerely,

Susan Hortenstine
Research Assistant
Environmental Review

Enclosures

C:\SUE\INVOICE\DUVA.PEP

scientific name: VERBESINA HETEROPHYLLA
common name: VARIABLE-LEAF CROWNBEARD

grank: G2 federal status: C2
srank: S2 state status: N

date last observed:
county name: Duval

quad name: FIFTONE

township and range: 003S024E section: 26 precision: M
town/range comments:

general desc.: SANDHILL. ASSOCIATED SPECIES QUERCUS LAEVIS, Q. INCANA, SERENOA REPENS, ARISTIDA SPECIES AND SPOROBOLUS JUNCEUS.

EO data:

managed area name: CECIL FIELD NAVAL AIR STATION

owner: US: DOD
owner comments:

best source: ENVIRONMENTAL SERVICES AND PERMITTING. 1990. ENDANGERED SPECIES SURVEY AT THE JACKSONVILLE FLORIDA NAVAL COMPLEX.

eonum.: 003

data sens.:

scientific name: SALPINGOSTYLIS COELESTINA
common name: BARTRAM'S IXIA

grank: G2 federal status: 3C
srank: S2 state status: LE

date last observed: 1990-06
county name: Duval

quad name: FIFTONE

township and range: 003S024E section: 34 precision: M
town/range comments: SW4 of NW4

general desc.:

EO data: Only one or a few plants seen.

managed area name: CECIL FIELD NAVAL AIR STATION

owner: U.S. Navy, U. S. Dept. of Defense
owner comments:

best source: Environmental Services and Permitting, Inc, P.O. Box 5489, Gainesville, FL 32602 (904/462-4334). Endangered species survey at the Jacksonville, Florida Naval Complex. 17 August 1990. Submitted to: Commanding officer, Southern Naval facillities engineering command (code 243), 2155 Eagle Drive, P.O. Box 10068, Charleston, SC 29411-0068.

eonum.: 061

data sens.:

scientific name: CTENIUM FLORIDANUM
common name: FLORIDA TOOTHACHE GRASS

grank: G2 federal status: 3C
srank: S2 state status: N

date last observed:
county name: Duval

quad name: FIFTONE

township and range: 003S024E section: 35 precision: M
town/range comments:

general desc.: ECOTONE BETWEEN SLASH PINE PLANTATION AND SANDHILL. CANOPY COVER WAS LOW AND AREA SUBJECT TO PERIODIC CONTROLLED BURNING. ASSOCIATED PLANTS-SLASH PINE, PINELAND THREEAWN, FLORIDA THREEAWN, FLORIDA DROPSEED, SAND BLACKBERRY.

EO data:

managed area name: CECIL FIELD NAVAL AIR STATION

owner: US: DOD
owner comments:

best source: ENVIRONMENTAL SERVICES AND PERMITTING. 1990. ENDANGERED SPECIES SURVEY AT THE JACKSONVILLE FLORIDA NAVAL COMPLEX.

eonum.: 004

data sens.:

scientific name: DROSERA INTERMEDIA
common name: SPOON-LEAVED SUNDEW

grank: G5 federal status: N
srank: S3 state status: LT

date last observed:
county name: Duval

quad name: BALDWIN

township and range: 003S024E section: 08 precision: S
town/range comments:

general desc.: DRAINAGE DITCH. ASSOCIATED SPECIES: DROSERA CAPILLARIS, GRATIOLA RAMOSA, XYRIS ELLIOTTII, PANICUM HEMITOMON.

EO data:

managed area name: CECIL FIELD NAVAL AIR STATION

owner:
owner comments:

best source: ENVIRONMENT SERVICES AND PERMITTING. 1990. ENDANGERED SPECIES SURVEY AT THE JACKSONVILLE FLORIDA NAVAL COMPLEX.

eonum.: 039

data sens.:

scientific name: AMBYSTOMA CINGULATUM
common name: FLATWOODS SALAMANDER

grank: G2G3 federal status: C2
srank: S2S3 state status: N

date last observed: 1982-02-20
county name: Duval

quad name: BALDWIN

township and range: 002S024E section: 29 precision: M
town/range comments: TRS GIVEN

general desc.: 1993: DENSE, UNBURNED PINUS ELLIOTTII PLANTATIONS OF VARYING AGES.

EO data: WHITE COLLECTED 1 ADULT-SIZED SPECIMEN (UNCAT., UF) ON 20 FEB 1982.

managed area name:

owner: (UNKNOWN)
owner comments: PERHAPS IN U.S. NAVAL AIR STATION: CECIL FIELD - RFN

best source: WHITE, D.J. 20 FEB 1982. SPECIMEN UNCAT. SM.

eonum.: 003

data sens.:

extreme NW corner of Yellow Water

scientific name: ARISTIDA RHIZOMOPHORA
common name: FLORIDA THREEAWN

grank: G2 federal status: N
srank: S2 state status: N

date last observed: 1990-06
county name: Duval

quad name: BALDWIN

township and range: 002S024E section: 34 precision: M
town/range comments: NE4 of SE4

general desc.: Relatively dry flatwoods.

EO data: Grass is a dominant in flatwoods/pine plantation areas on the base.

managed area name: CECIL FIELD NAVAL AIR STATION

owner: U.S. Navy, U. S. Dept. of Defense
owner comments:

best source: Endangered species survey at the Jacksonville, Florida Naval Complex. 17 August 1990. Submitted to: Commanding officer, Southern Naval facillities engineering command (code 243), 2155 Eagle Drive, P.O. Box 10068, Charleston, SC 29411-0068. Submitted by: Environmental Services and Permitting, Inc., P.O. Box 5489, Gainesville, FL 32602 (904/462- 4334).

eonum.: 014

data sens.:

Yellow Water mar # 5

FLORIDA NATURAL AREAS INVENTORY - ELEMENT OCCURRENCE RECORD
12/12/94

scientific name: ARISTIDA RHIZOMOPHORA
common name: FLORIDA THREEAWN

grank: G2 federal status: N
srank: S2 state status: N

date last observed: 1990-06
county name: Duval

quad name: FIFTONE

township and range: 003S024E section: 34 precision: M
town/range comments: SE4 of NE4. SEE ALSO SECTION 35.

general desc.: Relatively dry flatwoods.

EO data: Grass is a dominant in flatwoods/pine plantation areas on the base.

managed area name: CECIL FIELD NAVAL AIR STATION

owner: U.S. Navy, U. S. Dept. of Defense
owner comments:

best source: Endangered species survey at the Jacksonville, Florida Naval Complex submitted to: Commanding officer, Southern Naval facillities engineering command (code 243), 2155 Eagle Drive, P.O. Box 10068, Charleston, SC 29411-0068. Submitted by: Environmental Services and Permitting, Inc., P.O. Box 5489, Gainesville, FL 32602 (904/462-4334).

eonum.: 012

data sens.:

Cecil Field mar # 13

scientific name: ARISTIDA RHIZOMOPHORA
common name: FLORIDA THREEAWN

grank: G2 federal status: N
srank: S2 state status: N

date last observed: 1990-05-07
county name: Duval

quad name: BALDWIN

township and range: 002S024E section: 03 precision: M
town/range comments:

general desc.:

EO data: A dense colony under scattered Pinus palustris; associated plants: Aristida stricta [beyrichianal], Physostegia purpurea; sterile.

managed area name: WHITEHOUSE NAVAL OUTLYING FIELD

owner:
'ner comments:

best source: Drummond, M. (s.n.) 1990. SF (206080).

eonum.: 016

data sens.:

Whitehouse mar # 6

scientific name: ARISTIDA RHIZOMOPHORA
common name: FLORIDA THREEAWN

grank: G2 federal status: N
srank: S2 state status: N

date last observed: 1990-06
county name: Duval

quad name: MARIETTA

township and range: 001S024E section: 35 precision: M
town/range comments:

general desc.: Relatively dry flatwoods.

EO data: Grass is a dominant in flatwoods/pine plantation areas on all portions of the base surveyed except Naval Air Station Jacksonville.

managed area name: WHITEHOUSE NAVAL OUTLYING FIELD

owner: U.S. Navy, U. S. Dept. of Defense
owner comments:

best source: Environmental Services and Permitting, Inc, P.O. Box 5489, Gainesville, FL 32602 (904/462-4334). Endangered species survey at the Jacksonville, Florida Naval Complex. 17 August 1990. Submitted to: Commanding officer, Southern Naval facillities engineering command (code 243), 2155 Eagle Drive, P.O. Box 10068, Charleston, SC 29411-0068.

eonum.: 015

data sens.:

OLF whitehouse near runc 1

United States Department of the Interior

FISH AND WILDLIFE SERVICE
6620 Southpoint Drive, South
Suite 310
Jacksonville, Florida 32216-0912

RECEIVED
FEB [illegible] 1995
TALLAHASSEE

FEB 17 1995

Brenda A. Powell, Project Biologist
Ecology and Environment, Inc.
1203 Governor's Square Blvd.
Tallahassee FL 32301

RE: Information on Listed Species, Cecil Field NAS

FWS Log No: 1-4-94-067F
Request Date: February 7, 1995
Applicant: Ecology and Environment, Inc.
Counties Clay and Duval

Dear Ms. Powell:

This responds to your above referenced letter regarding federally threatened and endangered species that may be present within the areas specified. We are very much interested in any impacts that the closure of the Cecil Field NAS may have on listed species. Your survey methodology seems appropriate; however, specific information regarding "walkover" surveys may be necessary to evaluate the results. This would include the number of surveys conducted, time of day, season, or other pertinent information.

Additionally, you may want to include surveys for the flatwoods salamander (*Ambystoma cingulatum*) and Bachman's sparrow (*Aimophila aestivalis*), which are listed C2 candidate species. Knowledge of occurrence of any listed species would be important. A list of designated species for the counties specified was previously provided to Dr. Michael P. Losito (FWS Log. No. 1-4-95-067F).

If you have further questions, please contact Mr. Marc Epstein at 904-232-2580.

Sincerely yours,

Michael M. Bentzien

Michael M. Bentzien
Assistant Field Supervisor

FLORIDA GAME AND FRESH WATER FISH COMMISSION

MARLIN HILLIARD
Clewiston

J. BEN ROWE
Gainesville

JULIE K. MORRIS
Sarasota

QUINTON L. HEDGEPETH, DDS
Miami

MRS. GILBERT W. HUMPHREY
Miccosukee

ALLAN L. EGBERT, Ph.D., Executive Director
WILLIAM C. SUMNER, Assistant Executive Director

Wildlife Research Laboratory
4005 South Main Street
Gainesville, FL 32601-9099
(904)955-2230 Fax(904)376-5359

March 7, 1995

Rick Whitney
ecology and environment, inc.
Buffalo Corporate Center
368 Pleasant View Drive
Lancaster, New York 14086

Dear Mr. Whitney:

None of the three shed skins that you sent came from indigo snakes. Skin number 1 appears to be a pine snake, *Pituophis melanoleucus*. Unfortunately, such diagnostic characters as the anal plate and head are missing or badly damaged, but the size, coloration, and scale row number pretty much rule out everything else. In any event, it is clearly not an indigo snake.

Skin 3 appears to be a coachwhip, *Masticophis flagellum*. The divided anal plate is sufficient to rule out indigo snake. Skin 2 may also be a coachwhip, or it could be a racer, *Coluber constrictor*, it's a bit too fragmented to really tell. As with the other two, though, it is clearly not from an indigo snake.

Give me a call if you have any questions.

Sincerely,

Paul E. Moler

Paul E. Moler
Biological Administrator I

WLD 9-3-5

FLORIDA DEPARTMENT OF STATE
Sandra B. Mortham
Secretary of State
DIVISION OF HISTORICAL RESOURCES
R.A. Gray Building
500 South Bronough Street
Tallahassee, Florida 32399-0250

Director's Office
(904) 488-1480

Telecopier Number (FAX)
(904) 488-3353

August 15, 1995

Commanding Officer
Department of the Navy
Southern Division
Naval Facilities Engineering Command
Post Office Box 10068
Charleston, SC 294110068

In Reply Refer To:
Laura A. Kammerer
Historic Preservationist Supervisor
(904) 487-2333
Project File No. 952269

ATTN: Don Couch (203DC)

RE: Draft Report Review
Cultural Resources Assessment for Base Closure and Realignment, NAS Cecil Field, Jacksonville, Florida. Ecology and Environment, Inc., 1995
Duval County, Florida.

Dear Commander:

In accordance with the procedures contained in 36 CFR, Part 800 ("Protection of Historic Properties"), we have reviewed the referenced draft inventory report and find it very thorough and sufficient. We note that 19 archaeological sensitivity areas were identified, one historic cemetery was recorded, and 533 buildings/structures were evaluated. Please ensure that your consultant includes a Survey Log Sheet and survey area map with the final copy (see attachment).

This office has reviewed the research and reconnaissance survey data submitted for the potential archaeological resources and concurs with the archaeologist's findings and recommendations regarding the 19 sensitivity areas that will require additional evaluation to identify resources eligible for listing in the *National Register of Historic Places*, and to eliminate areas that contain no archaeological resources.

In addition, we have reviewed the building survey data and the Historical Structure Forms and photographs submitted with the draft report. We concur with the findings and recommendations that none of the buildings/structures are eligible for listing in the National Register

If you have any questions concerning our comments, please do not hesitate to contact us. Your interest in protecting Florida's historic properties is appreciated.

Sincerely,

Laura A. Kammerer

for George W. Percy, Director
Division of Historical Resources
and
State Historic Preservation Officer

GWP/Klk
Enclosures (2)

United States Department of the Interior

FISH AND WILDLIFE SERVICE
6620 Southpoint Drive South
Suite 310
Jacksonville, Florida 32216-0912

IN REPLY REFER TO:
FWS/R4/ES-JAFL

AUG 20 1998

Mr. L.M Pitts
Department of the Navy, Southern Division
Naval Facilities Engineering Command
P.O. Box 190010
2155 Eagle Drive
North Charleston, North Carolina 29419-9010

1100
Code 064RT

FWS No: 98-840E

Dear Mr. Pitts:

This responds to your letter of August 12, 1998, pursuant to section 7 of the Endangered Species Act of 1973, as amended (Act)(16 U.S.C. 1531 *et seq.*). The Navy evaluated the effect of closing and subsequently transferring Cecil Field Naval Air Station in Jacksonville, Florida to Duval County on the following federally threatened, endangered and proposed species; wood stork, bald eagle, red-cockaded woodpecker, Florida scrub-jay, eastern indigo snake, and the proposed flatwoods salamander, and determined that the closing and transfer would have no effect on the listed species, and would not be likely to jeopardize the continued existence for the proposed species.

The Federal action in this instance is the closing and transferring of the facility to the county. In turn the county may develop portions of the installation following a conceptual plan. In the biological assessment prepared for the Draft Environmental Impact Statement, there is a figure showing the Preferred Reuse Plan. Primarily, the proposed development sites are located on the northwest portion of the property. Much of site will remain in conservation, forestry, parks and recreation.

Based on our review of the Navy's proposal to close and transfer Cecil Field to the county, the Service believes the project is not likely to adversely affect the above listed species. At such time development, either by the county or other public or private entities is proposed, the Service will further evaluate potential impacts to the above listed species. Each project will be evaluated on a

AUG-

case-by-case basis. This review will be conducted either through additional section 7 consultations with other Federal agencies, such as the Corps of Engineers, or if a Federal agency is not involved, the applicant will apply to the Service for a section 10(a)(1)(B) permit, in accordance with the Endangered Species Act of 1973, as amended if Incidental Take is anticipated.

Although this does not represent a biological opinion as described in section 7 of the Act, it does fulfill the requirements of the Act and no further action is required. If modifications are made in the project or additional information becomes available on listed species, reinitiation of consultation may be required.

Sincerely yours,

/s/ PMB

Michael M. Bentzien
Assistant Field Supervisor

s:\share\palmer\98-840\08.19.98\ets

D

Biological Assessment
Naval Air Station (NAS) Cecil Field, Jacksonville, Florida

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1 Introduction

As required by Section 7 of the Endangered Species Act (ESA), this report discusses potential occurrences of individuals and/or suitable habitat for federally endangered and threatened species and candidate animal and plant species (hereafter referred to as listed species) at Naval Air Station (NAS) Cecil Field, Jacksonville, Florida, that may be affected by disposal and subsequent reuse of NAS Cecil Field. This report provides appropriate federal and state agencies with sufficient information to understand the proposed action and its potential impacts on listed species.

The United States Fish and Wildlife Service (USFWS) was consulted with regard to the occurrence of federally listed species at NAS Cecil Field (Bentzien 1994) (see Attachment A). Certain species have been eliminated from further consideration in this report because they require habitats that do not occur at NAS Cecil Field (e.g., beaches, mudflats, marine waters). The remaining federally listed species are included in this biological assessment (see Table D-1). Because the proposed disposal and reuse of NAS Cecil Field is a federal action, it is exempt from state regulations related to listed species and is not required to include state-listed species. However, most of the federally listed species discussed are also identified by the Florida Department of Environmental Protection (FDEP), the Florida Game and Fresh Water Fish Commission (FGFWFC), and the Florida Department of Agriculture (FDA) as state-listed endangered or threatened species or species of special concern.

It should be noted that USFWS revised its listings of federally listed species in April 1996. Several of these species were included in this biological assessment. For purposes of this analysis, species that retained their state status are presented in Table D-1.

Information and conclusions in this report are based on consultations with USFWS, FGFWFC, Florida Natural Areas Inventory (FNAI), NAS Cecil Field personnel, and local experts; review of scientific and other literature; and previous field surveys of listed species conducted at NAS Cecil Field. In addition, a biological field survey of threatened

Table D-1

STATUS OF FEDERAL- AND STATE-LISTED SPECIES OF CONCERN THAT OCCUR OR POTENTIALLY OCCUR IN DUVAL AND CLAY COUNTIES

Species		Status	
Common Name	**Scientific Name**	**USFWS**	**FGFWFC/FDA[a]**
Mammals			
Florida Black Bear	*Ursus americanus floridanus*	Not listed[b]	T
Florida Mouse	*Podomys floridanus*	Not listed[b]	SSC
Sherman's Fox Squirrel	*Sciurus niger shermani*	Not listed[b]	SSC
Southeastern Big-eared Bat	*Plecotus rafinesquii*	C2	Not listed
West Indian Manatee[b]	*Trichechus manatus latirostris*	E	E
Birds			
Wood Stork	*Mycteria americana*	E	E
Red-cockaded Woodpecker	*Picoides borealis*	E	T
Bald Eagle	*Haliaeetus leucocephalus*	T	T
Southeastern American Kestrel	*Falco sparverius paulus*	Not listed[b]	T
Bachman's Sparrow	*Aimophila aestivalis*	C2	Not listed
Florida Scrub Jay	*Aphelocoma coerulescens coerulescens*	T	T
Piping Plover[c]	*Charadrius melodus*	T	T
Reptiles and Amphibians			
Gopher Tortoise	*Gopherus polyphemus*	Not listed[b]	SSC
Eastern Indigo Snake	*Drymarchon corais couperi*	T	T
Florida Pine Snake	*Pituophis melanoleucus mugitus*	Not listed[b]	SSC
Florida Gopher Frog	*Rana aerolata*	Not listed[b]	SSC
Flatwoods Salamander	*Ambystoma cingulatum*	C2	Not listed
Green Sea Turtle[c]	*Chelonia mydas*	E	E
Kemp's Ridley Sea Turtle[c]	*Lepidochelys kempii*	E	E
Hawksbill Sea Turtle[c]	*Eretmochelys imbricata*	E	E
Leatherback Sea Turtle[c]	*Dermochrlys coriacea*	E	E
Loggerhead Sea Turtle[c]	*Caretta caretta*	E	E
Plants			
Southern Milkweed	*Asclepias viridula*	Not listed[b]	T
Curtiss' Sandgrass	*Calamovilfa curtissii*	Not listed[b]	T

Key at end of table.

Table D-1

STATUS OF FEDERAL- AND STATE-LISTED SPECIES OF CONCERN THAT OCCUR OR POTENTIALLY OCCUR IN DUVAL AND CLAY COUNTIES

Species		Status	
Common Name	**Scientific Name**	**USFWS**	**FGFWFC/FDA[a]**
Hartwrightia	*Hartwrightia floridana*	Not listed[b]	T
Lake-side Sunflower	*Helianthus carnosus*	Not listed[b]	E
Florida Milkweed	*Matelea floridana*	Not listed[b]	E
Chapman's Rhododendron	*Rhododendron chapmanii*	E	E
St. John's Susan	*Rudbeckia nitida*	Not listed[b]	E
Green Ladies-Tresses	*Spiranthes polyantha*	Not listed[b]	E
Variable-leaf Crownbeard	*Verbesina heterophylla*	Not listed[b]	T
Fish			
Shortnose sturgeon[c]	*Acipenser brevirostrum*	E	E

[a] The Florida Game and Fresh Water Fish Commission's status has been provided for the federally listed species only. Additional state-listed species may occur in the area; however, those species are not considered part of this biological assessment.

[b] Previously listed as a C2 species by the USFWS; removed in April 1996.

[c] Eliminated from further evaluation based on its habitat requirements and the lack of these habitats at NAS Cecil Field.

Key:

C2 = Candidate species for federal listing with some evidence of vulnerability, but for which not enough information exists to justify listing.
E = Endangered. A species in danger of extinction throughout all or a significant portion of its range.
FDA = Florida Department of Agriculture.
FGFWFC = Florida Game and Fresh Water Fish Commission.
SSC = Species of special concern.
T = Threatened. A species likely to become endangered within the foreseeable future throughout all or a significant portion of its range.
USFWS = United States Fish and Wildlife Service.

Sources: Bentzien 1994; FGFWFC 1996.

and endangered species was conducted from February 21 to March 1, 1995, to supplement and update the previous field investigations conducted at NAS Cecil Field. This survey was performed by experienced biologists from Ecology and Environment, Inc. (E & E) and the Southern Division, Naval Facilities Engineering Command (SOUTHDIV), and the results have been incorporated into this report. The following sections discuss species habitat requirements, survey methodology, survey results, potential impacts and mitigation, and conclusions. In addition, a list of references used during preparation of this report is provided in Section 7.

2 Species Descriptions

Twenty-four federal- and state-listed species may occur in the proposed project area. Four of the species listed in Table D-1 were not further evaluated based on habitat requirements and the lack of these habitats at NAS Cecil Field. In addition, USFWS determined that one species did not require further evaluation. To determine whether the project area supports individuals or suitable habitat, an extensive review of the scientific literature was conducted and local and regional experts were consulted (prior to the field survey) to identify each species' life history and habitat requirements. This section provides a brief description of the species' distributions and ranges, habitat needs (for foraging and breeding), and other biological requirements.

2.1 Mammals

Presented below are brief descriptions of the life histories and habitat requirements of the four mammal species of concern that may occur in the proposed project area: the Florida black bear, Florida mouse, Sherman's fox squirrel, and southeastern big-eared bat.

2.1.1 Florida Black Bear (*Ursus americanus floridanus*)

The Florida black bear, formerly a federal candidate species, is now a state-listed threatened species. It is a subspecies of the widespread black bear (*Ursus americanus*). At full size, this large mammal is approximately 5 feet (1.5 meters) long and 2 to 3 feet (0.6 to 0.9 meter) high at the shoulder, with a weight of 200 to 475 pounds (90.7 to 215.5 kilograms). Black bears are primarily nocturnal, solitary animals that den beneath roots, in hollow logs or trees, or wherever there is shelter. Their diet is a mixture of berries, nuts, tubers, insects, small mammals, eggs, honey, and carrion (Burt and Grossenheider 1976).

The Florida black bear is irregularly distributed throughout Florida, southern Alabama, and Georgia. There are five large conservation areas in Florida with apparently stable populations: Eglin Air Force Base, Apalachicola National Forest, Ocala National Forest, Osceola National Forest, and Big Cypress National Preserve (Cox *et al.* 1994).

Primary habitat types used by black bears include pine flatwoods, hardwood swamp, cypress swamp, cabbage palm forest, sand pine scrub, and mixed hardwood hammock, although other habitats are also used (Maehr 1992; Cox *et al.* 1994). Forested wetlands are preferentially utilized over pine flatwoods in Osceola National Forest, located approximately 30 miles (48.3 kilometers) west of NAS Cecil Field (Maehr 1992). Black bears have been known to disperse over great distances (Maehr *et al.* 1988), but less than 70% of the recorded dispersal events have encompassed more than 35 miles (56.3 kilometers; Cox *et al.* 1994).

2.1.2 Florida Mouse (*Podomys floridanus*)

The Florida mouse was formerly a federal candidate species and is a state-listed species of special concern. This large mouse closely resembles more common species of white-footed mice (*Peromyscus* spp.), except that the eyes, ears, and hind feet are comparatively larger (Layne 1992). The major distinguishing external characteristic is a different foot morphology compared with that of *Peromyscus* spp. This nocturnal mouse has white feet and a long tail, and is usually tawny or brown on the back and head. The Florida mouse feeds primarily on acorns and various other nuts and berries (Burt and Grossenheider 1976).

This species is distributed only throughout the Big Bend area and central portion of Florida; its range in northeastern Florida extends only into central Clay County and does not include Duval County (Layne 1992). Suitable habitats are restricted to fire-maintained, xeric vegetation on well-drained, sandy soils. Scrub, and to a lesser extent, sandhill are the two major habitats of this species (Layne 1992). The habitat preference is apparently related to the greater consistency of acorn production in scrub habitat compared with sandhill habitat and other xeric areas. The Florida mouse frequently uses burrows of gopher tortoises, particularly in sandhill habitats, for shelter, cover, and breeding (Layne 1992).

2.1.3 Sherman's Fox Squirrel (*Sciurus niger shermani*)

Sherman's fox squirrel, formerly a federal candidate species, is now a state-listed species of special concern. It is a subspecies of the widely distributed fox squirrel (*Sciurus niger*). This squirrel is characterized by variable body coloration ranging from all dark to all tan, with intermediate coloration. The head is typically black with a white nose and ears (Kantola 1992).

Pine seeds are the principal summer food source, and acorns constitute the bulk of the fall diet (Weigl *et al.* 1989). Pine buds, flowers, bulbs, maple samaras, fungi, and insects also comprise portions of the fox squirrel's diet at various times of the year.

Sherman's fox squirrel ranges from central Georgia to southeastern Florida west to Walton County (Cox *et al.* 1994). The fox squirrel's distribution is intimately tied to availability of a year-round food source. Therefore, areas vegetated with pines and various species of oak (turkey, southern red, blackjack, and bluejack) are preferred. Of secondary importance to the species' distribution is habitat structure. Mature longleaf pine-turkey oak sandhill is the primary habitat of Sherman's fox squirrel (Kantola 1992), although it may occur in other habitats with sufficient food supplies, nesting sites, and open ground cover (Wiegl *et al.* 1989; Wooding 1995). Areas with a sparse understory and ground cover are considered important because they permit unhindered movement and decrease cover for predators (Wooding 1995).

2.1.4 Southeastern Big-Eared Bat (*Plecotus rafinesquii*)

The southeastern big-eared bat, or Rafinesque's big-eared bat, is a federal candidate species characterized by very long ears. This medium-sized bat has long, silky fur. Tips of the hairs on the upper body parts are gray, those on the underparts white. These bats feed after dark, consuming primarily moths and other insects caught in the air or gleaned from vegetation (Humphrey 1992).

This bat species is distributed from Indiana to Virginia, and from eastern Oklahoma to Texas (Belwood 1992). In Florida, considered the southernmost part of its range, it is limited to the northern half of the peninsula and the panhandle area. In general, there is very little information regarding the distribution of this bat species in Florida (Humphrey 1992).

The southeastern big-eared bat is restricted to forested areas, such as hardwood hammocks and pine flatwoods in Florida (Moore 1949; Jennings 1958). Old buildings, shacks, tree hollows, and crevices serve as roosts during the summer. Whether members of the species migrate is unknown, but they hibernate in caves during the winter (Belwood 1992; Humphrey 1992).

2.2 Birds

Following are brief descriptions of the life histories and habitat requirements of the six bird species of concern that may occur in the proposed project area: the wood stork, red-cockaded woodpecker, bald eagle, southeastern American kestrel, Bachman's sparrow, and Florida scrub jay.

2.2.1 Wood Stork (*Mycteria americana*)

The wood stork is a state- and federally listed endangered bird species with a wing span of up to 5.5 feet (1.7 meters). Plumage is white with black flight feathers and a large, dark gray, naked head that easily distinguishes it in flight from similar species such as the white ibis and cranes (Peterson 1980). Freshwater fish 2 to 10 inches (5.1 to 25.4 centimeters) in length constitute the majority of the wood stork's diet (Ogden *et al.* 1976).

The wood stork's range includes much of the southern United States into Mexico, Central America, and South America. Aerial surveys conducted between the 1960s and the 1980s indicated three important trends in wood stork distribution: a northward shift in relative densities of nesting wood storks; an increased rate of nesting activity in artificial impoundments compared with cypress swamps; and a greater use of coastal areas for colony location (Ogden 1985).

Wood storks are typically found in marshes, swamps, mangroves, and streams. They prefer to feed in drying pools, ditches, and swampy depressions, where low water levels result in concentrations of small fish (Ogden 1985). Wood storks nest in colonies, or rookeries, typically located in cypress or mangrove swamps, although they also use tall trees in standing water of artificial impoundments and other hardwood species in swamps (Ogden 1985). They prefer to build their nests far out on upper horizontal limbs of large cypress trees (Ehrlich *et al.* 1988). The nests are constructed of sticks and have been described as "flimsy platforms" (Ehrlich *et al.* 1988) and "large bulky platforms" (Ogden 1985).

2.2.2 Red-Cockaded Woodpecker (*Picoides borealis*)

The red-cockaded woodpecker is a federally listed endangered species and a state-listed threatened species. This relatively small woodpecker (measuring approximately 7 inches [17.8 centimeters] in length) has a solid black nape and cap, a ladder back pattern, and large white cheek patches (Robbins *et al.* 1983). Wood-boring beetles and grubs constitute the bulk of its diet, but berries, fruits, and seeds are occasionally consumed.

Based on reports, the colonies nearest NAS Cecil Field are located in Cary State Forest (Powell 1995), approximately 6 miles (9.7 kilometers) north; at Camp Belding, 9 miles (14.5 kilometers) south; and in Osceola National Forest, approximately 26 miles (41.8 kilometers) northwest (Cox *et al.* 1994). In a study in North Carolina, average fledgling and adult dispersal distances from their places of origin were less than 8 and less than 2 miles (less than 12.9 and less than 3.2 kilometers), respectively (Walters *et al.* 1988).

The red-cockaded woodpecker's habitat requirements (for breeding and foraging), behavior, social organization, and population dynamics, as well as the locations of virtually all of its breeding sites, are well documented (Hooper and Lennartz 1981; DeLotelle *et al.* 1983; Jackson 1986; Lennartz *et al.* 1987; Walters *et al.* 1988; Cox *et al.* 1994). In general, this species typically occurs in large, relatively open, mature pine forests of 200 to 300 acres (80.9 to 121.4 hectares), where it excavates nesting cavities in 95- to 100-year-old longleaf pines and 75- to 80-year-old loblolly pines (Jackson *et al.* 1979; Jackson 1986). Studies have indicated that frequent fires (occurring every 3 to 5 years) are required to suppress the understory hardwood growth that makes an area unsuitable for this species (Jackson 1986). Suitable breeding and foraging habitat is very limited in the Southeast, and the amount of habitat has declined severely over the last 60 years as a result of timber harvesting practices (Jackson 1986).

2.2.3 Bald Eagle (*Haliaeetus leucocephalus*)

The bald eagle is a state- and federally listed threatened species. The adult is easily distinguished by its white head and tail, whereas immature eagles are brown and irregularly mottled with white until their fourth year. This large bird is approximately 32 inches (81.3 centimeters) long with a wing span of more than 6 feet (1.8 meters). Fish is the primary food item of the bald eagle, but small mammals (especially rabbits), waterfowl, and carrion are occasionally consumed (Ehrlich *et al.* 1988).

Although the bald eagle is distributed throughout Canada, the United States, and parts of Mexico (Green 1985), Florida supports the greatest number of bald eagle nests. In 1982, approximately 340 (23%) of the 1,482 nests in the United States were located in Florida, indicating the importance of this state to the eagle (Green 1985). Aerial surveys conducted from 1991 to 1992 recorded more than 800 nests in Florida, with concentrations around Lake George and the St. Johns River (Cox *et al.* 1994). Several nests have been observed in Clay County.

Bald eagles usually congregate along the coast, as well as in rivers and lakes located in open areas with plentiful food sources and nesting/roosting sites. Nests consist of large sticks and are located in large, sturdy trees that offer a clear flight path and high visibility of

surrounding areas. Nests are usually located within 2 miles (3.2 kilometers) of large bodies of water, the vast majority within 0.5 mile (0.8 kilometer; Green 1985).

2.2.4 Southeastern American Kestrel (*Falco sparverius paulus*)

The southeastern American kestrel, formerly a federal candidate, is a state-listed threatened subspecies of the widespread American kestrel (*Falco sparverius sparverius*). This brightly colored falcon has two black streaks, or moustaches, on each side of the head, a blue-gray patch encircling a rufous spot on top of the head, and a distinctive rufous coloration on the back. In general, the southeastern American kestrel is the size of a robin, with males slightly smaller than females (Layne and Smith 1992). The major prey items of the southeastern kestrel are large insects (grasshoppers and beetles), small rodents, reptiles (especially lizards), and occasionally other birds (Wiley 1978).

The southeastern American kestrel has been reported to breed in southern portions of Louisiana, Mississippi, Alabama, Georgia, and South Carolina. It is considered a year-round resident of the southeastern coastal plain, including virtually all of Florida except for the extreme southern tip. In Florida, the wintering range of the more common American kestrel overlaps with the permanent range of the southeastern American kestrel (Wiley 1978).

The southeastern American kestrel prefers open habitats such as pastures, grasslands, and open, longleaf pine-turkey oak sandhill communities (Bohall-Wood and Collopy 1986). In general, its habitat must provide short vegetation with scattered perches for optimum foraging, an adequate prey base, and suitable nest sites. The kestrel's foraging behavior includes perching on trees in and adjacent to open habitats, and hovering and dropping onto its prey (Wiley 1978; Ehrlich *et al.* 1988). Kestrels are considered secondary nesters and typically utilize cavities excavated by woodpeckers (Wiley 1978; Ehrlich *et al.* 1988). Although the scarcity of suitable natural nesting sites probably limits population size and distribution in the southeastern American kestrel, members of this subspecies will occupy artificial boxes within a variety of habitats (Hoffman 1983).

2.2.5 Bachman's Sparrow (*Aimophila aestivalis*)

Bachman's sparrow is a federal candidate species. A relatively large sparrow with a body length of up to 6 inches (15.2 centimeters), it has a characteristic buffy breast and a reddish brown striped back (Peterson 1980). It can be distinguished from similar sparrows by the yellow bend of its wing and its dark upper mandible (Robbins *et al.* 1983). Bachman's sparrows forage

almost exclusively at ground level on seeds of grasses, sedges, and forbs, although small insects are occasionally consumed (Allaire and Fisher 1975; Ehrlich *et al.* 1988).

This species ranges throughout the southeastern and Appalachian states into Illinois (Peterson 1980). During the early 1900s, its range expanded into the northern and northwestern parts of its current range, in response to the creation of open habitats (clearcuts) resulting from logging operations (Ehrlich *et al.* 1988; Dunning and Watts 1990). Since the 1930s, expansion of this sparrow's range has been reversed. Consequently, breeding activity is now considered rare in the northeastern portion of the range, and populations throughout the range appear to be declining (National Geographic Society 1987; Ehrlich *et al.* 1988).

Bachman's sparrow typically inhabits dry, open pine or oak woods, especially mature longleaf pine forests, scrub palmetto, and brushy pastures (Peterson 1980; National Geographic Society 1987; Dunning and Watts 1990). In addition, it has been reported to occur in agricultural and abandoned fields in the northern portion of its range (Clayton 1969; Dorsey 1976). The apparent contradiction between use of mature pine woods and open fields indicates the importance of microhabitat in determining local distributions of Bachman's sparrow. In South Carolina, Bachman's sparrows were found to occupy a variety of habitat types including mature (80- to 120-year-old) longleaf pine stands, middle-aged (22- to 50-year-old) stands, and 1- to 3-year-old clearcuts (Dunning and Watts 1990). Although differing notably in forest structure, these areas all featured significant amounts of vegetation in the ground layer (0 to 3 feet high [0 to 0.9 meter) and relatively little development of understory vegetation (6 to 12 feet [1.8 to 3.7 meters] high).

In general, forest management practices can significantly affect habitat structure and, consequently, microhabitat suitability for the Bachman's sparrow. For example, controlled burning every 3 to 5 years will enhance the growth of ground- layer vegetation, including grasses and forbs, and diminish understory growth. Similarly, frequent thinning of understory trees promotes the growth of ground-layer vegetation by permitting high levels of light penetration, thereby providing foraging habitat (Dunning and Watts 1990).

2.2.6 Florida Scrub Jay (*Aphelocoma coerulescens coerulescens*)

The Florida scrub jay is a state- and federally listed threatened species. It is a relatively large (12-inch-long [30.5-centimeter-long]) jay that lacks the characteristic crest and white-tipped wing and tail feathers of the more common blue jay (*Cyanocitta cristata*). It can be distinguished by its white throat and necklace of blue feathers, as well as by a white line over each eye. The head and wings are blue, and the back is olive-gray (Robbins *et al.* 1983;

Woolfenden 1978). The Florida scrub jay feeds on a variety of invertebrates, especially insects, as well as small vertebrates such as frogs and lizards. In the fall and winter, acorns form the bulk of its diet (Woolfenden 1978).

Scrub jays range over much of the western United States and Mexico, but the unique Florida scrub jay is restricted to peninsular Florida. The original range of this species has been significantly reduced by the spread of suburbs, citrus groves, and agricultural activities. The Florida scrub jay's current distribution consists of scattered and often small populations; the bird's sedentary nature makes natural repopulation unlikely (Woolfenden 1978).

The Florida scrub jay has extremely specific habitat requirements: it resides in oak scrub areas consisting of live oak, myrtle oak, saw palmetto, and sand palmetto and avoids wet habitats and forests (Woolfenden 1978). Nests are typically constructed in low shrubs and/or saplings and consist of twigs and grasses (Ehrlich *et al.* 1988). In general, creation of forest openings in areas where suppression of natural fires has resulted in unnatural closed-canopy forests improves the Florida scrub jay's foraging and breeding habitat (Woolfenden 1978).

2.3 Reptiles and Amphibians

Presented below are brief descriptions of the life histories and habitat requirements of the five reptile and amphibian species of concern that may occur in the proposed project area: the eastern indigo snake, gopher tortoise, Florida pine snake, Florida gopher frog, and flatwoods salamander.

2.3.1 Gopher Tortoise (*Gopherus polyphemus*)

The gopher tortoise, formerly a federal candidate species, is now a state-listed species of special concern. It is a large, terrestrial tortoise with an average carapace length of 9 to 11 inches (22.9 to 28.0 centimeters; Christman 1992). The rigid, unhinged plastron is dull yellow and the carapace is usually brown or tan. The gopher tortoise forages on grass and leaves, as well as on fruits or berries if they are available (Conant and Collins 1991). Foraging generally occurs within 50 meters (164.0 feet) of the burrow (Christman 1992).

The gopher tortoise is limited to six states in the southeastern coastal plain, including all parts of Florida (Christman 1992). A 1994 field study conducted at NAS Cecil Field estimated gopher tortoise populations at the Main Station and in the Yellow Water Area to be approximately 1,319 and 12 individuals, respectively (CZR, Inc. 1994).

The gopher tortoise is typically associated with sandhill communities, but it also inhabits a variety of dry and somewhat mesic habitats including such disturbed habitats as runway aprons, roadsides, and old fields. It digs characteristic crescent-shaped burrows, usually with a broad apron of sand, which provide protection against temperature extremes, desiccation, and predation (Christman 1992). The burrows slope downward from the surface, then usually level off underground. An excavated burrow may reach 35 feet (10.7 meters) in length (Conant and Collins 1991). Several other species, including insects, owls, raccoons, opossums, frogs, and snakes, seek shelter or permanently reside in the burrows (Christman 1992). Of particular importance are the eastern indigo snake, Florida mouse, Florida pine snake, and Florida gopher frog, all of which utilize gopher tortoise burrows for refuge or shelter (Cox *et al.* 1987).

2.2.3 Eastern Indigo Snake (*Drymarchon corais couperi*)

The eastern indigo snake is a state- and federally listed threatened species. It is the longest snake in North America and commonly grows to a length of 7 feet (2.1 meters; Conant and Collins 1991). Adults are uniformly black or bluish black throughout, although there is a distinctive reddish or orange tinge on the throat and chin. However, typical specimens collected in northern Florida have only a light pinkish blush on the throat (Moler 1992). Prey items include fish, frogs, toads, lizards, snakes, small turtles, birds, and small mammals (Conant and Collins 1991; Moler 1992).

The range of the eastern indigo snake is limited to Florida and south Georgia (Lawler 1977; Diemer and Speake 1983) but may extend into southern Alabama (Moler 1985a) and possibly Mississippi (Conant and Collins 1991). The species usually inhabits dry uplands, such as sandhills dominated by longleaf pine and turkey oak (Lawler 1977; Diemer and Speake 1983). The majority of indigo snake sightings in Georgia and western Florida are in sandhill communities, especially those near major streams (Diemer and Speake 1983; Moler 1985b). In peninsular Florida, however, indigo snakes inhabit a variety of habitats ranging from xeric uplands to mangrove swamps (Moler 1985b; Moler 1992). In general, indigo snakes in the northern part of their range are typically associated with drier habitats, whereas in the southern parts of their range they are commonly associated with more mesic areas (Carr 1940; Kochman 1978; Diemer and Speake 1983; Moler 1985b; Moler 1992).

The eastern indigo snake's habitat use also varies according to season. In the winter the indigo snake occupies sandhill communities, where it is typically closely associated with gopher tortoise burrows (Carr 1940; Lawler 1977). However, in low-lying areas such as coastal hydric hammocks, crayfish and rodent burrows and hollow root channels are used as winter dens and

burrows (Moler 1985b). Studies suggest that these burrows provide shelter against desiccation (Bogert and Cowles 1947 Kochman 1978) and cold (Bogert and Cowles 1947). On warm, sunny, winter days when the temperature rises above approximately 55°F (12.8°C), indigo snakes often bask near the mouths of gopher tortoise burrows (Moler 1994). The indigo snake becomes more active in mid-March, when the temperature tends to remain above 55°F (12.8°C; Moler 1994) and the snake's use of mesic and wetland habitats increases (Moler 1992). Similar to the indigo snake's use of burrows during the winter, its increased use of mesic areas in the summer may be related to the avoidance of desiccation, as well as to prey abundance (Kochman 1978; Moler 1992).

2.3.3 Florida Pine Snake (*Pituophis melanoleucus mugitus*)

The Florida pine snake, formerly a federal candidate species, is now a state-listed species of special concern. This large, 36- to 90-inch (91.4- to 228.6-centimeter), stocky snake is usually tan or rusty-brown with an indistinct pattern (Conant and Collins 1991; Franz 1992). Its head and snout are somewhat conical in shape. When disturbed, the aggressive Florida pine snake is known to hiss loudly. Ground-dwelling birds and their eggs, pocket gophers, and mice are the snake's major food sources (Franz 1992).

The Florida pine snake's range is restricted to the Atlantic and Gulf coastal plains, from southeastern South Carolina to south Florida, and west to the Florida panhandle (Franz 1992). The species occupies xeric, sandy areas including longleaf pine-oak woodlands, sand pine scrub, sandhills, and old fields on former sandhills. During droughts the pine snake is more likely to inhabit open areas around wetlands (Franz 1992). An excellent burrower, the Florida pine snake will burrow into loosely packed sand or into the burrows and tunnel systems of pocket gophers (*Geomys pinetis*) and gopher tortoises (Landers and Speake 1980; Franz 1992).

2.3.4 Florida Gopher Frog (*Rana capito aesopus*)

The Florida gopher frog was formerly a federal candidate species; it is now a state-listed species of special concern. It is a small, 2- to 4-inch (5.1- to 10.2-centimeter) frog characterized by a stubby body with short legs, an enormous head and mouth, and prominent eyes. Its typically light ground color can vary from creamy white to brown through various shades of yellow or purple (Conant and Collins 1992; Godley 1992). This nocturnal frog consumes primarily invertebrates, toads, and frogs (Godley 1992).

The gopher frog's distribution closely parallels that of the gopher tortoise and is limited to the southeastern coastal plain, including Florida. However, unlike the gopher tortoise, the gopher frog does not occur on coastal islands or dunes (Godley 1992).

Xeric upland habitats, particularly longleaf pine-turkey oak sandhill communities, appear to be the principal habitat of the gopher frog (Godley 1992). Although the gopher frog is dependent on the gopher tortoise's burrows for shelter, it may occupy other burrows associated with rodents or crayfish. Breeding occurs in seasonally flooded, grassy ponds and cypress swamps that lack fish populations (Godley 1992). Consequently, the gopher frog is usually found in areas of suitable foraging habitat and/or shelter located within 1 mile of appropriate breeding grounds (Godley 1992).

2.3.5 Flatwoods Salamander (*Ambystoma cingulatum*)

The flatwoods salamander is a federal candidate species and a state-listed endangered species. This salamander is silvery gray to black, with irregular brown or black mottles on the tail, head, side, and back (Conant and Collins 1991; Ashton 1992). The long, slender larvae are black with yellow or white lines; they and have fragile tail fins and very slender legs (Ashton 1992). These salamanders eat live earthworms and other invertebrates (Conant and Collins 1991).

The species is distributed in a relatively small area of the southeastern coastal plain—from southern South Carolina, across Georgia, to southern Alabama, and south to the northern part of peninsular Florida (Conant and Collins 1991). It is found throughout the Florida panhandle (Ashton 1992).

The flatwoods salamander occurs in longleaf or slash pine-wiregrass flatwoods located adjacent to wetlands such as cypress swamps, roadside ditches, and marshy pasture ponds (Anderson and Williamson 1976; Ashton 1992). In addition, the absence of fish species that prey on eggs or larvae is an important breeding site factor (Ashton 1992). Eggs are deposited in the fall or early winter on vegetation that becomes submerged, or nearly so, during late winter and spring rains (Collins and Conant 1991; Palis 1995). Little is known about the biology of adult flatwood salamanders, although their association with wiregrass appears to be critical (Palis 1995).

2.4 Plants

Following are brief descriptions of the physical characteristics, distributions, and habitats of nine plant species of concern that may occur in the proposed project area: the incised groove-bur, southern milkweed, Curtiss' sandgrass, hartwrightia, lake-side sunflower, Florida milkweed, Chapman's rhododendron, St. John's Susan, green ladies-tresses, and variable-leaf crownbeard.

2.4.1 Southern Milkweed (*Asclepias viridula*)

The southern milkweed, formerly a federal candidate species, is now a state-listed threatened species. A member of the Milkweed family (Asclepiadaceae), this perennial herb has narrow, opposite leaves and a slender, wand-like stem that is purplish at the base. The whitish green or yellowish flowers consist of five petals and a purplish mid-rib, and bloom from April through July. This milkweed is usually found in clearings dominated by grasses and sedges, or in areas sparsely vegetated with slash and longleaf pine and saw palmetto. The preferred substrate consists of fine sand that remains moist or wet for most of the year (USDA 1983). Prescribed burning and subsequent reduction of competitive shrub species benefit this species, as does cutting or thinning the overstory vegetation (USDA 1983).

2.4.2 Curtiss' Sandgrass (*Calamovilfa curtissii*)

Formerly a federal candidate species, Curtiss' sandgrass is now a state-listed endangered species. This erect or ascending perennial grass has dull green, narrow-leaf blades and can grow to a height of approximately 3 feet (0.9 meter). The inflorescence is narrow with short, numerous, strongly ascending, and somewhat overlapping branches (Clewell 1985). The solitary floret has silvery-silky erect hairs and is present in the summer (USDA 1983). Curtiss' sandgrass is found in a few eastern counties in the Florida panhandle (Clewell 1985; USDA 1983) and is an inhabitant of moist or sandy slash and longleaf pine-saw palmetto flatwoods (USDA 1983). This plant responds well to fire management practices that open the overstory and reduce populations of competitive shrub and herbaceous species (USDA 1983).

2.4.3 Hartwrightia (*Hartwrightia floridana*)

Hartwrightia, formerly a federal candidate species, is now a state-listed threatened species. It is a member of the Composite family (Asteraceae). This aromatic perennial herb can grow to a height of 1 to 3 feet (0.3 to 0.9 meter). Alternate lower leaves are 5 to 15 inches (12.7

to 38.1 centimeters) long and oblong and the upper leaves are small and linear. The flowers are pale lavender to white or pink and are produced in many-flowered heads (Clewell 1985; USDA 1983) from October to November (USDA 1983). Hartwrightia is distributed throughout southeastern Georgia, and southward to select counties of southern peninsular Florida. Its primary habitats are mesic and wet slash or longleaf pine-saw palmetto flatwoods, grass-sedge dominated bogs, seepage slopes, baygalls, and mesic clearings (USDA 1983). This species benefits from periodic natural or prescribed fires that remove competing shrub and grass species (USDA 1983).

2.4.4 Lake-Side Sunflower (*Helianthus carnosus*)

The lake-side sunflower, formerly a federal candidate species, is a state-listed endangered species. A member of the Composite family, this perennial sunflower can grow to a height of approximately 3 feet (0.9 meter). Its leaves are opposite and 3 to 6 inches (7.6 to 15.2 centimeters) long toward the base, becoming progressively smaller and fewer toward the inflorescence. The distinctive bright yellow flowers are present in the late summer and fall (USDA 1983). This particular sunflower is restricted to northeastern Florida and is typically found in moist to wet pinelands with relatively open overstories and understories, or grass/sedge-dominated openings. Prescribed burning favors development of this species by reducing the abundance of competitive shrub and tree species (USDA 1983).

2.4.5 Florida Milkweed (*Matelea floridana*)

The Florida milkweed, formerly a federal candidate species, is now a state-listed endangered species. A member of the Milkweed family, this perennial, milky-juiced herb is a somewhat prostrate or climbing vine, not an erect herb. It is generally 3 to 6 feet (0.9 to 1.8 meters) long but can grow to a length of approximately 15 feet (4.6 meters). The pubescent leaves are opposite in arrangement and ovate to suborbicular in shape (USDA 1983). It produces pale maroon or yellowish green flowers from late May to July, and a spiny seed pod after flowering (Clewell 1985; USDA 1983). It is distributed throughout the northern and central portions of the Florida peninsula and may occur in mesic hammocks or dry mixed upland and hardwood forests. The preferred substratum is usually a moist to dryish sandy loam, and the best flowering populations appear to be in areas of recent disturbance (e.g., fire, logging) (USDA 1983).

2.4.6 Chapman's Rhododendron (*Rhododendron chapmanii*)

Chapman's rhododendron is a state- and federally listed endangered species. It is similar in appearance to ornamental rhododendrons. This bushy evergreen shrub can grow to a height of approximately 6 feet (1.8 meters). The leaves are alternate, elliptic, or obviate in shape, and somewhat scaly on the underside. The rose-colored flowers consist of five petals fused to form a funnel-shaped bloom, which is present in March and April (USDA 1983). Chapman's rhododendron is known to occur in northern Florida, southwestern Georgia, and southeastern Alabama. It occurs in mesic flatwoods and seepage slope areas with moist to wet, highly organic sandy soils. Typically it occurs in open areas located along the edges of longleaf pine-turkey oak woodlands. This shrub is a prolific sprouter and can produce rather large colonies from a single parent plant (USDA 1983). Periodic burning is a part of its natural ecological setting and generally creates an abundance of new-growth sprouts and shoots (USDA 1983).

2.4.7 St. John's Susan (*Rudbeckia nitida*)

St. John's Susan, formerly a federal candidate species, is now a state-listed endangered species that resembles the common black-eyed Susan (*Rudbeckia hirta*). This perennial herb has a stout, erect stem that forms small clumps of plants. The yellow-green leaves are alternate or basal and elliptically shaped. The center of each flower contains many small, deep purplish brown disc flowers encircled by 8 to 12 yellow ray petals (USDA 1983). Flowering usually occurs from June to August. St. John's Susan is distributed throughout the coastal plain, including the panhandle and northern portions of peninsular Florida (Clewell 1985; USDA 1983). It typically occurs in wet to moist acidic clearings in flatwoods and low savannas. Periodic burning helps to maintain areas of preferred habitat (USDA 1983).

2.4.8 Green Ladies-Tresses (*Spiranthes polyantha*)

This delicate orchid (Orchidaceae), formerly a federal candidate species, is now a state-listed endangered species. It is characterized by the greenish brown flowers that appear in February and March and are arranged spirally along the stem. It typically occurs in rocklands, hammocks, and upland mixed forest. Very little is known about the distribution and biology of this rare orchid (Clewell 1985).

2.4.9 Variable-Leaf Crownbeard (*Verbesina heterophylla*)

The variable-leaf crownbeard was formerly a federal candidate species and is now a state-listed threatened species. It is a member of the Composite family. This plant's leaves are usually opposite or whorled at or below the midstem, and alternate toward the inflorescence. The leaves are generally ovate shaped, with the base of the leaf extending down around the stem as a wide wing (Clewell 1985). *Verbesina sp.* flowers consist of a white central disc surrounded by yellow ray petals (Radford *et al.* 1968; USDA 1983); they bloom in early summer (USDA 1983). The variable-leaf crownbeard typically occurs in the dry pine flatwoods or open savannas of eastern peninsular Florida (USDA 1983).

3 Methodology

This section identifies the various sources of information, previous studies and surveys, and new surveys conducted at NAS Cecil Field that were used to determine the presence of federal-listed species that may occur in the proposed project area. To aid in preparation of species descriptions, identification of data gaps, and determination of the most appropriate field survey techniques, USFWS, Florida Game and Fresh Water Fish Commission (FGFWFC), Florida Natural Areas Inventory (FNAI), NAS Cecil Field personnel, and local experts were consulted. In addition, the following surveys of species conducted at Cecil Field were reviewed:

- Endangered (Plant) Species Survey at the Jacksonville, Florida Naval Complex (Environmental Services and Permitting [ESP], Inc. 1990);
- Cecil Field Gopher Tortoise Survey and Management Plan (CZR, Inc. 1994); and
- Amphibian Breeding Site Description (Palis 1995a; Palis 1995b).

The following sections briefly describe the methodology used in threatened and endangered species surveys conducted by Ecology and Environment, Inc. (E & E) and SOUTHDIV biologists from February 21 to March 1, 1995. The surveys were conducted to determine the occurrence of individuals of or suitable habitat for the following species:

- Eastern indigo snake (*Drymarchon corais couperi*);
- Florida pine snake (*Pituophis melanoleucus mugitus*);
- Florida gopher frog (*Rana capito aesopus*);
- Florida mouse (*Podomys floridanus*);

- Red-cockaded woodpecker (*Picoides borealis*);
- Bachman's sparrow (*Aimophila aestivalis*); and
- Wood stork (*Mycteria americana*).

These species were selected based on contacts with USFWS (Epstein 1995) and SOUTHDIV (Burst 1995). The eastern indigo snake was the principal species for which surveys were conducted, although occurrences of individuals of and suitable habitats for other species also were recorded. The 10 federally listed plant species were not included in the surveys because it was determined that the survey conducted by ESP in 1990 had adequately addressed the occurrence of rare plants in the proposed project area. Similarly, the gopher tortoise was not directly included in the surveys because the survey conducted by CZR, Inc., in 1994 had thoroughly covered the proposed project area. In addition, the Florida black bear, Sherman's fox squirrel, round-tailed muskrat, southeastern big-eared bat, southeastern American kestrel, black rail, and flatwoods salamander were not considered part of the surveys because they were or are only candidate species and are not federally protected. The bald eagle was not included in the surveys because it is only a transient species that does not permanently reside in the proposed project area. Similarly, the Florida scrub jay was not included in the surveys since it is restricted to peninsular Florida and, being sedentary, is not likely to occur at NAS Cecil Field (Woolfenden 1978). However, if any of the federally listed species identified in Table D-1 were observed or heard during the field surveys, their locations and abundance were reported.

3.1 Habitat Characterizations

Areas of potentially suitable habitat for species associated with gopher tortoise burrows (see Section 2) were initially identified according to the *Cecil Field Gopher Tortoise Survey and Management Plan* (CZR, Inc. 1994). Areas of potentially suitable habitat for the red-cockaded woodpecker, Bachman's sparrow, and wood stork were initially identified according to the forestry section of the *Natural Resources Management Plan for Cecil Field* (Navy 1992). These areas of potentially suitable habitat were then further characterized to determine actual habitat suitability for each species of concern.

Gopher tortoise burrows identified during the survey by CZR, Inc., were considered areas of potentially suitable habitat for the eastern indigo snake, Florida mouse, Florida pine snake, and Florida gopher frog. Selection of areas considered potentially suitable as habitat for the three bird species of concern was based on preliminary assessment of forest stand type and

age at NAS Cecil Field. In particular, areas of slash, loblolly, and/or longleaf pines originating at least 50 years ago were identified as potentially suitable habitat for the red-cockaded woodpecker; cypress stands at least 50 years old were identified as potentially suitable habitat for wood stork breeding colonies; and areas of dry, open pine (longleaf) or oak forest were identified as potentially suitable habitat for Bachman's sparrow.

During the E & E/SOUTHDIV field surveys, areas of potentially suitable habitat were further characterized through identification of dominant plant species in the overstory, understory, shrub, vine, and herbaceous strata; visual estimation of the percentage of cover and height of vegetation in each strata; and estimation of the average diameter at breast height (dbh) of the overstory trees. General soil types and conditions were noted and further described based on county soil surveys. Additional observations of common species, and of spatial arrangements and plant species compositions of adjacent cover types, were also noted. General weather conditions and temperatures at the time of each field survey and during the preceding evening were recorded. Field data sheets for each area of potentially suitable habitat surveyed are on file with SOUTHDIV.

3.2 Species Surveys

Based on identification and field characterization of areas of potentially suitable habitat, an assessment of the actual suitability of each area was completed. Based on this assessment and on identification of areas of suitable habitat, search surveys were conducted for individuals of the seven listed species. The following section provides brief descriptions of and rationales for the survey techniques used.

3.2.1 Eastern Indigo Snake

As discussed in Section 2.3, the eastern indigo snake is closely associated with gopher tortoise burrows during the winter. Consequently, the eastern indigo snake survey was limited to areas where suitable gopher tortoise habitat had been identified by CZR, Inc. (1994). However, eight areas of suitable gopher tortoise habitat were not surveyed, either because they provided only marginal eastern indigo snake habitat or because they featured exceptionally dense ground cover of saw palmetto that prohibited visual surveys beyond a few feet.

Survey methodology was based on FGFWFC's Wildlife Methodology Guidelines and conversations with Paul Moler, an eastern indigo snake expert. The surveys involved scoping the burrows or searching the areas for basking snakes. During morning hours, when ambient air

temperatures were below 60°F (15.6°C), gopher tortoise burrows were investigated using a fiber optic scope to determine the presence of indigo snakes. Although the field team attempted to scope the entire length of each burrow, the presence of gopher tortoises, roots, or other obstructions restricted investigation of some burrows. When temperatures were higher than 55°F (12.8°C), areas of suitable gopher tortoise habitat were visually surveyed for basking or active snakes.

Survey efforts varied according to the vegetative density of each habitat and its suitability for use by the eastern indigo snake. Field team members (surveyors) placed themselves at 15- to 45-foot (4.6- to 13.7-meter) intervals and traversed the areas of suitable habitat. Distances between the surveyors sometimes varied depending on the vegetative density of each habitat. For example, areas with relatively open ground cover allowed for greater distances between the surveyors, whereas more densely vegetated habitats required smaller intervals between them. In addition, the amount of time spent surveying an area was based on the relative density of the burrows and their suitability for use. Field team members recorded the number of active, inactive, and abandoned burrows encountered.

3.2.2 Florida Pine Snake, Florida Gopher Frog, and Florida Mouse

These three species are closely associated with gopher tortoise burrows (see Section 2). Therefore, the survey methodology used for the eastern indigo snake was also determined to be appropriate for assessing the presence of these species at NAS Cecil Field.

3.2.3 Red-Cockaded Woodpecker

As previously discussed, areas of potentially suitable habitat for this woodpecker consist of slash, loblolly, and/or longleaf pines at least 50 years of age (see Section 2.2). Therefore, these areas were visually surveyed for the presence of individual woodpeckers and/or the distinctive cavity trees used by nesting colonies. In addition, habitat characteristics that probably restrict or diminish habitat suitability of these areas, and potential management techniques and efforts that may increase habitat suitability, were recorded.

3.2.4 Bachman's Sparrow

This sparrow typically inhabits relatively open, dry pinelands and open palmetto scrub (see Section 2.2). Because this habitat is widespread at NAS Cecil Field, the field survey was limited to on-base areas in which the sparrow had been previously observed. A natural resource manager at NAS Cecil Field reported observing Bachman's sparrows near Gate 11 along the

eastern side of the air strip (Cochran 1995). Consequently, this area was surveyed for approximately 2 hours on two separate mornings. During the field surveys, all bird species observed or heard at NAS Cecil Field were identified and reported.

3.2.5 Wood Stork

Wood stork colonies are usually located in cypress stands at least 50 years of age (see Section 2.2). Four cypress swamps located in the Yellow Water Area were surveyed for evidence of individual storks and/or nesting colonies. These areas were described in terms of their habitat characteristics, including plant species composition, percentage of cover, soils, water, and the availability of snag/nesting trees.

4 Results

This section provides a brief discussion of the potential presence in the proposed project area of 27 federally listed species. Determinations on the potential occurrences of these species were based on a comparison of their habitat requirements (for breeding and foraging) with on-site field surveys (CZR 1994; ESP 1990; Palis 1995; E & E/SOUTHDIV 1995) as well as on consultations with scientists and other experts and literature reviews. Potential habitats for 13 listed species were identified during the field surveys and are shown on Figure D-1. In addition, occurrences of individual species are identified on this figure.

4.1 Mammals

Following is a brief discussion of the existence at NAS Cecil Field of potential habitat for the five federally listed mammal species identified by USFWS (see Table D-1).

4.1.1 Florida Black Bear

No individuals or signs (e.g., tracks, dens, scat) of the Florida black bear were observed during the E & E/SOUTHDIV field survey. The black bear has not been reported at NAS Cecil Field or in adjacent areas (FNAI 1994). The areas nearest NAS Cecil Field that contain significant black bear populations and extensive suitable habitat are Ocala National Forest, located approximately 43 miles (69.2 kilometers) south, and Osceola National Forest, located approximately 26 miles (41.8 kilometers) northwest (Cox *et al.* 1994). Black bear sightings are also frequent in Durbin Swamp and Twelve-Mile Swamp in southeastern Duval and northern St. Johns counties, respectively (Cox *et al.* 1994).

In general, NAS Cecil Field does not provide any unique or significant areas of potential habitat for the black bear (Cox *et al.* 1994) and is considered to provide only marginal habitat for transient individual bears. In addition, since most black bears do not disperse more than 35

miles (56.3 kilometers), it is unlikely that the Florida black bear will abandon areas of suitable habitat to establish populations at NAS Cecil Field, where there is only marginal habitat. Furthermore, dispersal of Florida black bears from the population nearest NAS Cecil Field would be extremely difficult because the animals would have to traverse major highways and roads.

4.1.2 Florida Mouse

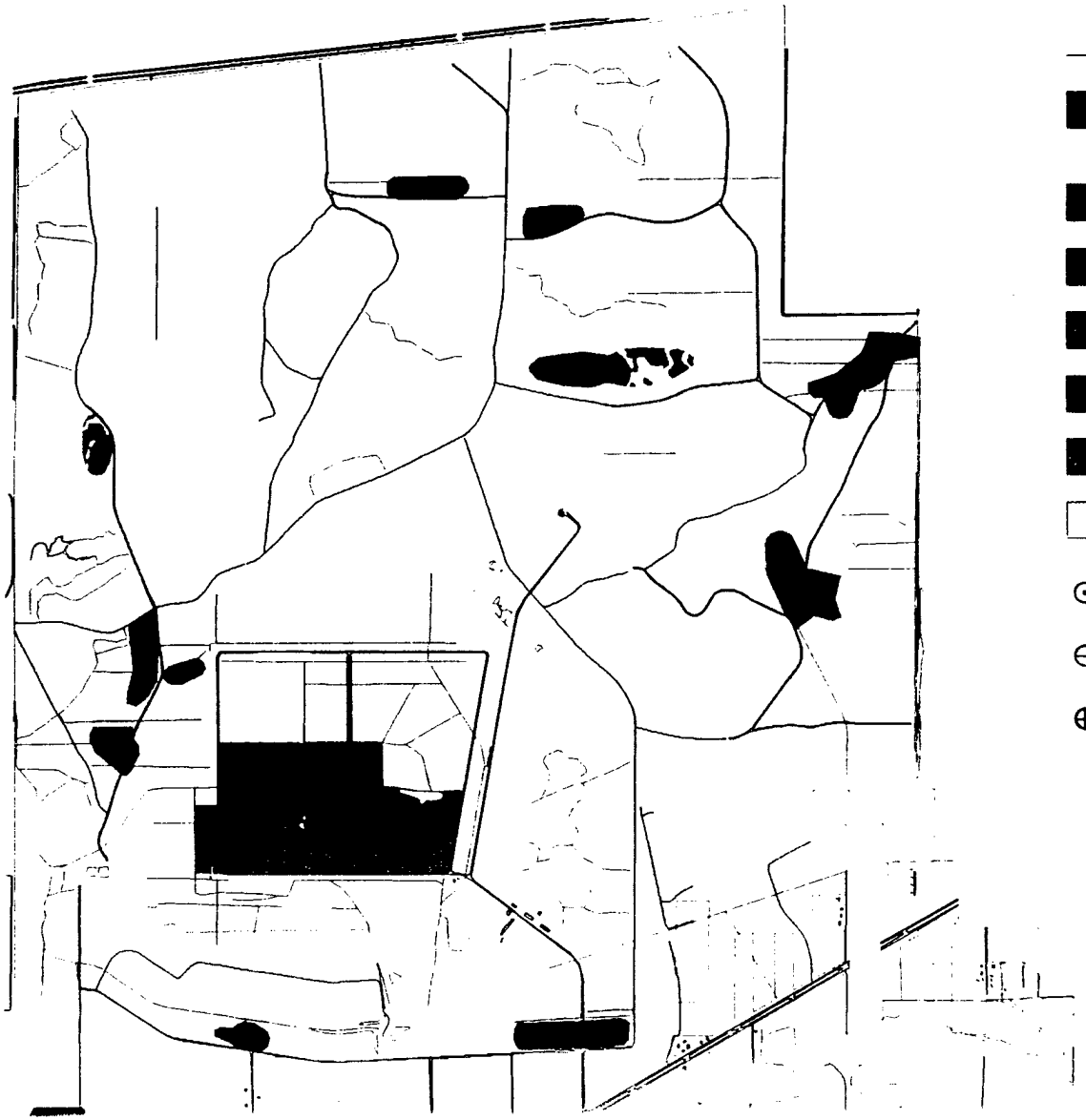
No individuals or signs of the Florida mouse were observed during the E & E/ SOUTHDIV field survey, nor has the Florida mouse been reported at NAS Cecil Field or in adjacent areas (FNAI 1994). Although much of the Main Station provides suitable habitat (gopher tortoise burrows), the range of the Florida mouse does not include Duval County and includes only the southern half of Clay County (Lane and Smith 1992). In addition, the Florida mouse typically occurs in scrub oak habitat with sufficient acorn production: sandhill communities are considered less important.

In general, NAS Cecil Field does not provide suitable habitat for the Florida mouse. Although numerous gopher tortoise burrows are located throughout the base, no areas of preferred habitat (scrub oak) are present at NAS Cecil Field. Therefore, it is highly unlikely that the Florida mouse occurs at NAS Cecil Field.

4.1.3 Sherman's Fox Squirrel

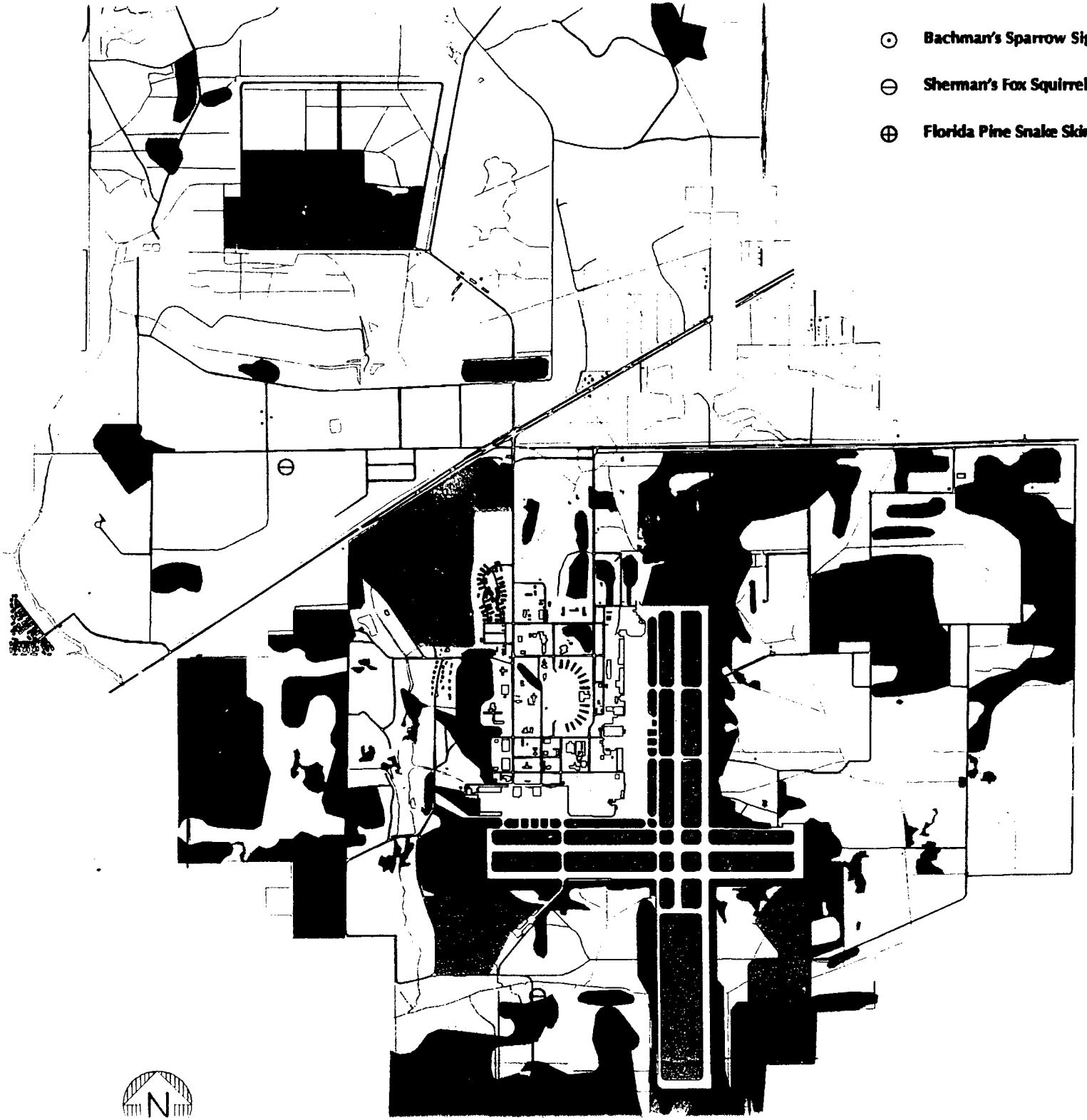
Three individual Sherman's fox squirrels were observed during the E & E/SOUTHDIV field survey. Two individuals were observed in the sandhill habitat and adjacent slash pine plantation along Perimeter Road in the southeastern portion of the Main Station; the third individual was observed along Mariner Street in the southwestern portion of the Yellow Water Area. This fox squirrel relies primarily on acorns as a fall food source and on pine seeds in the summer (Weigl *et al.* 1989). In addition, relatively open ground cover is an important component of suitable fox squirrel habitat (Wooding 1995).

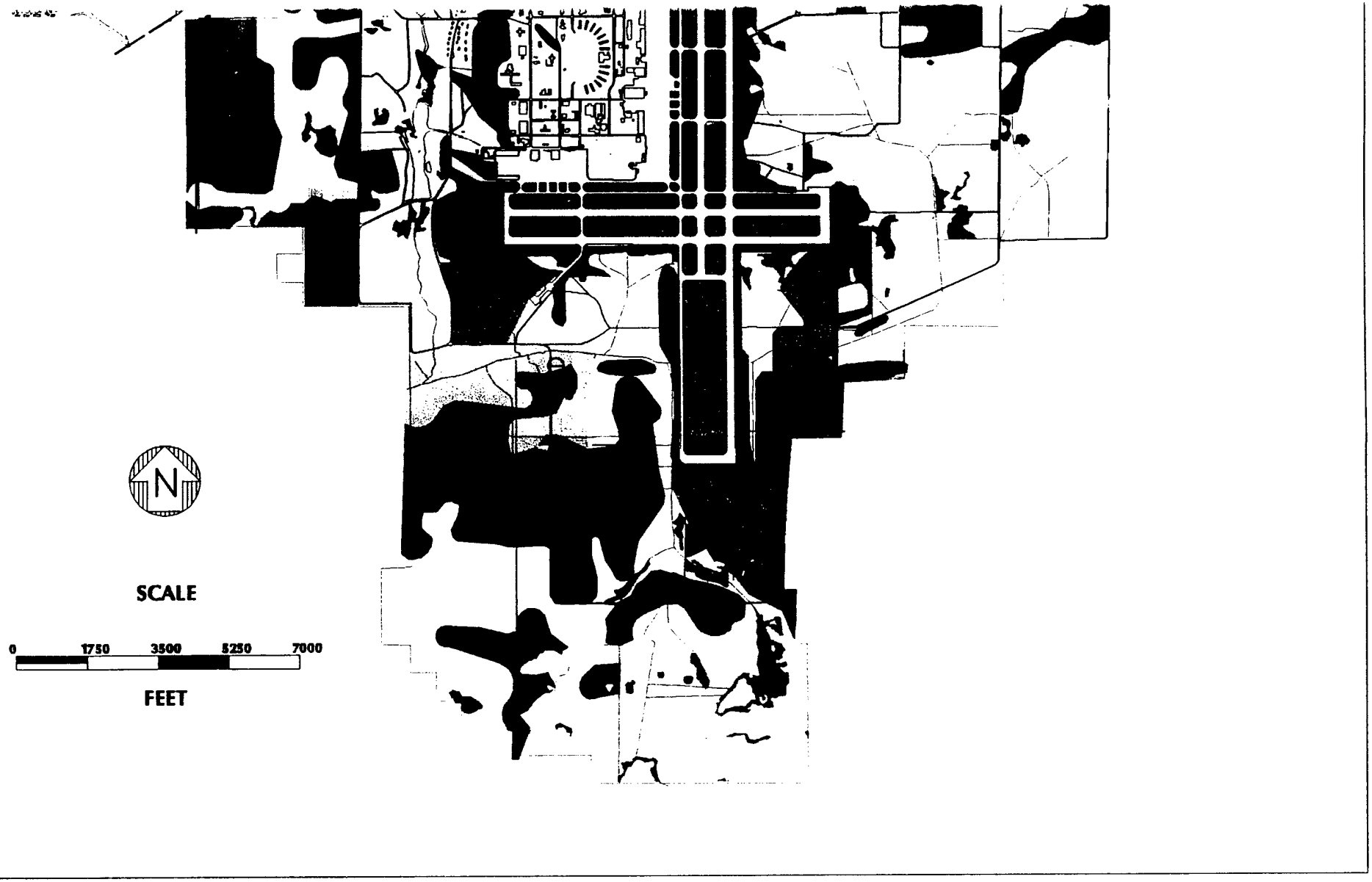
In general, NAS Cecil Field provides suitable habitat for Sherman's fox squirrel, particularly areas of the Main Station that contain both pine and oak trees and have little ground layer development. Although the Yellow Water Area is composed primarily of relatively mesic slash pine and wetland habitats, observation of one individual in this area indicates that others probably occur in the vicinity (see Figure D-1).



LEGEND

- Gopher Tortoise, Eastern Indigo Snake, Florida Pine Snake, and Florida Gopher Frog
- Wood Stork
- Flatwoods Salamander
- Bachman's Sparrow
- Variable-leaf Crownbeard
- Southeastern American Kestrel
- Sherman's Fox Squirrel
- Bachman's Sparrow Sighting
- Sherman's Fox Squirrel Sighting
- Florida Pine Snake Skin Collection


⊙ Bachman's Sparrow Sighting
⊖ Sherman's Fox Squirrel Sighting
⊕ Florida Pine Snake Skin Collection
N



Source: ESP 1990; CZR 1994; Ecology and Environment, Inc. 1996

FIGURE D-1 SUITABLE HABITAT MAP FOR FEDERAL- AND STATE-LISTED SPECIES MAIN STATION / YELLOW WATER

4.1.4 Southeastern Big-Eared Bat

No individuals or signs of southeastern big-eared bats were observed during the E & E/SOUTHDIV field survey, and this species has not been reported at NAS Cecil Field or in adjacent areas (FNAI 1994). This bat requires old buildings and tree hollows for roosting habitat and caves for winter hibernation. However, because the forested areas at NAS Cecil Field are actively managed for timber, tree hollows and/or snags that occur primarily in older trees are not likely to exist at the station. In addition, there are no caves at NAS Cecil Field.

In general, NAS Cecil Field does not provide any areas of suitable summer or winter habitat for the southeastern big-eared bat. Therefore, it is unlikely that this species is present at NAS Cecil Field.

4.2 Birds

Following is a brief discussion of the existence at NAS Cecil Field of potential habitat for the seven federally listed bird species identified by USFWS (see Table D-1).

Wood Stork

Four cypress-dominated wetlands at the Yellow Water Area were identified and characterized during the E & E/SOUTHDIV field survey: no individuals or signs of wood storks were observed. These cypress areas are dominated by immature bald cypress trees approximately 60 feet (18.3 meters) in height. The crowns of the trees are relatively narrow and closed, and the branches do not support wood stork nesting activity. Although the forested nature of some wetlands may diminish their forage value, scrub-shrub and emergent wetlands are easily accessed by wood storks and are considered more important foraging habitat than are the forested areas. Wood storks have been reported to feed in Lake Fretwell when the water level is sufficiently low, and in a roadside ditch located along 103rd Street (Cochran 1995).

In general, NAS Cecil Field does not provide suitable habitat for wood stork nesting colonies but does provide suitable foraging habitat (see Figure D-1). The cypress swamps are considered only marginal nesting habitat; however, the numerous extensive wetlands located throughout NAS Cecil Field provide suitable foraging habitat because of their relatively low levels of disturbance and the presence of standing and/or flowing water.

Red-Cockaded Woodpecker

The preliminary habitat characterization identified 10 areas of potentially suitable nesting habitat at NAS Cecil Field: no individuals or signs of woodpeckers were observed. However, two of the areas are considered to be potentially suitable habitat for the red-cockaded woodpecker if managed properly.

One area consisting of approximately 32 acres (12.9 hectares) of 60-year-old longleaf pine is located along "D" Avenue, just east of the golf course. The pines are scattered, are approximately 40 to 50 feet (12.2 to 15.2 meters) in height, and have a dbh range of eight to 18 inches (20.3 to 45.7 centimeters). The understory is relatively open and the ground layer consists primarily of saw palmetto, *Aristida*, and some blackberry. In addition, sizeable areas on the golf course consist predominantly of loblolly pines more than 50 years old. However, the understory in these areas is well developed and would require fire maintenance or thinning and clearing before it could be considered suitable habitat. With appropriate management and time, this area could also provide red-cockaded woodpeckers with suitable habitat.

The other area of potential habitat is a stand of slash pine covering approximately 120 acres (48.6 hectares) in the southwest corner of the Yellow Water Area. The relatively open overstory consists of slash pines approximately 70 feet (21.3 meters) in height with a dbh range of 10 to 20 inches (25.4 to 50.8 centimeters). The understory consists primarily of scattered water oak and slash pine saplings, and the ground cover is gallberry and saw palmetto (there is approximately 80% cover). Overall, the overstory tree structure is sufficient to support red-cockaded woodpecker breeding or foraging activity, although extensive management (i.e., burning of the understory and shrub layers) would be necessary to optimize the area's suitability.

It is unlikely that the red-cockaded woodpecker will utilize these two areas at NAS Cecil Field because the land uses surrounding them are not suitable for red-cockaded woodpecker activity; the areas are relatively small; and no woodpeckers are known to occur at NAS Cecil Field (FNAI 1994; Powell 1995). The nearest reported colonies are in Cary State Forest (Powell 1995), located 6 miles (9.7 kilometers) north of the Yellow Water Area. It is possible that NAS Cecil Field could act as a dispersal/travel corridor between Cary State Forest and Camp Blanding (located 9 miles (14.5 kilometers) south of the Main Station). However, this is unlikely based on the marginal suitability of habitats at the station and the distance (24 linear miles [38.6 kilometers]) between Cary State Forest and Camp Blanding. In a study in North Carolina, average fledgling and adult dispersal distances from their places of origin were less than 8 and less than 2 miles (12.9 and 3.2 kilometers), respectively (Walters *et al.* 1988).

In general, NAS Cecil Field does not provide any unique or significant areas of suitable habitat for the red-cockaded woodpecker and is considered to provide only marginal habitat. Colonization of habitats at NAS Cecil Field by red-cockaded woodpeckers would require not only improvement of potentially suitable habitats at the station, either through natural processes or management, but also the existence of suitable habitats between the station and Cary State Forest, and/or Camp Blanding. Therefore, it is unlikely that NAS Cecil Field could provide anything more than marginal habitat for the red-cockaded woodpecker.

Bald Eagle

No individuals or signs of the bald eagle were observed during the E & E/SOUTHDIV field survey, nor has the bald eagle been reported at NAS Cecil Field (FNAI 1994). Bald eagles usually nest near large bodies of water (Green 1985) but will forage in a variety of different habitats (ponds, streams, and lakes). Some of the wetlands at NAS Cecil Field maintain standing water throughout the year, supporting fish populations that provide prey for transient eagles. Therefore, based on the presence of extensive wetlands in the Yellow Water Area, it is possible that eagle foraging activity could occur at NAS Cecil Field. Likewise, Lake Fretwell may serve as an occasional foraging habitat.

In general, NAS Cecil Field does not provide suitable breeding or nesting habitat for the bald eagle. However, the wetland areas located throughout the station provide suitable foraging habitat for local or transient bald eagles.

Southeastern American Kestrel

No individuals or signs of the southeastern American kestrel were observed during the E & E/SOUTHDIV field survey. The southeastern American kestrel has not been reported at NAS Cecil Field (FNAI 1994), although the more common American kestrel has been observed during the winter and early spring (Epstein 1996; Cochran 1995a; Powell 1995). The southeastern American kestrel prefers open areas with short vegetation and scattered perches for optimum foraging, and trees with previously excavated cavities for nesting.

In general, NAS Cecil Field provides suitable foraging habitat for the southeastern American kestrel around the airstrips and the golf course at the Main Station. In addition, scattered, recently harvested stands of forest in the Yellow Water Area and open field areas provide suitable foraging habitat (see Figure D-1).

Bachman's Sparrow

Two Bachman's sparrows were observed during the E & E/SOUTHDIV field survey (see Figure D-1), and this sparrow has been reported to occur at the station (FNAI 1994). One individual was observed east of the southern section of the north-south runway, outside the perimeter fence near Gate 11. The habitat in this area consists of cut-over palmetto scrub surrounded by planted slash pine (Gillman Paper Co. property), and open longleaf pine and palmetto. The second individual was heard singing in a planted slash pine forest located southwest of the east-west runway. In addition, three or four Bachman's sparrows have been observed in these locations at other times (Cochran 1995; Powell 1995).

Overall, the current forestry management plan helps maintain suitable habitat in various locations throughout the station. Through selective harvesting of forested stands of varying age, the management plan creates areas with open understory and scattered adult and sapling trees, especially pines, which constitute the primary habitat for Bachman's sparrow. As a given stand begins to develop into a more densely forested area, its value as breeding or foraging habitat begins to decrease. However, other suitable habitats are created when nearby stands are harvested. As a result, areas of suitable habitat are constantly generated.

In general, NAS Cecil Field provides suitable habitat for the Bachman's sparrow. Much of the pinelands area at the facility, especially at the south and west sides of the Main Station, can be considered suitable habitat provided that the present management scheme is continued. In addition, the Brannan Field Mitigation Bank adjacent to the southeast side of the Main Station provides suitable habitat. NAS Cecil Field and the adjacent park constitute a sizeable area of suitable habitat for Bachman's sparrow and other species requiring dry, open pinelands.

Florida Scrub Jay

No individuals or signs of the Florida scrub jay were observed during the E & E/SOUTHDIV field survey, nor has this scrub jay been reported at NAS Cecil Field (FNAI 1994). The Florida scrub jay has extremely specific habitat requirements: it prefers oak scrub areas with low vegetation for nesting and avoids wet habitats (Woolfenden 1978). Therefore, based on the general lack of oak-dominated communities at the station and the abundance of wetland areas, it is unlikely that the Florida scrub jay occurs at NAS Cecil Field.

In general, NAS Cecil Field does not provide suitable habitat for the Florida scrub jay. Although the openings created by timber harvesting benefit the scrub jay, these areas are dominated by pine saplings rather than by the preferred oak. Therefore, the limited areas of oak

and brushland habitat present at the station are considered to provide only marginal habitat for the Florida scrub jay.

4.3 Reptiles and Amphibians

The following section provides a brief discussion of the occurrence at NAS Cecil Field of potential habitat for the five federally listed reptiles and amphibians identified by the USFWS (see Table D-1).

4.3.1 Gopher Tortoise

Several gopher tortoises were observed during the E & E/SOUTHDIV field survey. In addition, the survey conducted by CZR, Inc., in 1994 identified several gopher tortoises in the Yellow Water Area and at the Main Station. Based on these survey results, the Main Station supports a larger number of individuals than does the Yellow Water Area. The limited area of suitable habitat and the small estimated population size in the Yellow Water Area are due to its relatively great extent of wetlands and generally more mesic conditions compared with the Main Station, which is slightly more elevated and drier. The greatest population densities at the Main Station occur at the west end of the east-west runway, where there are approximately 1.43 individuals per acre (1.43 individuals per 0.4 hectare); west of the south end of the north-south runway and east of the perimeter fence, where there are approximately 1.33 individuals per acre (1.33 individuals per 0.4 hectare); and in the southeast portion of the base, where there are approximately 1.17 individuals per acre (1.17 individuals per 0.4 hectare; CZR, Inc. 1994). In addition, the Brannan Field Mitigation Bank, located adjacent to the southeast portion of the station, is managed by FGFWFC as gopher tortoise habitat. Collectively, the Main Station and the mitigation park constitute a large area of excellent habitat for the gopher tortoise.

In general, NAS Cecil Field provides suitable habitat for the gopher tortoise. The Main Station currently supports a large population of tortoises and the Yellow Water Area provides habitat for a smaller population. There are approximately 3,075 and 245 acres (1,244.4 and 99.1 hectares) of suitable gopher tortoise habitat at the Main Station and in the Yellow Water Area, respectively (see Figure D-1). The estimated population sizes in these two areas are 1,319 (±167) and 12 (±14) individuals, respectively (CZR, Inc. 1994).

4.3.2 Eastern Indigo Snake

No individuals or signs of the eastern indigo snake were observed during the E & E/ SOUTHDIV field survey, and no indigo snakes have been reported at the station (FNAI 1994; Cochran 1995). Thirty locations were identified and characterized as potential habitat prior to the field survey. Twenty-two of these areas were surveyed by E & E/SOUTHDIV, and a total of 92 gopher tortoise burrows (in seven different areas) were examined internally using a fiber optic scope. In addition, three shed snake skins were collected and sent for identification to Paul Moler, an eastern indigo snake expert with the Florida Game and Fresh Water Fish Commission. None of these snake skins was determined to be from the eastern indigo snake (Moler 1995).

During winter months, suitable habitat for the eastern indigo snake coincides with gopher tortoise habitat (i.e., dry, upland areas), which is abundant at NAS Cecil Field— especially at the Main Station. During warmer months the indigo snake is reported to occur in a wide variety of habitats, including wetlands (Moler 1985b; Moler 1992). In northeastern Florida, most sighting records and museum specimens have been from coastal areas of Nassau, Duval, and St. Johns counties, although three pre-1970 sightings were recorded in the central portions of the first two counties (Moler 1985a). Three post-1970 sightings were recorded in central western Clay County.

In general, NAS Cecil Field provides suitable habitat for the eastern indigo snake (see Figure D-1). Based on the indigo snake's apparent preference for large, unsettled areas (Conant and Collins 1991) and the presence of extensive upland and wetland habitat at the station, it is possible that the indigo snake occurs at NAS Cecil Field.

4.3.3 Florida Pine Snake

No individuals or signs of the Florida pine snake were observed during the E & E/ SOUTHDIV field survey, nor has the pine snake been reported at NAS Cecil Field (FNAI 1994). However, one of the shed snake skins collected during the field survey and sent to Paul Moler for identification appears to be from a pine snake. Moler noted that "such diagnostic characters as the anal plate and head are missing or badly damaged, but the size, coloration, and scale row number pretty much rule out everything else" and that the "skin appears to be a pine snake (*Pithuophis melanoleucus*)" (Moler 1995).

In general, NAS Cecil Field provides suitable habitat for the Florida pine snake (see Figure D-1). Based on the pine snake's close association with the gopher tortoise, areas identified as suitable gopher tortoise habitat can also support the Florida pine snake. In

particular, areas of longleaf pine-oak woodlands and open or old fields around wetland areas are considered suitable habitat for the pine snake (Franz 1992).

4.3.4 Florida Gopher Frog

No individuals or signs of the Florida gopher frog were observed during the E & E/ SOUTHDIV field survey. The gopher frog has not been reported at the station or in adjacent areas (FNAI 1994). However, the gopher frog's small size, cryptic coloration, and reclusive nature make observation of this species difficult. Therefore, based on the association between this species and gopher tortoise burrows, and on the presence of numerous gopher tortoise burrows, it is possible that the gopher frog occurs at the station.

In general, NAS Cecil Field provides suitable habitat for the Florida gopher frog (see Figure D-1). In particular, upland longleaf pine-turkey oak sandhill communities that have gopher tortoise burrows and are located near seasonally flooded wetland areas are capable of supporting the gopher frog (Godley 1992).

4.3.5 Flatwoods Salamander

No individuals or signs of the flatwoods salamander were observed during the E & E/ SOUTHDIV field survey. Although FNAI records indicate that a single adult flatwoods salamander was collected in Section 29 of Baldwin quadrangle in 1982, it is uncertain whether this collection was within NAS Cecil Field (FNAI 1994). An additional survey conducted in 1993 did not reveal the presence of potential breeding sites in Section 29 (Palis 1995a); two potential breeding sites were identified in Section 32, adjacent to and south of Section 29. These sites were surveyed for the larvae of flatwoods salamanders in March 1995 and no larvae or adults were encountered (Palis 1995a). However, it should be stated that 1995 was a poor year for flatwoods salamander reproduction throughout northern Florida because of low rainfall (Palis 1995b).

In general, NAS Cecil Field provides limited areas of suitable habitat for the flatwoods salamander (see Figure D-1). Although it is possible that this species breeds in the wetlands of the Yellow Water Area, the current forestry management plan does not promote the maintenance of suitable habitat (Anderson and Williamson 1976; Ashton 1992). Periodic prescribed burning would significantly diminish the typically dense shrub layer of the pine forests, thereby allowing increased growth of the wiregrass crucial to successful salamander reproduction (Palis 1995b).

4.4 Plants

The plant survey conducted by ESP at NAS Cecil Field revealed the presence of one state-listed species, the variable-leaf crownbeard (1990). This species was found in sandhill habitat near the west side of the southern end of the north-south runway at the Main Station (see Figure D-1). Additional individuals may occur in other dry pineland areas throughout the Main Station and the Yellow Water Area.

In general, NAS Cecil Field provides suitable habitat for all of the currently and formerly listed federal plant species of concern. The extensive dry pine and hardwood areas, particularly at the Main Station, may provide habitat for the southern milkweed, Florida milkweed, Curtiss' sandgrass, and green ladies-tresses. Mesic and wet areas, especially the pine and hardwood wetlands of the Yellow Water Area, may provide habitat for hartwrightia, lake-side sunflower, St. John's Susan, and Chapman's rhododendron.

Seventeen other federally listed plant species of concern (nine of which are also state listed), and 13 state-listed species of concern (lacking federal status) were also considered in the plant species survey conducted at NAS Cecil Field and NAS Jacksonville. None of the federally listed species was observed at NAS Cecil Field during the survey; only one state-listed threat-ened species, the spoon-leaved sundew (*Drosera intermedia*), was found, in a small ditch in the southwestern section of the Yellow Water Area (ESP 1990).

5 Impacts and Mitigation

This section provides a summary of the potential impacts to federal- and state-listed species that would result from the disposal and subsequent reuse of NAS Cecil Field, pursuant to implementation of the Preferred Alternative, and identifies mitigative measures that would minimize these potential impacts. A determination of the effect of the proposed project on each listed species is provided (see Table D-2). Although Navy's proposed disposal of the property would not adversely affect federally listed species, subsequent reuse by other entities may result in negative effects. However, during Navy's disposal and closure activities at NAS Cecil Field, management activities at the station will be conducted in accordance with a natural resource management plan prepared by the USFWS. This plan will be designed to mitigate potential effects of activities conducted during the disposal process (e.g., environmental remedial actions); therefore, no adverse effects to listed species are anticipated.

Upon completion of the federal actions necessary to finalize the disposal of NAS Cecil Field to other entities (e.g., other federal agencies and the local community), the station property will be available for redevelopment activities. The local community, through CFDC, has adopted a base reuse plan for the station property. Following review and approval by the Florida Department of Community Affairs, in accordance with the state's local comprehensive plan regulations, this plan will be adopted as amendments to the Jacksonville and Clay County comprehensive plans. The plan includes civilian reuse of airfield facilities at the station and future development of industrial and commercial uses at the Main Station and in the Yellow Water Area. A substantial portion of the property will continue to be used for forestry activities or converted for passive recreation and conservation.

Following plan adoption, land development regulations will be established to govern land use activities at the station property, consistent with the reuse plan and comprehensive plan amendments (e.g., zoning, site plan review). In addition, all development will be subject

Table D-2

SUMMARY OF RESULTS AND IMPACTS TO FEDERAL- AND STATE-LISTED SPECIES THAT OCCUR OR POTENTIALLY OCCUR AT NAS CECIL FIELD

Species		Presence of Suitable Habitat	Potential Impacts
Common Name	**Scientific Name**		
Mammals			
Florida Black Bear	*Ursus americanus floridanus*	No	No effect
Florida Mouse	*Podomys floridanus*	No	No effect
Sherman's Fox Squirrel	*Sciurus niger shermani*	Yes	Minor effect
Southeastern Big-eared Bat	*Plecotus rafinesquii*	No	No effect
Birds			
Wood Stork	*Mycteria americana*	Yes	No effect
Red-cockaded Woodpecker	*Picoides borealis*	No	No effect
Bald Eagle	*Haliaeetus leucocephalus*	No	No effect
Southeastern American Kestrel	*Falco sparverius paulus*	Yes	Minor effect
Bachman's Sparrow	*Aimophila aestivalis*	Yes	Minor effect
Florida Scrub Jay	*Aphelocoma coerulescens coerulescens*	No	No effect
Reptiles and Amphibians			
Gopher Tortoise	*Gopherus polyphemus*	Yes	Effect
Eastern Indigo Snake	*Drymarchon corais couperi*	Yes	Effect
Florida Pine Snake	*Pituophis melanoleucus mugitus*	Yes	Effect
Florida Gopher Frog	*Rana aerolata*	Yes	Effect
Flatwoods Salamander	*Ambystoma cingulatum*	Yes	No effect
Plants			
Southern Milkweed	*Asclepias viridula*	Yes	TBD
Curtiss' Sandgrass	*Calamovilfa curtissii*	Yes	TBD
Hartwrightia	*Hartwrightia floridana*	Yes	TBD
Lake-side Sunflower	*Helianthus carnosus*	Yes	TBD
Florida Milkweed	*Matelea floridana*	Yes	TBD
Chapman's Rhododendron	*Rhododendron chapmanii*	Yes	TBD
St. John's Susan	*Rudbeckia nitida*	Yes	TBD

Key at end of table.

Table D-2

SUMMARY OF RESULTS AND IMPACTS TO FEDERAL- AND STATE-LISTED SPECIES THAT OCCUR OR POTENTIALLY OCCUR AT NAS CECIL FIELD

Species		Presence of Suitable Habitat	Potential Impacts
Common Name	Scientific Name		
Green Ladies-Tresses	*Spiranthes polyantha*	Yes	TBD
Variable-leaf Crownbeard	*Verbesina heterophylla*	Yes	TBD

Key:

TBD = To be determined.

Source: Bentzien 1995.

to development policies and regulations currently in effect in Jacksonville and Clay counties (e.g., wetlands, floodplains, and conservation policies). For industrial and commercial development, significantly low floor-area ratio (FAR) controls will be adopted to control the density of new development (e.g., 0.15 for industrial uses and 0.30 for commercial uses).

Review and regulation of development projects subsequent to disposal will be primarily under the auspices of the city of Jacksonville and the state of Florida except for projects involving federal action, such as the issuance of federal permits. In these cases appropriate federal agencies will also have review authority (e.g., U.S. Army Corps of Engineers, USFWS). FGFWFC will ensure that future redevelopment activities fulfill all permit requirements regarding both state- and federally listed species likely to occur in the area.

Because redevelopment of the station will occur over a 25- to 30-year period and involve a number of different actions and entities, potential impacts in this biological assessment are described in terms of qualitative changes to suitable habitat (e.g., loss of habitat, creation of open areas) and/or species populations. The presence of federally listed species and/or suitable habitat at NAS Cecil Field is based on the information presented in Section 4 of this biological assessment (CZR, Inc. 1994; ESP 1990; Palis 1995a; E & E/SOUTHDIV 1995).

5.1 Mammals

The proposed action would have no effect on the Florida black bear, Florida mouse, or southeastern big-eared bat. NAS Cecil Field does not provide suitable habitat for these species ; therefore, they are unlikely to occur at the station.

Three Sherman's fox squirrels were observed during the field survey, and suitable habitat was identified at NAS Cecil Field. This squirrel is closely associated with areas that contain both pine and oak habitats. Consequently, reuse activities that require clearing or modifying these areas would have a minor negative effect on Sherman's fox squirrel; it is unlikely that individual squirrels would be adversely affected, but habitat would be lost. Any activities planned in the areas of suitable squirrel habitat should be scheduled to avoid the breeding season, when the less-mobile young are present.

5.2 Birds

The proposed action would have no effect on the red-cockaded woodpecker, bald eagle, or Florida scrub jay. NAS Cecil Field does not provide suitable habitat for these species and they are unlikely to occur at the station.

No wood storks were observed during the field survey, but suitable foraging habitat was identified at NAS Cecil Field. Wood storks have been reported to feed in several of the wetland areas at the station. Because these wetlands are federally protected and are considered difficult areas to develop, it is likely that they would be avoided during redevelopment of the station. Consequently, the proposed action would have no adverse effects on the wood stork's breeding activities or habitat.

No southeastern American kestrels were observed during the field survey, but suitable habitat was identified at NAS Cecil Field. This kestrel prefers open areas with short vegetation and scattered perches for foraging, and trees with existing cavities for nesting. Consequently, reuse activities that require developing open areas and/or removing cavity trees would have a minor negative effect on the southeastern American kestrel. It is unlikely that individual kestrels would be adversely affected, but habitat would be lost. However, depending on the characteristics of specific redevelopment projects at the station, additional areas of suitable kestrel foraging habitat (open areas) may be created, resulting in negligible or even positive effects. In addition, two areas of suitable foraging habitat, one surrounding the existing runways and the other along the station's golf course, would not be affected by redevelopment activities. Nevertheless, all redevelopment activities that require removing cavity trees should be conducted during the nonbreeding season to avoid negative effects on the unfledged young. In addition, mitigative measures such as erection of nest boxes should be taken by redevelopers to compensate for the loss of potential nesting habitat.

Two Bachman's sparrows were observed during the field survey, and suitable habitat was identified at NAS Cecil Field. This sparrow is closely associated with the extensive areas of dry, open pinelands that occur throughout the facility and in adjacent areas (e.g., the Brannan Field Mitigation Bank). Consequently, reuse activities that require clearing or modifying these areas would have a minor negative effect on Bachman's sparrow. It is unlikely that individuals would be adversely affected, but habitat would be lost. All activities planned in the areas of suitable sparrow habitat should be scheduled during the nonbreeding season to avoid adverse effects on the unfledged young.

5.3 Reptiles and Amphibians

Numerous gopher tortoises were observed during the field survey, and suitable habitat was identified at NAS Cecil Field. The Main Station currently supports a large population of tortoises, and the Yellow Water Area provides habitat for a smaller population (CZR, Inc. 1994).

Consequently, reuse activities that require excavating, clearing, developing, and/or modifying the primarily upland communities that support gopher tortoises would result in a negative effect. Because of the high concentration of gopher tortoises at NAS Cecil Field, the degree of impact (i.e., minor, moderate, or significant) will depend on the number of burrows disturbed and the extent of lost habitat. Nevertheless, because the tortoise is a less-mobile species, redevelopment entities should conduct surveys immediately prior to any habitat alteration, and individual tortoises found during these surveys should be relocated to another area of suitable habitat. In addition, the area that is to be disturbed should be fenced during construction activities to prevent gopher tortoises from entering or returning to the area.

No eastern indigo snakes, Florida pine snakes, or Florida gopher frogs were observed during the field survey, but suitable habitat for these species was identified at NAS Cecil Field. In addition, one of the shed snake skins found during the survey is believed to be from a Florida pine snake (Moler 1995). All three of these species are closely associated with gopher tortoise burrows and habitat. Consequently, reuse activities that require clearing, developing, or modifying suitable gopher tortoise habitat would have a negative effect on these species. Similar to the gopher tortoise, the degree of impact would depend on the occurrence of these species in the area, as well as the amount of habitat lost. Because these species are more mobile than the gopher tortoise, they are likely to vacate the area when project disturbances begin. However, if any individuals of these species are found during subsequent gopher tortoise surveys, they should also be relocated.

No flatwoods salamanders were observed during the field survey, but suitable habitat was identified at NAS Cecil Field (Palis 1995a). This species is closely associated with the wetland areas of the Yellow Water Area, especially areas containing wiregrass. However, because the wetland areas at the facility are federally protected and considered difficult areas to develop, areas of suitable flatwoods salamander habitat would not be adversely affected by the proposed reuse activities. Consequently, the proposed action would have no effect on the flatwoods salamander.

5.4 Plants

One population of the variable-leaf crownbeard was identified at NAS Cecil Field and suitable habitat for the eight other listed plant species have been identified (ESP 1990). A determination regarding the effect of the proposed action on these species cannot be made at this time. Based on the variety of habitats associated with these plants and the difficulty in

identifying them during certain seasons, a prospective developer would need to conduct a species-specific plant survey prior to development of an area at the station with potential habitat. Surveys would need to be designed so that each federally listed plant species of concern is adequately addressed. Consequently, surveys should be scheduled when the plants are in bloom, which may require several visits to the area. USFWS should be consulted regarding the appropriateness of proposed survey techniques. If a plant population is identified in the proposed project area, mitigative measures such as avoidance, relocation, or collection of seeds and propagation would need to be discussed with USFWS.

5.5 Mitigation Implementation

The recommended mitigation measures presented in the FEIS for federal- and state-listed species could be implemented pursuant to Policy 1.4.1 of the Conservation/Coastal Management Sub-Element of the NAS Cecil Field Transition Element, which will be adopted as an amendment to the 2010 Jacksonville Comprehensive Plan. The local government would be responsible for policy enforcement. The policy requires a site survey for new development to determine the occurrence of listed species. If the survey indicates the presence of listed species, a habitat management plan will be required demonstrating how the listed species will be protected. The policy also requires that, "Under the requirements of the habitat management plan, the developer may be required to provide for avoidance as well as mitigative measure, such as relocation of listed species."

6 Conclusions

NAS Cecil Field provides suitable habitat for a total of 18 currently and formerly listed federal species: one mammal, three bird, five reptile and amphibian, and nine plant species. Navy's proposed disposal of NAS Cecil Field would have no effect on any of these species of concern. However, proposed reuse of the facility has the potential to affect the animal species associated with upland habitats at NAS Cecil Field: Sherman's fox squirrel, Bachman's sparrow, southeastern American kestrel, eastern indigo snake, Florida gopher tortoise, Florida pine snake, and Florida gopher frog. Because the other species occur primarily in wetland areas that would be avoided during reuse activities, they would be indirectly affected by loss of associated uplands through the proposed reuse of NAS Cecil Field. Potential impacts to plants will need to be determined in a site-specific survey prior to redevelopment activities.

Overall, proposed reuse and subsequent development of the station would have a negative effect on federally listed species. Mammal and bird species of concern that occur in the area of proposed redevelopment activities would vacate the area prior to development: it is unlikely that individuals would be affected, but a permanent loss of habitat would result. Similarly, reptiles and amphibians occupying the area of proposed reuse activities would be relocated prior to development. Again, it is unlikely that individuals would be affected, but there would be a permanent loss of habitat. The land area required for development activities and the amount of habitat disturbed will determine the overall effect on populations of these species. Additional surveys in the areas selected for redevelopment would be required to determine the occurrence of listed plant species; assess the quantitative effects on animal and plant species that occur in the area; relocate any species occupying the area; and determine appropriate mitigative measures.

As discussed in Sections 5.1 through 5.5, incorporation of mitigative measures into disposal and reuse activities at NAS Cecil Field and enforcement of these measures would help minimize overall effects on listed species. Management of the station in accordance with habitat

management plans, as required by Policy 1.4.1 of the Conservation/Coastal Management Sub-Element of the NAS Cecil Field Transition Element, as well as continuation of forestry management practices, will benefit the listed species that occur at the station. Similarly, the Division of Forestry's stewardship of the property following Navy's disposal/closure activities will ensure the protection of state- and federally listed species.

Wetlands are protected from most direct impacts, yet associated functions of uplands are typically lost. The Natural and Recreation Corridor on the west side of NAS Cecil Field is designed to help meet the long-term need for an area of preserved uplands and wetlands. On the east side of the station, development location, site design, and standards including buffers and connections between habitats can support the long-term existence of some significant habitats, with minimal effects on planned development. Avoiding areas identified as suitable habitat to the extent possible would reduce habitat loss and minimize negative effects. Scheduling clearing and/or construction activities during the nonbreeding seasons of the species that may occur in the area would reduce negative effects on these species' populations. Installation of artificial structures such as nesting platforms, nesting boxes, and protective fences and/or boardwalks would help compensate for habitat loss and encourage the continued presence of listed species at the facility. In addition, several listed species would benefit from habitat management practices such as periodic burning and reduction of understory growth. The proposed reuse of NAS Cecil Field could incorporate maintenance and/or development of suitable habitat for a number of the species of concern identified in this biological assessment.

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E Programmatic Agreement Regarding Cultural Resources at NAS Cecil Field

FINAL

PROGRAMMATIC AGREEMENT
AMONG
DEPARTMENT OF THE NAVY,
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION,
AND
THE FLORIDA DIVISION OF HISTORIC RESOURCES
CONCERNING
BASE CLOSURE AND REALIGNMENT
OF
NAVAL AIR STATION, CECIL FIELD,
JACKSONVILLE, FLORIDA

WHEREAS, the Department of the Navy (Navy) is responsible for the implementation of applicable portions of the Base Closure and Realignment Act of 1990 (Title XXIX of P.L. 101-510) as amended by P.L. 102-190 and P.L. 102-484, commonly known as the "BRAC" program; and

WHEREAS, the Navy is proceeding with base realignment and closure actions, to include the realignment of functions and units, closure of installations, and disposal of surplus property in a manner consistent with the *Report of the Defense Secretary's Commission on Base Realignments and Closures* and *Defense Base Closure and Realignment Commission Report to the President, 1993*; and

WHEREAS, the Navy has determined that its implementation of the BRAC program may have effects on properties at Naval Air Station (NAS) Cecil Field which are eligible for inclusion in the National Register of Historic Places (historic properties) as identified in *Cultural Resources Assessment for Base Realignment and Closure, Naval Air Station Cecil Field, Jacksonville, Florida, September 1995 (Assessment), and has consulted with the Florida State Historic Preservation Officer (SHPO), Florida Department of State, Division of Historic Resources*, and the Advisory Council on Historic Preservation (Council) pursuant to 36 CFR Part 800, regulations implementing Section 106 of the National Historic Preservation Act (NHPA) (16 U.S.C., Section 470f), Section 110(f) of the same Act (16 U.S.C., Section 470h.2[f]), and Section 111 of the same Act (16 U.S.C., Section 470h.3); and

WHEREAS, appropriate restrictive devices have been prepared to protect these properties in the event of lease or transfer/sale (Appendices 1 and 2); and

WHEREAS, there is an agreed upon mechanism for the amendment of this document as future circumstances may require (Appendix 3); and

WHEREAS, interested members of the public, including the National Trust for Historic Preservation and the various local governments have been invited and provided an opportunity to comment on the effects of this Base Closure and Disposal Action may have on historic properties which might exist at NAS Cecil Field; and

NOW, THEREFORE, the Navy, the SHPO, and the Council agree that the undertaking shall be implemented in accordance with the following stipulations to take into account the effect of the undertaking on historic properties.

STIPULATIONS

The Navy will ensure that the following stipulations are implemented:

I. Architectural and Archeological Properties

A. For the purposes of this Agreement, it is understood that:

1. Based upon the investigations, identification, and evaluation processes discussed in the Assessment, no architectural properties exist at NAS Cecil Field which meet any of the eligibility criteria for inclusion in the National Register of Historic Places (NRHP).

2. Nineteen (19) areas (Appendices 4 and 5) were identified at NAS Cecil Field which the Assessment identified as areas of high potential for the existence of archeological artifacts or data which might meet NRHP criteria.

II. Areas of Potential Effect

Although some BRAC actions may induce changes in population distribution, traffic, and/or land use that extend beyond the boundaries of NAS Cecil Field properties to be closed, transferred/disposed of, and/or parcels on which new construction will occur, the effect of these changes on potential historic properties is uncertain at this time. Accordingly, during preliminary coordination with the SHPO (Stipulation III), the Navy will define the area of potential effects (APE) of a BRAC action consistent with the Council's regulations (36 CFR, Sections 800.2(c), 800.9(a), and 800.9(b)), and with reference to possible adverse effects to potential historic properties which may reasonably be expected to occur on or adjacent to the property subject to

the BRAC action. In cases of dispute over the APE of a BRAC action, the opinion of the Council will be binding on all parties to this Agreement.

III. NEPA and Preliminary Coordination with the SHPO

A. It is mutually understood that many of the terms of this Agreement will be carried out after the Navy has complied with the National Environmental Policy Act (NEPA) and filed its Record of Decision (ROD), Finding of No Significant Impact (FONSI), or Categorical Exclusion (CATEX). Nevertheless:

1. The Navy must meet all its NHPA responsibilities for BRAC generated activities; and

2. Whenever it is feasible for the Navy to carry out the terms of this Agreement prior to filing the ROD, FONSI, or CATEX, the Navy will do so; and

3. When it is infeasible to complete the actions required by Section 106 of the NHPA prior to issuance of a CATEX, FONSI (assuming a FONSI is otherwise proper given the affects on potential historic property sites), or ROD, the Navy will stipulate in the CATEX, FONSI, or ROD the specific areas in which the Navy has not complied with the NHPA. The FONSI or ROD will further specify that the Navy will not undertake any new BRAC construction, renovation, land disposal, training exercises, or other activities which could affect potential historic properties until the actions necessary to inventory, assess, and take into account the effects on historic properties, should they exist, have been completed consistent with the terms set forth in this Agreement; and

4. For the Navy, the Southern Division, Naval Facilities Engineering Command Historic Preservation Officer (HPO) or his designee will review the draft ROD or FONSI for this BRAC action to ensure that outstanding historic preservation requirements are adequately addressed in these documents; and

5. The Navy will ensure that no actions that could result in effects on existing or potential historic properties are undertaken pursuant to a ROD, FONSI, or CATEX until the terms of this Agreement have been carried out.

B. The Navy will notify the Florida SHPO within 60 days after the signing of this Agreement about the nature and timing of the BRAC actions for NAS Cecil Field, and will provide the following information:

1. A description of the type and location of the undertaking.

2. Currently available milestones for BRAC actions affecting the installation.

3. Information available about identified or potential historic properties at the installation.

4. Currently available information about the actions of the Department of Defense Office of Economic Adjustment concerning the setup of local reuse committees for NAS Cecil Field, or portions thereof, which the Navy will dispose.

C. The Navy will coordinate the NEPA process with its NHPA activities. In accordance with NEPA requirements, NEPA documentation for NAS Cecil Field will:

1. Identify known or potential historic properties and past studies;

2. Identify the potential for historic properties to be affected by the BRAC process; and

3. Identify the steps necessary for the Navy to meet its Section 106 responsibilities under NHPA.

D. The level of documentation in Stipulation III, C, 1-3, above will be commensurate with the type of environmental document prepared. Only brief overviews and summaries of impacts, if any, are expected in a CATEX and Environmental Planning Guide (EPG). When an Environmental Assessment (EA) or Environmental Impact Statement (EIS) is prepared, a more detailed presentation of data will be included.

E. The Navy will send the Florida SHPO any BRAC EA or Draft EIS (DEIS) for their review and comment. There will be a 30-day review period from the date received during the public comment period. The review time for an EA, however, will be 15 working days from date of receipt, due to an accelerated schedule for EAs. The information included in these documents will constitute the first effort in the process to identify historic properties and assess the potential effects on them as defined in 36 CFR Parts 800.4 and 800.5.

F. The Navy will ensure that copies of the Final BRAC EA or EIS are provided to the Florida SHPO.

G. The Navy shall provide a copy of this Agreement, its attachments and appendices, and the materials listed in Stipulation IX of this Agreement, to appropriate Commanders, Commanding Officers, Major Claimants, and other elements of the Navy responsible for Navy BRAC NEPA compliance.

H. On January 1, 1997, and on that same date every year thereafter, until all NAS Cecil Field properties have been transferred or otherwise disposed of, the Navy will provide the

Florida SHPO with an annual update report on the status of BRAC activities. The report shall discuss all BRAC historic resource investigations and coordination undertaken and document all no effect or no adverse effect determinations received for BRAC-related projects. The report will also include a discussion of activities undertaken for closing facilities by the Department of the Navy. This report will be prepared until such time as all necessary NHPA requirements for BRAC have been met or a decision has been made by the Navy not to proceed with further BRAC actions.

IV. IDENTIFICATION AND EVALUATION

A. Identification and Evaluation Process

1. In accordance with the requirements of Section 110 of 36 CFR Part 800, the Navy has conducted the Assessment which addressed all efforts made for the identification and evaluation of historic properties located within the boundaries of NAS Cecil Field. This Assessment in its preliminary form was submitted to the Florida SHPO for review and comment, and was made available to interested parties of the general public. All comments received were taken into account, and proposed changes considered valid were incorporated into the final document.

2. During the conduct of the investigation, no architectural properties were discovered which met the criteria for inclusion in the National Register of Historic Places (NRHP), and as a result, it was the determination of the Navy that no architectural historic properties existed. The Florida SHPO concurred in this determination.

3. Inasmuch as the land holdings of NAS Cecil Field consists of several thousand acres of forested and undeveloped land, the Assessment focused on archival research, topographical walk-overs, and the development of a computer model which would identify areas of high potential for archeological sites (See Appendices 4 and 5). Nineteen (19) high potential areas were identified. Four of these areas (one in proximity to Yellow Water Housing Area [Appendix 4], and three located within the boundaries of the Whitehouse Outlying Landing Field [OLF] [Appendix 5]) are being transferred to NAS Jacksonville effective October 1, 1996, and will shortly thereafter be the subject of intensive surveys and testing to determine whether or not archeological deposits exist, and if so, whether or not those deposits are eligible for the NRHP. As NAS Jacksonville property, these four areas will continue to receive the protection of the NHPA. The remaining fifteen (15) areas exist in forested areas which will be disposed of to non-federal entities. Protective covenants and standards have been developed (See Appendices 1 and 2) to provide interim- and long-range protection for these fifteen (15) potential areas. Until such time as these fifteen (15) areas are disposed of, the Navy will continue to comply with the Section 106, NHPA, requirements on all undertakings which are proposed within or in proximity to the identified sites.

4. The Navy will ensure the identification of significant records and objects related to the historic past of NAS Cecil Field, and these records and/or objects will be archived at a repository specified by the Secretary of the Navy, in accordance with the requirements of the NHPA.

5. Throughout the planning and implementation of the BRAC program at NAS Cecil Field, the Navy will provide guidance to the activity to ensure that historic properties, if any, are not inadvertently damaged, destroyed, or allowed to deteriorate before, during, or after closure or realignment.

V. DETERMINATION OF EFFECT

A. The Navy, in consultation with the Florida SHPO, shall determine the effect of BRAC actions on existing or potential historic properties in accordance with 36 CFR 800.5, applying the Criteria of Effect and Adverse Effect at 36 CFR 800.9.

B. Where the Navy determines pursuant to 36 CFR 800.5 and 36 CFR 800.9 that an adverse effect may occur, then:

1. If the Navy determines, in consultation with the SHPO and taking into account the comments, if any, of the interested person(s) identified at 36 CFR 800.5(e)(1), that it is appropriate to apply the standard mitigation measures set forth in Appendix X, the Navy will provide the SHPO with sufficient documentation to support this determination, advise him that the Navy intends to carry out the specific measures, and request his concurrence within 30 days. If the SHPO concurs within 30 days of their receipt of such documentation, the Navy shall carry out the standard mitigation measures it has determined to be appropriate. Failure by the SHPO to respond within the specified time period shall be conclusive of the SHPO's concurrence. Should the SHPO disagree with the Navy's determination, the Navy will initiate consultation in accordance with 36 CFR 800.5(e).

2. If the Navy and the SHPO, taking into account the comments, if any, of the interested person(s) identified at 36 CFR 800.5(e)(1), agree on a program to avoid, minimize, or mitigate the adverse effect, the Navy will provide the Council with sufficient documentation to support this determination and request its concurrence within 30 days of receipt. If the council concurs within this specified period, the Navy shall carry out the program. Failure by the Council to respond within the specified time period shall be conclusive of the Council's concurrence. Should the Council object to the program, the Navy will undertake consultation in accordance with 36 CFR 800.5(e).

VI. TREATMENT AND MANAGEMENT

A. The Navy will ensure that the effects of BRAC actions on historic properties, if such exist, are treated in accordance with the determinations and agreements reached pursuant to Stipulation V.

B. For those portions of NAS Cecil Field which are being transferred to NAS Jacksonville, and therefore retained by the Navy, the Navy will ensure that they continue to receive the protection guaranteed by the NHPA, and this protection will be managed by the Commanding Officer, NAS Jacksonville, or his designee, and these properties will be included in the preservation actions and plans established by and carried out by NAS Jacksonville.

C. Inasmuch as the potential archeological sites to be retained by NAS Cecil Field after 1 October 1996, and identified by the Assessment are generally located in forestry managed areas of NAS Cecil Field, it is agreed that normal forest management procedures may continue without consultation when the required actions are not within or in immediate proximity to the identified areas of high potential for archeological deposits. When the planned projects are within or in immediate proximity to the identified areas of high potential, the Navy will enter into case-by-case consultation with the Florida SHPO as required by Section 106 of the NHPA.

D. The Navy will ensure that the provisions of the Archaeological Resources Protection Act (P.L. 96-95) and the Native American Graves Protection and Repatriation Act (P.L. 101-601) are implemented, as appropriate, during the BRAC process.

VII. INTERIM PROTECTION, RECORDS RETENTION, AND LONG-TERM CURATION

A. The Navy will ensure interim protection of identified and potential historic properties to ensure that deferred maintenance and other management decisions do not adversely affect the integrity of these properties.

B. The Navy will consult with the SHPO on terms of curation and disposition of historical documents, drawings, photographs, reports, and archeological materials generated by BRAC studies.

VIII. PUBLIC INVOLVEMENT

A. For those portions of NAS Cecil Field which the Navy will dispose, the Navy has notified the Department of Defense Office of Economic Adjustment, and will notify the local

reuse committee(s) about NHPA requirements and concerns. To the fullest extent possible and appropriate, the Navy will work with the local reuse committee(s), the Florida SHPO, and other interested parties to develop treatments and/or management plans to ensure compatible reuses.

B. The Navy and the Florida SHPO will consider the need for additional consulting parties consistent with the Council's publication *Public Participation in Section 106 Review: A Guide for Agency Officials (Advisory Council on Historic Preservation, 1989).*

C. To the extent practicable, public participation shall be coordinated with public participation under NEPA.

IX. STANDARDS AND GUIDELINES

Standards and guidelines for implementing this Agreement include, but are not limited to:

Chief of Naval Operations (OPNAV) Instruction 5090.1B, Chapter 23;

Secretary of the Navy (SECNAV) Instruction 4000.35;

36 CFR Part 800: Protection of Historic Properties;

The Section 110 Guidelines: Guidelines for Federal Agency Responsibilities under Section 110 of the National Historic Preservation Act (53 FR 4727-4746);

The Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings (National Park Service, 1990);
Identification of Historic Properties: A Decision Making Guide for Managers (Advisory Council on Historic Preservation, 1989);

Preparing Agreement Documents (Advisory Council on Historic Preservation, 1989); and

Guidelines for Evaluating and Documenting Traditional Cultural Properties (National Register Bulletin 38, 1991).

X. DISPUTE RESOLUTION

A. Should the Florida SHPO or an interested party identified at 36 CFR 800.5(e)(1) object to the Navy's implementation of any part of this Agreement, the Navy shall consult with

the objecting party to resolve the objection. If the Navy determines that the objection cannot be resolved, the Navy shall forward all documentation relevant to the dispute to the Council. Within 30 days of receipt of all pertinent documentation, the Council will either:

1. Provide the Navy with recommendations, which the Navy will take into account in reaching a final decision regarding the dispute; or

2. Notify the Navy that it will comment pursuant to 36 CFR 800.6(b), and proceed to comment. Any Council comment provided in response to such a request will be taken into account by the Navy in accordance with 36 CFR 800.6(c)(2) with reference to the subject of dispute.

B. Any recommendation or comment provided by the Council will be understood to pertain only to the subject of the dispute; the Navy's responsibility to carry out all actions under this Agreement that are not the subject of the dispute will remain unchanged.

C. Should a member of the public object to any measure carried out under the terms of this Agreement, or the manner in which such a measure is implemented, the Navy shall take the objection into account and consult as needed with the objecting party, the SHPO, and the Council to resolve the objection.

XI. AMENDMENTS

Any signatory to this Agreement who determines that some portion of the Agreement cannot be met must immediately request the other signatories to consider an amendment or addendum to this Agreement which would ensure full compliance. Such an amendment or addendum shall be executed in the same manner as the original Agreement using the format provided in Appendix 3. Should any signatory to this Agreement be unable to maintain a level of effort sufficient to carry out the terms of the Agreement, that signatory shall notify the others and seek an appropriate amendment.

XII. ANTI-DEFICIENCY ACT

A. All requirements set forth in this Agreement requiring the expenditure of Navy funds are expressly subject to the availability of appropriations and the requirements of the Anti-Deficiency Act (31 U.S.C. Section 1341). No obligation undertaken by the Navy under the terms of this Agreement shall require, or be interpreted to require, a commitment to expend funds not appropriated for a particular purpose.

B. If the Navy cannot perform any obligation set forth in this Agreement due to the unavailability of funds, the Navy, the SHPO, and the Council intend the remainder of the Agreement to be executed. Any obligation under the Agreement which cannot be performed due to the unavailability of funds must be renegotiated between the Navy, the SHPO, and the Council.

XIII. TERMINATION OF AGREEMENT

This Agreement will terminate upon official notification to the SHPO and the Council that all NAS Cecil Field property has been transferred or disposed of by the Navy, and that the Navy no longer holds any property interest in the property now known and defined as the Naval Air Station Cecil Field, Jacksonville, Florida.

Execution and implementation of this Programmatic Agreement establishes that the Navy has satisfied its responsibilities under Sections 106 and 110(f) of the National Historic Preservation Act of 1966, as amended, for all individual undertakings of the BRAC program as outlined in this Agreement.

DEPARTMENT OF THE NAVY

By: Frank T. Bossio Date: 9-30-96
Frank T. Bossio, CAPT, USN
Commanding Officer, NAS Cecil Field, Florida

FLORIDA STATE HISTORIC PRESERVATION OFFICER

By: George W. Percy Date: 10/9/96
George W. Percy, Division of Historic Resources

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By: John M. Fowler Date: 1/22/97
for Robert D. Bush, Executive Director

APPENDIX 1

PRESERVATION COVENANT FOR ARCHEOLOGICAL SITE

In consideration of the conveyance of the real property that includes the (*name of archeological site*) located in Duval and Clay Counties, State of Florida, which is more fully described as: *(Insert legal description)*. Grantee hereby covenants on behalf of himself/herself/itself, his/her/its heirs, successors and assigns at all times to the United States Department of the Navy (Navy) and the Florida State Historic Preservation Officer (SHPO) to maintain and preserve the (*name of archeological site*) as follows:

1. No disturbance of the ground surface or any other thing shall be undertaken or permitted to be undertaken on (*name of archeological site*) which would affect the physical integrity of the archeological site without the express prior written permission of the Florida SHPO, signed by a fully authorized representative thereof. Should the Florida SHPO require, as a condition of the granting of such permission, that the Grantee conduct archeological data recovery operations or other activities designed to mitigate the adverse effect of the proposed activity on the (*name of archeological site*), the Grantee shall at his/her/its own expense conduct such activities in accordance with the Secretary of the Interior's Standards and Guidelines for Archeological Documentation (48 FR 447344-37) and such standards and guidelines as the Florida SHPO may specify, including, but not limited to, standards and guidelines for research design, field work, analysis, preparation and dissemination of reports, disposition of artifacts and other materials, consultation with Native American or other organizations, and re-interment of human remains.

2. Grantee shall make every reasonable effort to prohibit any person from vandalizing or otherwise disturbing the (*name of archeological site*) and shall promptly report any such disturbance to the Florida SHPO.

3. The Florida SHPO shall be permitted at all reasonable times to inspect (*name of archeological site*) in order to ascertain if the above conditions are being observed.

4. In the event of a violation of this covenant, and in addition to any remedy now or hereafter provided by law, the Florida SHPO may, following reasonable notice to the Grantee, institute a suit to enjoin said violation or to require the restoration of (*name of archeological site*). The successful party shall be entitled to recover all costs or expenses incurred in connection with such suit, including all court costs and attorney's fees.

5. Grantee agrees that the Florida SHPO may at his/her/its discretion, without prior notice to Grantee, convey and assign all or part of its rights and responsibilities contained herein to a third party.

6. This covenant is binding on Grantee, his/her/its heirs, successors and assigns in perpetuity. Restrictions, stipulations, and covenants contained herein shall be inserted by Grantee verbatim or by express reference in any deed or other legal instrument by which he/she/it divests himself/herself/itself of either the fee simple title or any other lesser estate in (*name of archeological site*) or any part thereof.

7. The failure of the Florida SHPO to exercise any right or remedy granted under this instrument shall not have the effect of waiving or limiting the exercise of any other right or remedy or the use of such right or remedy at any other time.

This covenant shall be binding servitude upon the real property that includes (*name of archeological site*) and shall be deemed to run with the land. Execution of this covenant shall constitute conclusive evidence the Grantee agrees to be bound by the foregoing conditions and restrictions and to perform to obligations herein set forth.

APPENDIX 2

ARCHEOLOGICAL DATA RECOVERY PROJECT STANDARDS

Archeological data recovery shall be carried out in accordance with a data recovery plan developed in consultation with the Florida State Historic Preservation Officer (SHPO). The data recovery plan shall be consistent with the Secretary of the Interior's *Standards and Guidelines for Archeological Documentation* (48 FR 447344-37) and pertinent standards and guidelines of the Florida SHPO, and shall take into account the Advisory Council on Historic Preservation's (Council) publication, *Treatment of Archeological Properties* (Advisory Council on Historic Preservation, [draft] 1980), subject to any pertinent revisions the Council may make in the publication prior to completion of the data recovery plan. The plan shall, at a minimum, specify:

1. The property, properties, or portions of properties where data recovery is to be carried out;

2. Any property, properties, or portions of properties that will be transferred without data recovery, and the rationale for doing so;

3. The research questions to be addressed through the data recovery, with an explanation of their relevance and importance;

4. The field work methodology to be used, with an explanation of its relevance to the research questions;

5. The methodology to be used in analysis, with an explanation of its relevance to the research questions;

6. The methodology to be used in data management and dissemination of data, including a schedule;

7. The manner in which recovered materials will be disposed of, in a manner consistent with State of Florida law regarding disposition of archeological materials and recovered human remains;

8. The manner in which field notes and other records of field work and analysis will be preserved and disposed of;

9. The methodology to be used to involve the interested public in the data recovery process;

10. The methodology to be used in disseminating results of the work to the interested public;

11. The methodology by which parties with special interests in the property, if any, will be kept informed of the work and afforded the opportunity to participate; and,

12. The schedule for the submission of progress reports and final reports to the Florida SHPO and others.

Records of data recovery field work and analysis shall be retained in an archive or other curatorial facility approved by the Florida SHPO and disseminated as appropriate to facilitate research and management without unduly endangering historic properties. Material recovered from data recovery projects shall be curated in accordance with 36 CFR Part 79, except that human remains and artifacts associated with graves shall be treated in conformance with requirements of the *Native American Graves Protection and Repatriation Act* (Public Law 101-601).

APPENDIX 3

AMENDMENT FORM

Amendment # ____

Date: _____

PROGRAMMATIC AGREEMENT

AMONG:
THE DEPARTMENT OF THE NAVY,
FLORIDA STATE HISTORIC PRESERVATION OFFICER,
AND
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION

FOR THE:
BASE CLOSURE AND DISPOSAL OF
THE NAVAL AIR STATION, CECIL FIELD
JACKSONVILLE, FLORIDA

1. Need for Amendment: (Describe briefly)

2. Proposed Amendment Narrative: (Specify)

DEPARTMENT OF THE NAVY:

By:_____ Date: _____
(Typed Name, Rank, Title and Command)

FLORIDA STATE HISTORIC PRESERVATION OFFICER:

By:_____ Date: _____
(Typed Name and Title)

ADVISORY COUNCIL ON HISTORIC PRESERVATION:

By:_____ Date: _____
(Typed Name and Title)

Advisory Council On Historic Preservation

The Old Post Office Building
1100 Pennsylvania Avenue, NW, #809
Washington, DC 20004

JAN 27 1997

Mr. R. N. Johnson
Historic Preservation Officer
Southern Division
Naval Facilities Engineering Command
P. O. Box 190010
2155 Eagle Drive
North Charleston, SC 29419-9010

REF: Closure of Naval Air Station Cecil Field
Jacksonville, Florida

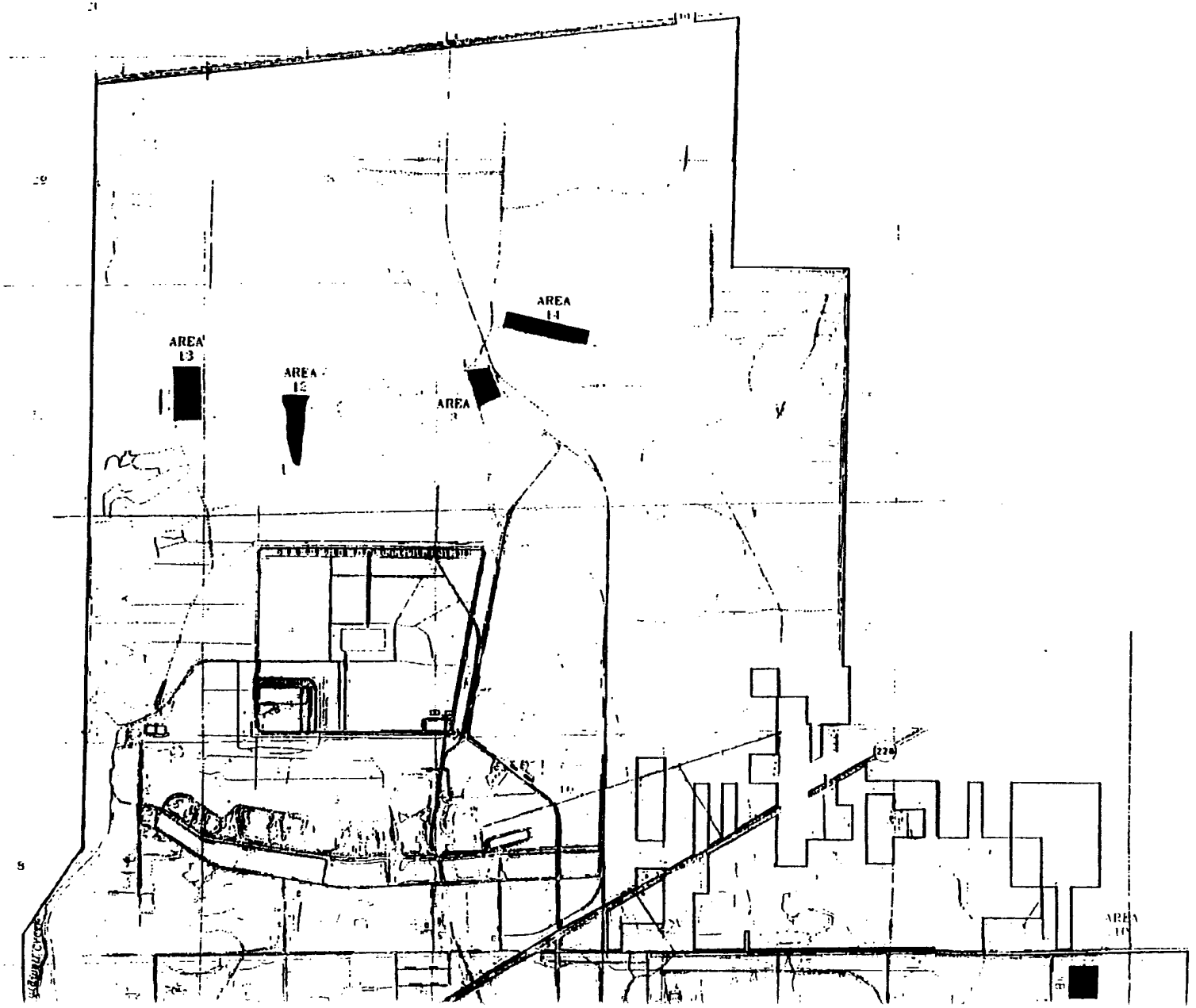
Dear Mr. Johnson:

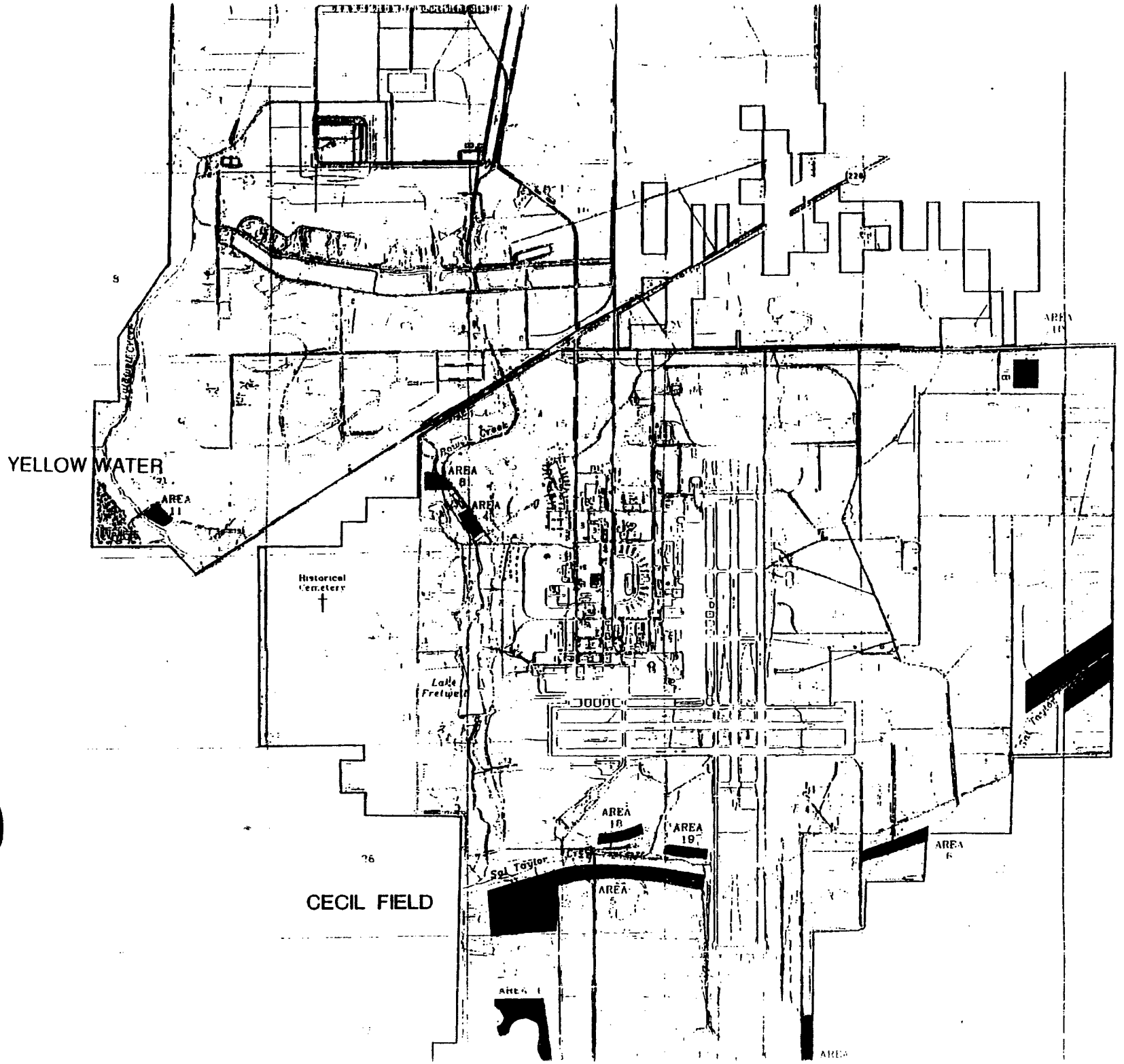
The enclosed Programmatic Agreement for the referenced undertaking has been signed by the Council. This completes the requirements of Section 106 of the National Historic Preservation Act and the Council's regulations. We recommend that you provide a copy of the fully-executed Agreement to the Florida State Historic Preservation Officer.

Sincerely,

Priscilla J. Neel

for Don L. Klima
Director
Office of Planning and Review

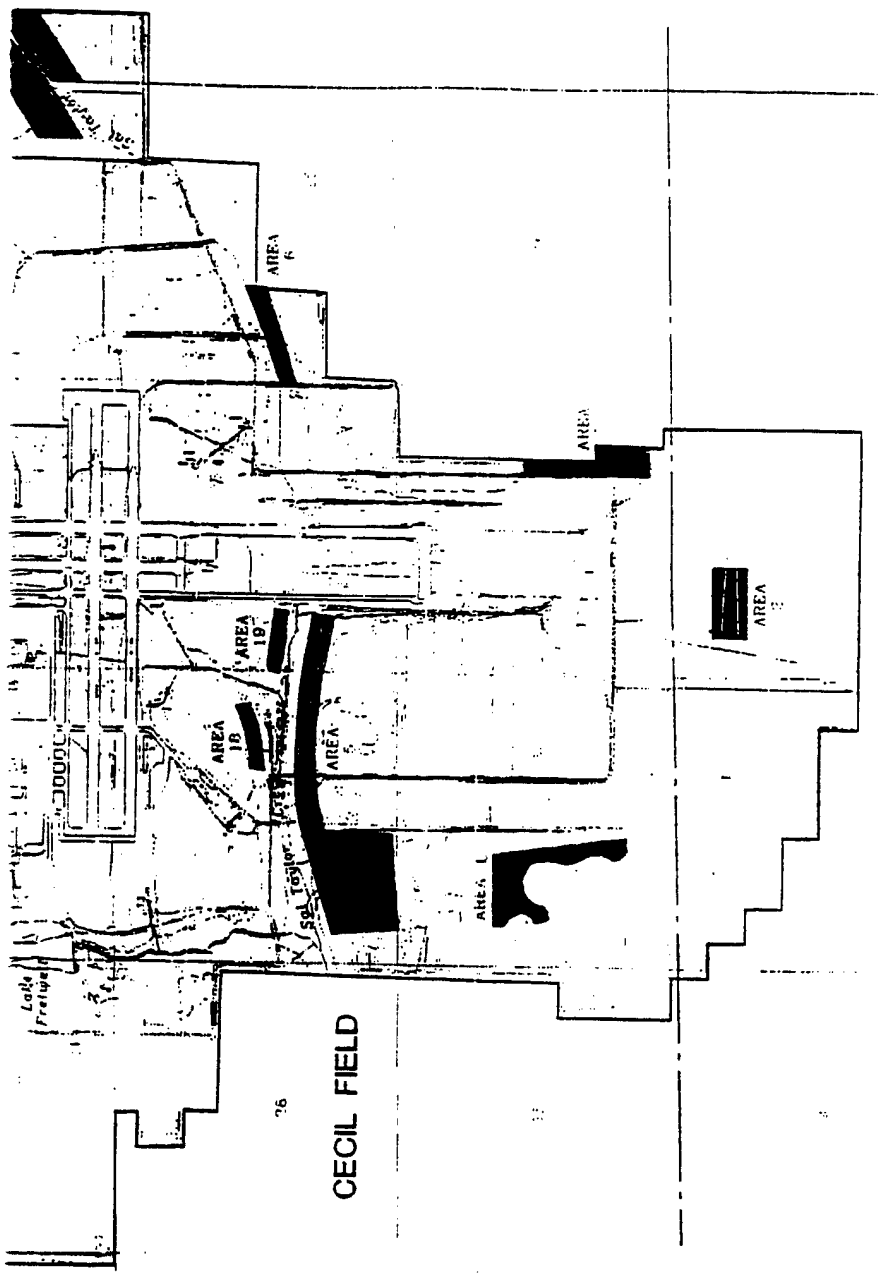

AREA
L3
AREA
L4
AREA
L1


YELLOW WATER
AREA 11
AREA 8
AREA 4
Historical Cemetery
Lake Fretwell
AREA 18
AREA 19
AREA 5
AREA 6
Sol Taylor
CECIL FIELD
220

(2)

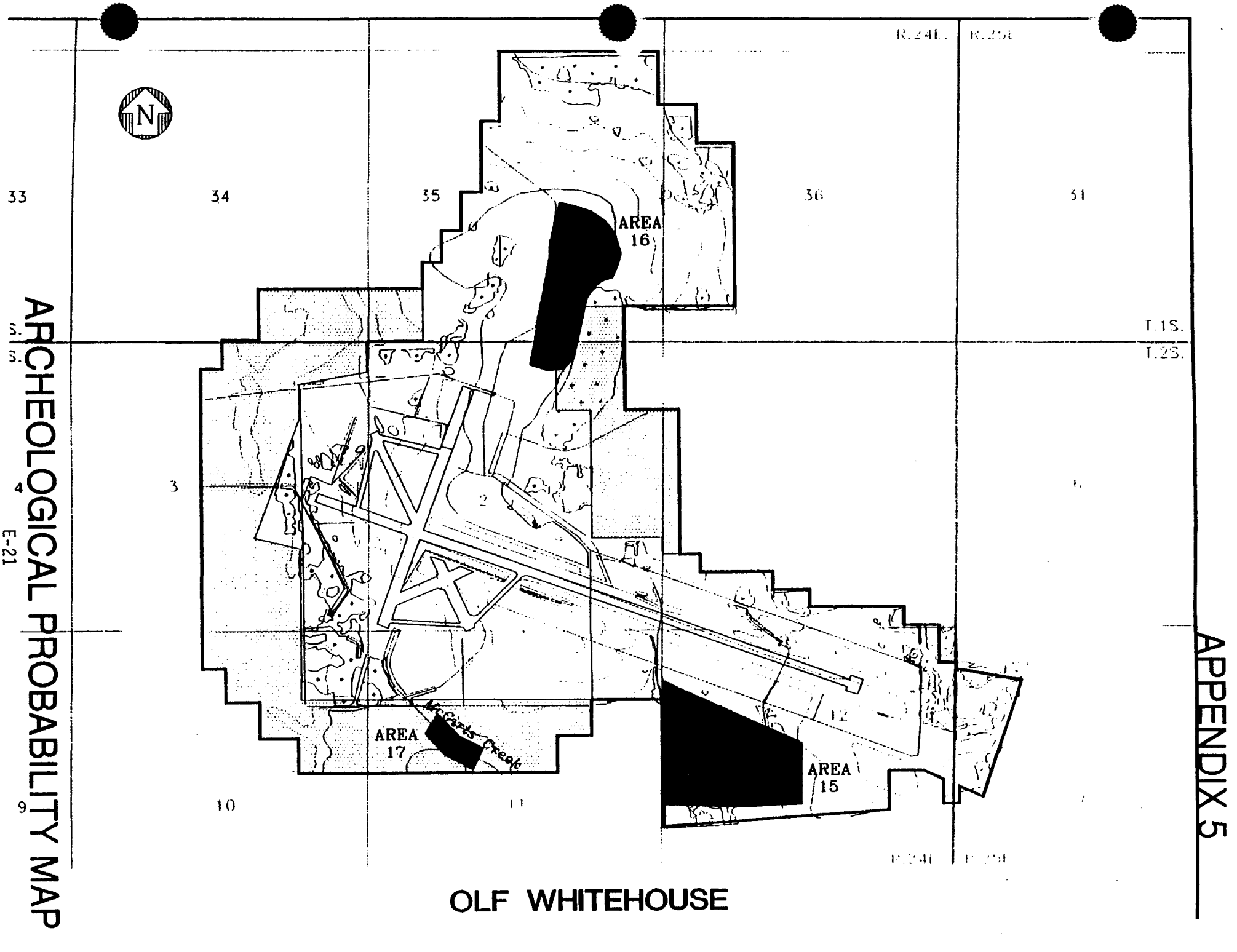
ARCHE

APPENDIX 4



3

ARCHEOLOGICAL PROBABILITY MAP



ARCHEOLOGICAL PROBABILITY MAP

E-21

OLF WHITEHOUSE

APPENDIX 5

F DEIS Written Comments and Responses

United States Department of the Interior

OFFICE OF THE SECRETARY
OFFICE OF ENVIRONMENTAL POLICY AND COMPLIANCE
Richard B. Russell Federal Building
75 Spring Street, S.W.
Atlanta, Georgia 30303

June 5, 1997

ER-97/263

Commanding Officer,
Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive - P. O. Box 190010
North Charleston, SC 29419-9010

ATTN: Mr. Robert Teague, P. E. (Code 064)

Dear Sir:

The Department of the Interior has reviewed the draft Environmental Impact Statement for the Disposal and Reuse of Naval Air Station (NAS) Cecil Field, Jacksonville, Duval, and Clay Counties, Florida, as requested.

1 Certain portions of NAS have been identified in the draft EIS as possessing potential for public park and recreational use. Under Section 203(k)(2) of the Federal Property and Administrative Services Act (FPASA) of 1949, as amended by Public Law 91-485, Federal real properties which have been determined to be surplus to the needs of the Federal government may be conveyed to State and local governments for park and recreational purposes. These properties may be assigned to the Secretary of the Interior for further transfer by the National Park Service's (NPS) Federal Lands-To-Parks Program at 100 percent discount from fair market value. To ensure permanent protection of the resources, these properties must be dedicated in perpetuity for public park and recreational purposes.

In 1995, the Florida Department of Agriculture and Consumer Services, Division of Forestry, submitted an application to the NPS' Federal Lands-to-Parks Program for 11,000 acres of the NAS for public park and recreational purposes. The application has been approved and assignment of these lands to the NPS for further conveyance to the State has been requested. The outstanding recreational element in the State's proposal is the development of a multi-purpose public recreational trail on the abandoned railroad line in the Yellow Water Area. This trail, and the surrounding parkland would allow the establishment of a recreational/wildlife corridor from Cary State Forest on the north to Jennings State Forest on the south. Public access would begin at Pope Duval Park

USDOI 1 - Subsequent to requests from the Division of Forestry, under the Florida Department of Agriculture and Consumer Service, to the National Park Service (NPS) for 11,000 acres of land at NAS Cecil Field under the NPS's Federal Land-to-Parks Program, a Memorandum of Understanding (MOU) for establishment of a 6,300-acre Natural and Recreation Corridor has been developed and incorporated into the Base Reuse Plan. With the development of the MOU, Mr. Bob Crawford, Commissioner of Agriculture, Florida Department of Agriculture and Consumer Services, requested in a letter to the United States Department of Interior, National Park Service, that the NPS application for the 11,000 acres of land at NAS Cecil Field be withdrawn from consideration. In a letter to Mr. E. R. Nelson, Real Estate Division, SOUTHDIV, Naval Facilities Engineering Command, Mr. William L. Huie of the United States Department of Interior, National Park Service, concurred with the state's request to withdraw the application.

The MOU was signed and finalized by all parties on March 13, 1998. The MOU is included herein as Appendix G.

on the north boundary of Yellow Water Area. This park was previously transferred through the Federal Lands-to-Parks Program.

Recently, the City of Jacksonville, Department of Parks, Recreation and Entertainment has indicated that the city will submit an application for portions of the NAS. The NPS will be pleased to assist the city in applying for portions of the NAS for public park and recreation purposes.

2 In the draft EIS, the Cecil Field Development Commission (CFDC), the Local Redevelopment Authority for NAS, identifies various parcels of the NAS which would be appropriate for public park and recreational use and open space. The Preferred Reuse Plan (PFP) and Alternative Reuse Scenarios (ARS) 1-4 do provide for public park, conservation, open space, and forestry uses. We are pleased that the public's park, recreation, and open space needs have been considered in the planning for the reuse of the NAS. However, only ARS 1 accurately reflects the Federal Lands-to- Parks applications which have been approved to date. This alternative is acceptable to the NPS as it would provide the most public park and recreational opportunities.

3 We recommend that the final environmental impact statement include a specific reference that the identified park and recreation acreage will be assigned to the NPS under Section 203 (k)(2) of the FPASA for further conveyance to State and local agencies for public park and recreation purposes in perpetuity. In addition, we recommend that the proposed public multi-purpose trail and corridor will be established in the Yellow Water Area and be included in whichever alternative is selected. The NPS will continue to assist the city of Jacksonville, Clay County or the State in applying for parkland through the Federal Lands-to- Parks Program.

The Federal Lands-to-Parks Program, assists State and local governments in applying for property suitable for park and recreational purposes. For information on the program, please contact Mr. Bill Huic, Federal Lands-to-Parks Manager, National Park Service, Southeast Regional Office, 1924 Building, 100 Alabama Street, S.W., Atlanta, GA 30303, or telephone 404-562-3175.

Thank you for the opportunity to review and comment on the draft EIS for this project.

Sincerely,

James H. Lee
Regional Environmental Officer

USDOI 2 - See Response to Comment USDOI 1.

USDOI 3 - See Response to Comment USDOI 1. While the NPS application for lands at NAS Cecil Field has been withdrawn, the proposed Natural and Recreation Corridor has been incorporated into the Preferred Alternative.

facsimile
TRANSMITTAL

to: Earl Bahnsen
Raymond Nelson
Bob Teague

fax #: (803) 743-0167, 820-5993, 743-0752

re: Conveyance of Utilities at Cecil Field

date: July 31, 1997

pages: 2, including this cover sheet.

I have enclosed a copy of a letter Mayor Delaney sent to Assistant Secretary Cassidy. In the letter, Mayor Delaney spells out the shifting of the LRA responsibility to the Jacksonville Economic Development Commission (JEDC). That group will be responsible for the implementation of the reuse plan.

The Cecil Field Development Commission has been discharged and the Cecil Field Development Office (my office) is reporting directly to the JEDC. Thus, there will be no change in our working relationship. All LRA correspondence will be signed by Mayor Delaney, Michael Weinstein, or me.

For planning purposes, I believe it is appropriate to begin discussions about conveyance of the utilities at Cecil Field. I would appreciate your input as to potential dates after 15 August when we could meet for preliminary discussions.

I look forward to hearing from you.

Herb

From the desk of...

Herb McCarthy
Executive Director
Cecil Field Development
[illegible]
Jacksonville, FL 32202

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F-5

OFFICE OF THE MAYOR

JOHN A. DELANEY
MAYOR

1400 CITY HALL
220 EAST BAY STREET
JACKSONVILLE, FL 32202

July 28, 1997

Mr. William J. Cassidy, Jr.
Deputy Assistant Secretary of the Navy
Conversion and Redevelopment
1000 Navy Pentagon, Rm 4E765
Washington, D.C. 20350-1000

Dear Mr. Cassidy:

The City of Jacksonville has been aggressively pursuing the conversion of Naval Air Station Cecil Field to civilian use. The reuse plan which I sent to you in February 1996 is the document on which the future development of that great military installation will be based.

During the past year, I created by Executive Order the Jacksonville Economic Development Commission (JEDC), an eight-member body drawn from all sectors of this community. The purpose of the JEDC is to insure countywide economic growth through a coordinated process which gives every part of the county an equal voice in future growth. I asked the Florida Legislature to enact appropriate legislation to create the JEDC by statute and it did so effective July 1, 1997.

I want Cecil Field to be a major participant in future growth in Northeast Florida, enjoying the full benefit of support from every element of this community and its government.

Therefore, on June 24, I thanked the Cecil Field Development Commission for its outstanding accomplishments and advised the Commissioners that I would be transferring the responsibilities of the Local Redevelopment Authority (LRA) to the JEDC. I advised the JEDC of this action at its meeting on June 26.

I look forward to the successful completion of our joint task.

Sincerely,

John A. Delaney
Mayor

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F-6

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
100 ALABAMA STREET, S.W.
ATLANTA, GEORGIA 30303-3104

JUL 4 1997

Mr. Bob Teague
Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
P.O. Box 190010
North Charleston, SC 29419-9010
FAX: 803/820-5993

SUBJECT: Draft Environmental Impact Statement (EIS) on Disposal and Reuse of Naval Air Station (NAS) Cecil Field, Jacksonville, Florida

Dear Mr. Teague:

Pursuant to Section 309 of the Clean Air Act and Section 102(2)(C) of the National Environmental Policy Act (NEPA), EPA, Region 4 has reviewed the subject document which evaluates the consequences of an array of development/redevelopment proposals for station property that the Navy will relinquish pursuant to the Base Closure and Realignment Act. The subject parcels encompass approximately 17,202 acres of land at the Main Station and Yellow River areas. Even with this sizable transfer, substantial properties will be retained for continued Navy use, e.g., OLF Whitehouse and Pinecastle Target Complex.

As we initially noted, the text has adequate information to compare/contrast the various reuse scenarios. The short- and long-term ramifications of anticipated future activities, especially those dealing with aviation and other categories of industrial/commercial uses, are adequately detailed in the document. The EIS is well organized in this regard and the graphics improve understanding as to how various reuse options will affect environmental amenities at specific locations. There is a spectrum of future possibilities for the relinquished Navy property, but with the exception of alternative reuse scenario 1 (ARS 1) they are focused on aggressively marketing many of the tracts for redevelopment.

In general, those subject areas on which we provided comment on the preliminary DEIS have been satisfactorily addressed; however, some additional specific questions/observations have surfaced in the meanwhile. These comments are attached for assessment/inclusion in the final document.

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1

We disagree with some of the major conclusions reached in the document. Specifically, we are troubled regarding the kind/degree of environmental impacts that will be engendered by most of the proposed redevelopment scenarios. We acknowledge that after the Navy's operational transfer most of the adverse impacts cited in Section 4 are projected to decline, particularly during the Phase 1 period. However, we disagree with the election to make these comparisons relative to the pre-closure conditions. Instead, we believe that it would be more appropriate to contrast future conditions to those which existed during pre-military ownership of the property.

2

This is especially true regarding the noise impacts resulting from the stated preferred alternative. Based on the noise footprints (DNL) depicted in Figures 4-8 and 4-9, noise generated by the projected reuse air traffic would be considerably less than the existing noise. Although this would temporarily improve the noise environment and EPA supports source reductions (pollution prevention), we believe that a reduction in noise levels is not the sole criterion to use when assessing airport noise impacts. Rather, the noise levels projected for the reuse air traffic should be contrasted with the pre-military use of the property instead of the pre-closure condition.

3

However, we were pleased to note that noise footprints for the stated preferred alternative were compared to the local land use and boundaries of the main station (Fig. 4-10). This figure predicted that the 65 DNL contour will generally lie within the main station boundaries or on adjacent Navy land, or on adjacent agricultural land. We assume that the areas outside the main station do not currently contain inhabited residences; however, if they do contain residences, the number of residents should be estimated and provided in the Final EIS by contour.

4

Using the pre-military (as opposed to the pre-closure) benchmark there are still many instances both on and off station in which the natural and cultural environment will be adversely impacted by subsequent development. We view the Navy's operational transfer as an opportunity to make a significant improvement in the area's present environmental quality as opposed to just not exceeding state/federal standards during the development/planning period.

5

On balance, we contend that ARS 1 with its emphasis on fostering recreation, parks, and forestry activities on the majority of the vacated property should receive more consideration as the preferred alternative. This option is not without environmental cost; it would allow for helicopter operations and market-driven development on over a thousand acres at NAS Cecil. The remainder of the property, consisting of the station's several thousand acres of planted pine forest, golf course, other recreation lands, would be used as a resource based recreational facility for hiking, camping, and other passive/active recreational activities. We are particularly

EPA 1 - Because the Department of Navy's OPNAVINST 5090.1B regulation, Section 5-4.4.11 (e) requires that "The EIS is to succinctly describe the environment of the area affected as it exists prior to a proposed action..." and that "The amount of detail provided in such descriptions should be commensurate with the extent and impact of the action..." the contrast of future conditions to those which existed during pre-military ownership of the property was not evaluated.

EPA 2 - Comment noted. See Response to Comment EPA 1.

EPA 3 - No inhabited residences have been identified within that portion of the 65 DNL contour that is projected to lie outside the boundaries of the main station as shown in Figure 4-10.

EPA 4 - Comment noted.

EPA 5 - Navy has agreed, in accordance with 32CFR91.7(c)(1), that the Preferred Plan (or proposal) as developed and adopted in March 1996 by the Cecil Field Redevelopment Commission be considered as the proposed action and that ARSs 1,2,3, and 4 be considered as alternatives to the proposed action.

impressed with the incorporation of these areas into the 20 mile corridor between the Cary and Jennings State Forests.

6 With the exception of facilities associated with the noted helicopter operations, none of the remaining aviation installations would have to be utilized. This would dramatically reduce the potential for future problems associated with noise, generation/storage of solid/hazardous wastes, non-point runoff, and other off-station land use incompatibilities that plague airfield operations. The need for the transportation upgrades forecast for the more intensive development scenarios could also be lessened. While the future economic potential may be incrementally lessened by curtailing some development, the long-term quality of life in this portion of Duval/Clay counties will be enhanced. Over the life of the project the differences between ARS 1 and the other options may be subsumed by improved property values as quality of life issues become more important to future generations.

7 On the basis of our review a rating of LO has been assigned to ARS 1. That is, we have no significant objections to the reuse of the facility with a focus on forestry and recreation together with restricted development (during the two assumed phases), i.e., occupation of up to 500,000 sq. feet of new and reused buildings. However, we have environmental concerns about what is, at best, merely the maintenance of the status quo environmentally for the remaining reuse alternatives. This is especially true regarding the long-term impacts associated with using aviation entities as the marquee tenants at the station. Therefore, we have assigned them a rating of EC-2. That is, we have identified significant environmental impacts that must be avoided in order to provide adequate protection to the environment during the redevelopment of NAS Cecil. Corrective actions/additional information will have to be provided in the final EIS specifying what changes will be made, especially in the preferred alternative, to achieve this security.

Thank you for the opportunity to comment on the DEIS. If you wish to discuss this matter in greater detail, feel free to call on me at (404) 562-9611.

Sincerely,

Heinz Mueller

Heinz J. Mueller, Chief
Office of Environmental Assessment

Attachment

EPA 6 - Comment noted.

EPA 7 - As part of an environmental mitigation plan for development impacts that may occur on the east side of NAS Cecil Field (primarily on the eastern portion of the station) under the Preferred Alternative, the City of Jacksonville, the Jacksonville Port Authority, Clay County, the Florida Department of Environmental Protection, and the St. Johns River Water Management District have entered into a Memorandum of Understanding (MOU), which has been incorporated into the Preferred Alternative. The MOU establishes a 6,300-acre Natural and Recreation Corridor, which includes a Cecil Field Wetland Mitigation Plan and Forestry Management Plan for mitigating development impacts and protecting the natural environment. The MOU, which will be amended to the 2010 Jacksonville Comprehensive Plan as an attachment to the NAS Cecil Field Transition Element will, as adopted, provide the regulatory guidance for future development in the Natural and Recreation Corridor. Any proposed change to land use activities as permitted in the adopted MOU would require an amendment to the 2010 Jacksonville Comprehensive Plan and approval by the Florida Department of Community Affairs. The natural corridor will connect Jennings State Forest and Brannan Field Mitigation Park with the St. Marys River system and Cary State Forest to the north. Although the Natural and Recreation Corridor enhances protection of the environment, it does not significantly affect the reuse potential of the site as established by the Jacksonville Economic Development Commission.

The MOU is included as Appendix G of this FEIS.

8

SPECIFIC COMMENTS

Hazardous Materials and Waste Management:

Table 3-24, NAS Cecil Field Description Chart: This is a dynamic table and should be updated again prior to finalizing the EIS. The changes noted below are as of April 12, 1997.

Site 1: Current Investigative Status - Remedial action scheduled to begin in 1997.

Site 2: Current Investigative Status - The RI, BRA and FS reports were submitted in March 1994 not 1995 with remedial action scheduled to begin in 1997.

Site 3: Current Investigative Status should be replaced with the following, i.e., remedial investigation complete with the Draft FS submitted in May of 1995. Final RI report was submitted in February of 1996. Agencies have recommended additional sample collection at Roswell Creek and resampling of some monitoring wells for chemical and biological parameter analysis. The additional field events are scheduled for the Spring of 1997. The BRA and FS will be finalized upon completion of the supplemental investigations.

Site 7: Current Investigative Status should be replaced with the following, i.e., draft RI report submitted in September of 1996. Based on data gaps which were identified by the involved agencies additional surface soils samples were collected in March of 1997. The draft FS report was submitted in December of 1996. Both the RI and FS reports will be finalized after evaluating the supplemental sampling data.

Site 8: Current Investigation Status should be replaced with the following, i.e., draft RI report submitted in September of 1996. Both the RI and FS will be finalized after evaluating the supplemental sampling data for Site 7.

Site 9: Current Investigation Status should replace the last sentence with, "Field screening activities began in 1997".

Site 10: Current Investigation Status should add the following, i.e., The final RI report was submitted in November of 1996. The RI report presented a "no further action" recommendation with a proposal to prepare a No Further Action Record Of Decision.

Site 11: Current Investigative Status should add the following, i.e., The draft RI report was submitted in December of 1996. As a result of data gaps identified by

EPA 8 - Comment noted. Table 3-24 has been revised to incorporate site status updates provided by SOUTHDIV NAVFACENGCOM in May 1998.

the involved agencies, the draft FS will be resubmitted after addressing same.

Site 12: Current Investigative Status should replace the last sentence with the following, i.e., Field screening activities began in February of 1997.

Site 13: Current Investigative Status should replace the following, i.e., The APR was approved in September of 1995 pursuant to Florida Department of Environmental Protection recommendation. Five additional wells were installed and sampled in September of 1995. The remedial action plan was submitted in January of 1997. Free product was being recovered by use of a vacuum truck. Several piezometers have also been installed to expedite free product recovery.

Site 14: Current Investigative Status should be replaced with the following, i.e., The draft RI report was submitted in November of 1996.

Site 15: Current Investigative Status should replace the last sentence with the following, i.e., Draft RI report was submitted in November of 1996. Supplemental samples to address data gaps will be collected in the Spring of 1997. The FS will remain in abeyance until new sampling data have been reviewed.

Site 16: Current Investigative Status should replace the last sentence with the following, i.e., The final ROD was submitted in August of 1996. A conceptual design package was submitted in December of 1996 and is under review by the Navy.

Site 17: Current Investigation Status should replace the last sentence with the following, i.e., Draft remedial design work plan was submitted in July of 1996 and review comments were received in September of 1996. The final remedial design work plan was submitted in January of 1997. The first round samples for monitoring natural attenuation were collected in April of 1997.

Site 18: Current Investigative Status should replace the last sentence with the following, i.e., Field screening initiated in February of 1997. Clearance of UXO scheduled for Spring of 1997.

Site 19: Current Investigative Status should replace the last sentence with the following, i.e., Field screening activities were initiated in February of 1997.

9 Table 3-26, Tank Investigation Program Sites: This is a dynamic table and should be updated prior to finalizing the EIS. Suggested changes are as of April 12, 1997.

EPA 9 - Comment noted. Table 3-26 has been revised to incorporate site status updates provided by SOUTHDIV NAVFACENGCOM in May 1998.

North Fuel Farm, Tank 76-E - (replace Action to Date) CA completed in 1991. Additional investigation was completed in 1995 and CARA approved in 1996. Final RAP was submitted in January of 1997.

South Fuel Farm - (Add to Actions to Date) All ASTs were removed in 1995. A RAP addendum was approved in February of 1997.

Jet Engine Test Cell Facility - (Change last sentence of Actions to Date) The Remedial Action Plan was approved in February of 1997.

10 Two more sites should be added to Table 3-26, listing Tank Investigation Program Sites: Day Tank 1 and Day Tank 2.

EPA 10 - Comment noted. Day Tanks 1 and 2 have been added to Table 3-26. Also, Tank 199 has been added.

Hazardous Materials Management and Environmental Contamination:

11 Descriptions appeared to be complete based on current site knowledge; however, many of the 'Grey' or BRAC Classification 7 sites are still under evaluation by the Base Closure Team. As its investigations proceed on these sites, other areas requiring removal/remedial actions may be discovered.

EPA 11 - Comment noted.

Air Quality

12 It is not always clear as to what type of buildings or facilities would be demolished. Regardless, the Florida Department of Environmental Protection (FDEP) requires an asbestos survey performed by a registered Professional Engineer before any demolition. Additionally, the FDEP Tallahassee office together with the District and/or local office must also be notified prior to demolition. For further information regarding asbestos removal contact Mr. Bill Leffler of FDEP at (904) 488-1344.

EPA 12 - Comment noted.

13 The information contained in Section 3.52 and Tables 3-3 through 3-9 should be reviewed by the FDEP Northeast District and/or Duval County local program. Only FDEP can verify the baseline emissions for total VOC's, NOx, and CO in the Jacksonville area (Table 3-3). Future projects at NAS Cecil would independently be subject to permitting, SIP, and NSPS requirements, but do not need any action at this time.

EPA 13 - Comment noted. The DEIS was distributed for comment to all state regulatory and approval agencies, including FDEP (via the Florida State Clearinghouse).

14 EPA's Compliance Section could not verify the emission estimates contained in Tables 4-7 through 4-24 since the current emission factors were not available.

EPA 14 - Aircraft emission factors used are referenced at the bottom of Table 4-7 as EPA 1992a, Procedures for Emission Inventory Preparation, Volume IV: Mobile sources. Emission factors in this document were the most recent publicly available data as of the publication of the DEIS. Vehicle emission factors were taken from the same document. Application of emission factors is discussed on pages 4-47 and 4-48.

Radiation Issues

15 Radioactive materials/waste characterizations are only mentioned on two pages of the DEIS. For example, a radiological

EPA 15 - Comment noted. Text has been updated.

survey of the Yellow Water Area is noted. Based on survey results, it was concluded that the facility's activities did not "cause or create any significant radiological hazard or leave residual contamination". However, a previous review by this office revealed that the protocols for groundwater and soil sampling as well as tritium analyses were deficient. Apparently soil samples had been dried prior to counting and water samples had been treated with a preservative that could affect the tritium in solution. Additionally, there has been no oversight or monitoring of the remedial activities by either the State or EPA's Radiation Section; this is a stipulation of NUREG 5849 guidelines for quality assurance. Hence, additional information will be necessary to verify the absence of any radiological concerns.

16

It is also noted that both the State and EPA had been continuously informed of radiological survey protocols and results of same. It is true that EPA's Radiation Section has provided review/comment on documents. However, this blanket statement gives the impression that both of these entities have been actively involved in monitoring and oversight of the radiological activities at NAS Cecil. This is not the case.

17

The State of Florida's Department of Health, Bureau of Radiological Health, the State agency responsible for radiological issues, has not, in fact, been involved in the Base Closure process. Rather, the above statement regarding ongoing involvement has applicability to the State Department of Environmental Protection; unfortunately, it lacks radiological expertise.

18

It should be noted that both the State Bureau of Radiation and the EPA Radiation Section will be conducting their first site visit soon; this inspection will seek to address these observations.

Noise Issues

19

We assume there would be no significant (noisy) construction/modifications at the main station in initial preparation for facility reuse. When, however, construction occurs during Phase 2, the FEIS should project/estimate the length of these impacts and if substantive noise levels would extend beyond the main station boundaries. To the extent feasible, potential construction should also be limited to daytime hours on weekdays. The FEIS should also indicate noise compliance with OSHA (or what would be needed for such compliance) in order to abate noise for station reuse employees.

20

Phase 1 and 2 noise footprints for ARS 1 were presented in Figures 4-11 and 4-12. There is a dramatic difference in its noise impacts when compared to that of the stated preferred option depicted on Figure 4-10, especially Phase 2. Pre-military noise levels were not estimated. The footprints for the

EPA 16 - Comment noted. Text Revised. See sections 4.6.3 and 4.6.5 of the FEIS.

EPA 17 - Comment noted. The FEIS includes an update on the survey activities that have been and will continue to be conducted.

EPA 18 - Comment noted. EPA's Region IV Air and Radiation Technical Branch, the Florida Bureau of Radiation Control, and Navy's Radiological Affairs support office will address previous deficiencies in the survey.

EPA 19 - Because the phasing of development is largely dependent on market conditions, the estimated duration of noise impact is difficult to ascertain with any degree of certainty (buildout is projected for 2010). Development is likely to occur over a lengthy time span and would occur at low floor-area rations, thereby spreading the development over large areas. Consequently, no significant noise impact is expected to extend beyond the boundaries of the station. In addition, with the exception of development along the eastern part of the Yellow Water Area and along 103rd Street and Normandy Boulevard, new development and redevelopment would occur internally. The issue of OSHA noise compliance has been added under noise mitigation measures in Section 4.6.7.

EPA 20 - Comment noted. Because ARS 3 does not have an aviation component, and all aircraft operations at NAS Cecil Field would cease after closure a noise footprint for this alternative was not projected. Because aircraft types and operational characteristics are projected ARS 2 and ARS 4, and expected to be similar (Sections 4.6.3 and 4.6.5) to the Preferred Plan separate figures for these noise footprints were not include in the Draft EIS. Sections 4.6.3 and 4.6.5 have been revised to include a reference to Figures 4-8 and 4-9 for the projected noise contours for Phase 1 and Phase 2 levels of operations under ARS 2 and ARS 4.

other considered alternatives were not found in the DEIS. Considering that noise is often the most important impact associated with airports, footprints for all considered alternatives should have, at least, been extrapolated.

21

Monitoring Since we understand that the aircraft mix for the reuse station is a projection as opposed to a given, and presumably is also subject to change, a noise monitoring program should be established to ground-truth and track the location of contours and any noise effects on the public. We also recommend that noise levels be determined at the nearest residence and compared to ambient conditions (i.e., true ambient noise without existing military aircraft as opposed to existing conditions). Such noise levels should be provided in the Final EIS if they can be determine via modeling or calculation.

Local zoning boards should be notified as to the results of noise modeling and ground-truth verifications. This would allow for proper land use zoning for the EIS-projected development around the reuse facility.

Single-Event Noise While it is clear that the DNL metric is appropriate for airports, it represents an averaging of noise over 24 hours with a 10 dBA penalty for night time noise. However, noise levels generated during flyovers are often more intrusive than average DNL levels to residents. The above monitoring program for the nearest residence should also include flyover noise levels (again, if such single-event levels can be modeled or calculated, they should already be included in the Final EIS).

22

Cumulative Impacts The inclusion of a cumulative impacts section in the EIS was a very positive step. From this assessment impacts from the OLF Whitehouse airfield are not expected to overlap with the main station after reuse; we have some reservations about this conclusion. While mitigation up to the 65 DNL contour is often the target of FAA airport mitigation plans (Part 150 plan), noise increases attributable to an airport do exist beyond this contour line. Therefore, some overall cumulative impact between the airfields could develop. Such a possibility should be further discussed in the Final EIS as well as the pending NAVY NEPA document prepared for the OLF Whitehouse facility.

EPA 21 - Because Navy would not retain any authority over the ultimate reuse of the air station or be in a position to control the type and level of activity of aircraft that could use the airfield, it cannot commit to a noise-monitoring program. The responsibility for a monitoring program would lie with the reuse entity, as Jacksonville Economic Development Commission and the Jacksonville Port Authority.

EPA 22 - Comment noted. See revised text in Section 4.6.7.

U.S. Department
of Transportation
Federal Aviation
Administration

Orlando Airports District Office
9677 Tradeport Drive, Suite 130
Orlando, Florida 32827-5397
407-648-6582

May 8, 1997

Commanding Officer
Southern Division
Naval Facilities Engineering Command
Attn: Mr. Robert Teague, P.E. (Code 064)
2155 Eagle Drive
P.O. Box 190010
North Charleston, SC 29419-9010

Dear Mr. Teague:

The Draft Environmental Impact Statement (DEIS) document dated April 1997, for the disposal and reuse of Naval Air Station (NAS) Cecil Field, Jacksonville, Florida, has been reviewed and we have no comments.

Contact me at Extension 19 if you need any additional information.

Sincerely,

Richard M. Owen
Program Manager

U.S. [illegible]

SOUTHEAST/CARIBBEAN
Richard B. Russell Federal Building
75 Spring Street, S.W.
Atlanta, Georgia 30303-3388

May 6, 1997

Commander, Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive, P.O.Box 190010
North Charleston, SC 29419-9010
Attn: Robert Teague, P.E. (Code 064)

Dear Commander:

This refers to your memorandum dated April 23, 1997, transmitting the Draft Environmental Impact Statement (DEIS) for the Disposal and Reuse of Naval Air Station Cecil Field in Jacksonville, Florida.

Proposed alternative reuse scenarios specified in the separate analysis in the DEIS do not appear to impact any HUD projects. However, more detailed study of the project areas will be undertaken by our Jacksonville, Florida Office to determine if any HUD projects are adjacent to or in close proximity to the proposed work.

WE have forwarded a copy of this letter and our copy of the DEIS to our Jacksonville Office for their examination. If any HUD projects are affected, that office will contact you and identify the location of the impacts.

Thank you for the opportunity to review and comment on your project.

Sincerely,

Thomas A. Ficht
Supervisory Environmental Officer

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lette[redacted]pd-8/25/98

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

SOUTHEAST/CARIBBEAN
Richard B. Russell Federal Building
75 Spring Street, S.W.
Atlanta, Georgia 30303-3388

May 6, 1997

Commander, Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive, P.O.Box 190010
North Charleston, SC 29419-9010
Attn: Robert Teague, P.E. (Code 064)

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WE have forwarded a copy of this letter and our copy of the DEIS to our Jacksonville Office for their examination. If any HUD projects are affected, that office will contact you and identify the location of the impacts.

Thank you for the opportunity to review and comment on your project.

Sincerely,

Thomas A. Ficht

Thomas A. Ficht
Supervisory Environmental Officer

STATE OF FLORIDA
DEPARTMENT OF COMMUNITY AFFAIRS

LAWTON CHILES
Governor

JAMES F. MURLEY
Secretary

"Helping Floridians create safe, vibrant, sustainable communities"

MEMORANDUM

TO: Keri Akers, State Clearinghouse

FROM: G. Steven Pfeiffer, Assistant Secretary

SUBJECT: U.S. Navy - Draft Environmental Impact Statement - Disposal and Reuse of Naval Air Station Cecil Field - Jacksonville, Duval County, Florida
SAI: FL970505395C

DATE: July 16, 1997

The Department of Community Affairs (Department), pursuant to its role as the state's land planning and emergency management agency, has reviewed the above-referenced Draft Environmental Impact Statement (DEIS) for consistency with its statutory responsibilities under the Florida Coastal Management Program (FCMP), which include the enforceable policies contained in Chapter 163, Part II, and Chapter 380, Florida Statutes (P.S.). The Department has determined that the DEIS is consistent with its FCMP responsibilities. The Department notes that the City of Jacksonville and the Cecil Field Development Commission (CFDC), established by the Mayor of Jacksonville pursuant to the provisions for military base closures under Chapter 288, F.S., have been working closely with the Department to develop the NAS Cecil Field Reuse Plan.

The CFDC has completed the Reuse Plan which designates specific land use categories, including areas proposed for development and preservation. An amendment to the Jacksonville Comprehensive Plan will be submitted to the Department to include the Reuse Plan in the Cecil Field Base Reuse Element of the comprehensive plan. The City has already amended the land use category in its comprehensive plan to provide for the proposed land uses at Cecil Field. The City is required to submit data and analysis to the

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Phone: 904.488.8466/Suncom 278.8466 FAX: 904.921.0781/Suncom 291.0781
Internet address: http://www.state.fl.us/comaff/dca.html

F-18

1 Department, prior to final approval of the comprehensive plan amendment for the Reuse Element. The data and analysis should include the final environmental impact statement and will assess impacts to the level of service for roadways; additional demands for infrastructure and services; land use needs; and compatibility with adjacent land uses.

FDCA 1 - Comment noted.

2 The Navy is encouraged to continue close coordination with the City of Jacksonville regarding the Reuse Plan and the analysis of the impacts of proposed reuse alternatives on the City's facilities and services, compliance with local requirements and the identification of potential conflicts.

FDCA 2 - Comment noted.

Thank you for the opportunity to comment on this project. If you require assistance or additional information, please contact James Stansbury, Bureau of Local Planning at (904) 487-4545 or Rosalyn Kilcollins, Florida Coastal Management Program at (904) 414-6580 or at the address above.

GSP/rk

STATE OF FLORIDA
DEPARTMENT OF COMMUNITY AFFAIRS

LAWTON CHILES, Governor
JAMES F. MURLEY, Secretary

"Helping Floridians create safe, vibrant, sustainable communities"

July 22, 1997

Mr. Robert Teague
Department of the Navy
Southern Division
Naval Facilities Engineering Command
Post Office Box 190010
North Charleston, South Carolina 29419-9010

RE: U.S. Department of the Navy - Basic and Applied Scientific Research - FY 1997 - Draft Environmental Impact Statement - Disposal and Reuse of Naval Air Station Cecil Field - Jacksonville, Duval County, Florida
SAI: FL9705050395C

Dear Mr. Teague:

The Florida State Clearinghouse, pursuant to Presidential Executive Order 12372, Gubernatorial Executive Order 95-359, the Coastal Zone Management Act, 16 U.S.C. §§ 1451-1464, as amended, and the National Environmental Policy Act, 42 U.S.C. §§ 4321, 4331-4335, 4341-4347, as amended, has coordinated a review of the above-referenced project.

3

The St. Johns River Water Management District (SJRWMD) offers several comments regarding the District's areas of responsibility, including water quality, water supply, flood protection, and natural systems. The SJRWMD has worked cooperatively with the applicant, the City of Jacksonville, Cecil Field Development Commission, and Clay County on the closure and reuse of Naval Air Station Cecil Field. The Natural and Recreation Corridor is being designed to support the natural system components of the NAS and to assist marketing redevelopment by establishing a pre-approved wetland mitigation scenario on the east side of the NAS. Once the value, the protection tool and the land management plan are agreed to, a permit for wetland impacts must be obtained. The corridor plan will require amendments to the City of Jacksonville and Clay County comprehensive plans. To avoid major concerns, the subsequent Final EIS and comprehensive plan amendments must support the current scenario and provide direction to establish the Natural and Recreation Corridor with a sufficient protection tool and land management regime. There is currently a discrepancy between the Preferred Reuse Plan and

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Internet address: http://www.state.fl.us/comaff/dca.html

FDCA 3 - The FEIS contains substantial language that incorporates and evaluates the impacts of the Natural and Recreation Corridor. In addition, Section 5.4 provides an explanation of how the MOU (i.e., the Natural and Recreation Corridor) would be incorporated into the Jacksonville and Clay County comprehensive plans. Now that the MOU has been signed and incorporated into the FEIS, and the Chapter 288 process has been initiated, JEDC staff is addressing the site-specific land use discrepancies in support of the concepts of the communities' Preferred Reuse Plan.

4

the Natural and Recreation Corridor in the depiction of a future additional runway on the east side of the NAS. Although this is an impediment to the corridor, the SJRWMD believes that this will be worked out during the development of the corridor agreement and airport master plan. Regarding land outside the corridor, the SJRWMD recommends that the Record of Decision and agreements for transfer of land contain requirements for development to be located outside of wetlands, 100-year floodplains, and habitats of species of concern and for significant impacts to those areas to be avoided. Please refer to the enclosed SJRWMD comments.

FDCA 4 - Recommendation noted. Pending the decision in the ROD, all development at Cecil Field would be implemented within the within the framework of local, state, and federal regulations.

5

The Department of State (DOS) notes the preparation of a programmatic agreement between the Department of the Navy, the Advisory Council on Historic Preservation and the DOS. Provided that the stipulations in the agreement are carried out, the proposed project will have no impact on any sites listed, or eligible for listing, in the National Register of Historic Places. Please refer to the enclosed DOS comments.

FDCA 5 - Comment and reference noted.

6

The Department of Environmental Protection (DEP) offers comments and recommendations to be considered and incorporated in the preparation of the final EIS. The comments reflect areas where the EIS should be strengthened and that affect the long-term environmental land planning, development and management issues. Please refer to the enclosed DEP comments.

FDCA 6 - Comment and reference noted.

7

The Department of Community Affairs (Department) notes that a Reuse Plan designating specific land use categories, including areas proposed for development and preservation, has been completed. An amendment to the Jacksonville comprehensive plan is required to include the Reuse Plan in the Cecil Field Base Reuse Element. The City is required to submit data and analysis to the Department and should include the final EIS and an assessment of impacts to the level of service for roadways; additional demands for infrastructure and services; land use needs; and compatibility with adjacent land uses. Please refer to the enclosed Department comments.

FDCA 7 - Comment and reference noted.

8

Based on the information contained in the notification of intent and the applicant's satisfactory compliance with all conditions stipulated by our reviewing agencies, as enclosed, the state has determined that the above-referenced project is consistent with the Florida Coastal Management Program. Comments received from the Northeast Florida Regional Planning Council are also enclosed for your review.

FDCA 8 - Consistency noted and comments reviewed.

Thank you for the opportunity to comment on this project. If you have any questions regarding this letter, please contact Ms. Keri Akers, Clearinghouse Coordinator, at (904) 922-5438.

Sincerely,

G. Steven Pfeiffer
Assistant Secretary

GSP/cc

Enclosures

cc: Dan Pennington, Department of Environmental Protection
Henry Dean, St. Johns River Water Management District
Gustave Rappold, Northeast Florida Regional Planning Council

Department of Environmental Protection

Lawton Chiles
Governor

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Virginia B. Wetherell
Secretary

June 20, 1997

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Ms. Keri Akers, Coordinator
Department of Community Affairs
Florida State Clearinghouse
2555 Shumard Oak Boulevard
Tallahassee, Florida 32399-2100

Re: SAI # FL9705050395C - Draft Environmental Impact Statement - Disposal and Reuse of Naval Airstation Cecil Field, Duval County

Dear Ms. Akers:

The department has reviewed the DEIS for the disposal and reuse of Cecil Field Naval Air Station. The following comments and recommendations should be considered and incorporated in the preparation of the final EIS. The department has enjoyed participating in the intergovernmental effort to examine the issues and possibilities involved in the closure and eventual reuse of Cecil Field which have lead to the development of the Base Reuse Plan and this DEIS. The comments below reflect areas where the DEIS should be strengthened that affect the long-term environmental land planning, development and management issues.

1. Long-term Protection of Existing Natural Systems

1 a. The long-term mitigation of environmental impacts associated with the significant enlargement of light industrial, heavy industrial and commercial land use on the eastern portion of Cecil Field (the "Preferred Plan") should be addressed by providing more specificity concerning the preservation and enhancement of the existing natural corridor on the southern and western portions of the base. The balance between the enlargement of the industrial/commercial areas to promote future economic development and long-term maintenance of the existing natural systems needs more specific definition.

2 b. The EIS should better outline the regional benefits derived by establishing, in perpetuity, a natural corridor using existing natural areas of Cecil Field. For example, under Chapter 4, "Environmental Consequences and Mitigative Measures" relative to the preferred plan, provide discussion and analysis such as :

3 • An existing natural greenway will be retained which due to hydrologic connection, acts as a linchpin connecting the Jennings State Forest and Branan Field Mitigation Park with the St. Marys River system and the Cary State Forest to the north. In a rapidly urbanizing areas such as Duval County, opportunities to maintain natural system components over the long-term and to integrate these features into the design of a metropolitan area are rare. The closing of Cecil Field by the Navy, and the reintegration of land to the local

FDEP 1 - A Memorandum of Understanding (MOU), which was finalized on March 13, 1998, between the City of Jacksonville, the Jacksonville Port Authority, Clay County, Department of Environmental Protection, and the St. Johns River Water Management District, acknowledges the significant natural resources of the Natural and Recreation Corridor as an instrument for environmental compensation and preservation for economic development activities proposed for the eastern part of the property. The recreational and natural resources, as well as the mitigation value, management tools, and responsible government entities for corridor enhancement and maintenance, are described in the MOU. The MOU is a component of the NAS Cecil Field Transition Element, which is to be an amendment to the Jacksonville Comprehensive Plan.

The MOU is included as Appendix G of this FEIS.

FDEP 2 - Comment noted.

FDEP 3 - Comment noted. Text added. See Section 4.1.8 of the EIS.

community presents the opportunity to essentially "hardwire" portions of the north Florida natural system into the overall metropolitan design.

4 • The greenway provides a natural buffer for planned light and heavy industrial activities on the east side of the base. Duval County's urban and suburban areas have rapidly been expanding westward. Managing future land use to limit conflicts between adjacent but differing land use types will be tempered by the firm establishment of the natural corridor.

5 • From a recreational use perspective, the establishment of the Cecil Field greenway/natural corridor in western Duval County supports the development of regionally based trails, camping and recreation areas. Duval County has been noted in a nationwide survey as a desirable place to live, work and raise a family. Establishment of the outlined Cecil Field Greenway would clearly add an important recreational opportunity within close proximity to present and future Duval and Clay county citizens.

6 c. The DEIS references the inclusion of the natural corridor (e.g., page 2-7, 4-39). Nevertheless, the DEIS does not clearly identify the location of the corridor. Preparation of the final EIS should include a map that indicates the location and extent of the corridor. As the primary NEPA document the EIS provides decision makers and the public with the information required to understand future environmental consequences of the disposal of 17,000 acres of land and the potential reuse of the property. The location and extent of the referenced corridor is an important part of the information necessary to adequately plan for reintegration of these lands back into the local community.

7 d. The type of legal instrument(s) necessary for ensuring perpetual protection of the lands within the designated natural corridor needs to be more clearly detailed. Toward that end, we recommend that identified corridor be placed under a conservation easement. The easement should be consistent with Chapter 704.06, Florida. In addition, since the reuse plan proposed for the base identifies that several different governmental entities will receive title(s) to various segments of the Base (e.g., Clay County, Duval County and the Jacksonville Port Authority) under a variety of land uses, we recommend that a conservation easement be executed by the Navy prior to any conveyance of title to the recipient entities.

8 e. In addition, it is important to note that the remaining undeveloped portions of the base not included within an identified preserved natural corridor also have valuable natural resources and exhibit numerous development limitations [e.g. high water table, soils exhibiting severe wetness, wetlands and listed species habitat]. Sensitive site planning and careful permitting will still have to be employed to minimize impacts resulting from planned industrial (or other) development in these areas. These areas, representing approximately 4,500 acres of land [in addition to the existing developed base] would be designated for future development.

9 Development proposed for land with wetlands usually requires avoidance of these areas or mitigation (such as employing mitigation banking). The DEIS should more fully discuss the potential for mitigation/mitigation banking within Cecil Field as a part of the base reuse planning effort. Consideration and outlining these issues should help to facilitate later environmental resource permitting so important as an incentive in bringing businesses to the proposed industrial and commercial areas identified by the preferred base reuse plan. There has been some discussion and planning relative to: preparation of a conceptual permit for those areas proposed for future industrial and commercial development; and of treating the entire Cecil Field as a self-contained mitigation area wherein the permanent designation of the above discussed natural corridor would serve to help offset impacts of planned industrial and commercial areas. As a decision document, the final EIS should address and provide guidance on these issues.

FDEP 4 - Comment noted. Text added.

FDEP 5 - Comment noted. Text added.

FDEP 6 - Comment noted. Figure 2-1 (Land Use Plan) and Figure 4-1 have been amended to show the boundaries of the Natural and Recreation Corridor.

FDEP 7 - The MOU is the legal instrument necessary for ensuring protection of the Natural and Recreation Corridor. The MOU will be amended to the Jacksonville Comprehensive Plan as an attachment to the NAS Cecil Field Transition Element. Clay County will opt to amend its Comprehensive Plan to include 641 acres in the county, all of which lie within the corridor, as conservation areas. The amendment process is described in Section 5.4. After adoption into the local comprehensive plans, any proposed changes to land use activities or acreage of the legally described Natural and Recreation Corridor would require an amendment to the local comprehensive plan, review and comment by appropriate state agencies, and final approval or denial by the Florida Department of Community Affairs. The Natural and Recreation Corridor has been incorporated into the FEIS and is described as an overlay zone (see Appendix G). As such, the requirements of the overlay zone supersede the permitted land uses of the underlying land use categories. The Navy believes that the comprehensive planning process is a sufficient legal instrument for the protection of the Natural and Recreation Corridor.

FDEP 8 - Comment noted. Navy is in agreement that areas outside the Natural and Recreation Corridor have valuable natural resources, exhibit numerous development constraints, and require sensitive site planning and careful permitting. The development constraint analyses in Section 4.1 (Land Use and Aesthetics) show that development proposed under the Preferred Alternative and the alternatives can be provided for without encroachment into constraint areas. Similarly in Section 4.1, it is recognized that as redevelopment occurs site selection and permitting will be subject to the local development approval process.

FDEP 9 - Comment noted. Mitigation/mitigation banking within Cecil Field is an integral part of the Natural and Recreation Corridor MOU. Mitigation activities in the corridor are proposed for environmental compensation for adverse impacts of development on the eastern side of Cecil Field. A wetland mitigation plan is to be developed by October 1, 1998, and will be used as part of the application for a mitigation banking permit. However, it is noted in the MOU that because adverse impacts to the eastern portion of Cecil Field and the functional assessment of the corridor as environmental compensation have not been determined, the use of the corridor for mitigation will depend on the intensity of impacts on the eastern portion and the mitigation value of the corridor. The MOU recognizes the importance of mitigation development in expediting redevelopment activities identified in the Preferred Alternative.

2. Water & Wastewater Issues

10 a. On page 4-8 of the DEIS, under External Land Use Consistency, it is noted that the Jacksonville urban service area will be expanded to include the NAS Cecil Field property. The urban service delineation needs to be shown and should include those areas identified for industrial, commercial, general aviation and aviation related services. Areas identified for resource conservation and natural corridor (i.e., land uses of forestry, parks and recreations and conservation) should not be included within the general urban service for water and sewer.

11 b. The Jacksonville Regulatory Environmental Services Department should be contacted relative to the permitting of wastewater collection systems as reuse of the base progresses, including the permit requirements for the new pumping station and other equipment to facilitate the tie into the City's District 3 (Southwest) Wastewater Treatment Facility (WWTF), referred to on Page 4-175 on the EIS.

12 c. When the City acquires ownership of the USNAS Cecil Field wastewater system, there may be pretreatment requirements for industrial and commercial projects which will need to be met in conjunction with the City of Jacksonville's pretreatment program.

13 d. At the time of the base closure announcement, USNAS Cecil Field had plans for irrigating the Cecil Field golf course with reclaimed water from its WWTF. Subsequently, such plans were obviously dropped. Now that the Cecil Field WWTF will be phased out eventually and the property connected to the City's District No. 3 WWTF, it is considered important that the City carefully evaluates the feasibility of providing reclaimed water for irrigating the golf course. Consideration should be given to dual lines and the route of such lines to maximize both reuse and small WWTF phase-outs. The current permit for the City's District No. 3 WWTF requires a reuse feasibility by July 1, 1997.

14 e. The City will need to clarify if they plan to use the existing artisan wells and water plants within the base, or if they are planning to abandon these water plants and connect to the City of Jacksonville Utilities. They will also need to clarify if they are planning to use a portion of the existing facilities (wells, storage tanks, distribution system) and interconnect it with the City of Jacksonville's Water System.

15 f. It is recommended that the City prepare a potable water supply plan which explains the details of the potable water system for the Reuse Plan Project of Cecil Field. This plan must be submitted to the DEP Northeast District for review and comment. This plan should clarify the following:

-Do they plan to use the existing wells and potable water plants inside this base for the Reuse Plan?

-Do they plan to abandon a portion of the existing water treatment facilities within the base? If so, which ones?

-Do they plan to construct new water treatment facilities and distribution system to serve the Reuse Project?

-Are they planning to bring potable water from the City of Jacksonville Utilities by extending the City water mains to this area? If so, are they going to abandon the existing water plants with the base?

FDEP 10 - As part of the Comprehensive Plan amendment process associated with the NAS Cecil Field Transition Element, all of Cecil Field would be included within the urban service district.

FDEP 11 - Comment noted. At this time, JEA has no intention of operating the station's wastewater treatment plant (Riker 1998). JEA plans to run a 20-inch force main to the site and install two pump stations. One pump station would be located at the existing wastewater treatment plant; the other would be regionally located at a site to be determined. These wastewater infrastructure improvements are expected to be completed prior to conveyance of the system to JEA. However, depending on how quickly the site redevelops, the existing wastewater treatment plant may have to be used in the interim. With the exception of the wastewater treatment plant, JEA expects to use as much of the existing wastewater system as possible. JEA estimates that under a worst-case scenario, approximately $3 million would be needed for conveyance rehabilitation (Riker 1998).

FDEP 12 - Comment noted.

FDEP 13 - Comment noted.

FDEP 14 - The Jacksonville Electric Authority (JEA) plans to extend a 20-inch potable water main along 103rd Street to connect with the station's existing water treatment facility. The existing water treatment facility is expected to be used for 3 to 5 years while a new water treatment facility is being built at the site. JEA's long-term plans include development of artesian wells at the site. Abandonment of the station's existing wells is planned. JEA intends to use as much of the existing potable water infrastructure system as possible (Riker 1998). The exact rehabilitation of the system and planned improvements have not yet been determined.

FDEP 15 - See response to comment 14.

16

17

-Are the existing water treatment plants and distribution system inside Cecil Field in compliance with the Federal, State Safe Drinking Water Act and Rules 61-550, 555, 560, Florida Administrative Code or are improvements/ modifications needed?

g. Please note that any construction or modification of the public water plants or distribution system must be permitted by the Duval County Department of Health prior to construction, per Rule 62-555, Florida Administrative Code.

If you have any other questions regarding this response please call me at (904) 487-2231.

Cordially,

Dan Pennington
Office of Intergovernmental Programs

DP

cc: Ernie Frey, Director, Northeast District
Alishia Simpson, Northeast District Office
Herb McCarthy, Executive Director, Cecil Field Development Commission
Susan Fraser, Director, Clay County
Mike Allen, FG&FWFC
Kraig McLane, SJRWMD
Bruce Hill, Division of Forestry
Alberta Hipps, Jacksonville City Council
Robert Teague, NAVFAC-SOUTHDIV
Gary Kressel, City of Jacksonville
Brian Teeple, Executive Director, NE Florida Regional Planning Council

FDEP 16 - As of June 11, 1998, and according to the Director of Water Utilities at Navy's Public Works Center in Jacksonville, all four water treatment plants and their associated distribution system at NAS Cecil Field are operating in compliance with the regulatory requirements cited. In compliance with these requirements, Navy submits operating reports, including analytical results, to the Duval County Health Department on a monthly basis.

FDEP 17 - Comment noted.

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FLORIDA DEPARTMENT OF STATE
Sandra B. Mortham
Secretary of State
DIVISION OF HISTORICAL RESOURCES

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June 19, 1997

Ms. Keri Akers
State Clearinghouse
Department of Community Affairs
2740 Centerview Drive
Tallahassee, Florida 32399-2100

In Reply Refer To:
Robin D. Jackson
Historic Sites Specialist
Project File No. 972209

RE: Cultural Resource Assessment Request
SAI# FL9705050395C
Department of the Navy - Fiscal Year 1997 - Draft Environmental Impact Statement - Disposal and Reuse of Naval Air Station Cecil Field
Jacksonville, Duval County, Florida

Dear Ms. Akers:

In accordance with the provisions of Florida's Coastal Zone Management Act and Chapter 267, *Florida Statutes*, as well as the procedures contained in 36 C.F.R., Part 800 ("Protection of Historic Properties"), we have reviewed the referenced project(s) for possible impact to historic properties listed, or eligible for listing, in the *National Register of Historic Places*, or otherwise of historical or architectural value.

1 We note that a *Programmatic Agreement among the Department of the Navy, Advisory Council on Historic Preservation, and the Florida Division of Historic Resources concerning Base Closure and Realignment of Naval Air Station, Cecil Field, Jacksonville, Florida* has been written. Conditioned upon the stipulations in that document being carried out, it is the opinion of this agency that the proposed project will have no effect on any sites listed, or eligible for listing, in the National Register of Historic Places, or otherwise of historical, architectural or archaeological value. The project is also consistent with Florida's Coastal Management Program and its historic preservation laws and concerns.

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HISTORIC PRESERVATION (904) 487-2333 • FAX: 922-0496
HISTORICAL MUSEUMS (904) 488-1484 • FAX: 921-2503

FDOS 1 - Comment noted. The programmatic agreement is included in this FEIS as Appendix E.

If you have any questions concerning our comments, please do not hesitate to contact us. Your interest in protecting Florida's historic properties is appreciated.

Sincerely,

for Laura A. Kammerer

George W. Percy, Director
Division of Historical Resources
and
State Historic Preservation Officer

GWP/Jrj
xc: Jasmin Raffington, FCMP-DCA

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

Harry Dean, Executive Director
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June 16, 1997

Ms. Keri Akers
Florida State Clearinghouse
Department of Community Affairs
2555 Shumard Oak Blvd.
Tallahassee, FL 32399-2100

Re: SAI #: FL9705050395C
Name of Project: Department of the Navy - FY 1997 - Draft Environmental Impact Statement - Disposal and Reuse of Naval Air Station Cecil Field - Jacksonville, Duval County, Florida.

Dear Ms. Akers:

The staff of the St. Johns River Water Management District (SJRWMD) has reviewed the above referenced document and offers the following comments regarding the District's areas of responsibility which include water quality, water supply, flood protection, and natural systems.

SJRWMD staff has worked cooperatively with the US Navy, City of Jacksonville, Cecil Field Development Commission, and Clay County on the closure and reuse of Naval Air Station (NAS) Cecil Field. As a preface to our specific comments, the following is a summary of our collective work on the Natural and Recreation Corridor that is a part of the Reuse Plan and is mentioned in the DEIS.

1 The Natural and Recreation Corridor (west side) was proposed and is being designed to support the natural system components of the NAS and to assist marketing redevelopment by establishing a pre-approved wetland mitigation scenario on the east side of the NAS. The value of the credits being provided by the Natural and Recreation Corridor in relation to the impacts on the east side is being determined. Once the value, the protection tool (e.g., easement, agreement, etc.) and the land management plan are agreed to, a permit for wetland impacts can be sought.

SJRWMD1 - Comment noted.

2 The land management plan will describe the management and recreation regime and is being prepared by the Florida Division of Forestry. Forestry management in the Natural Corridor will be similar to their current management at neighboring Cary and Jennings State Forests; allowable uses will include passive and resource-based activities, such as hiking, horseback riding, camping, and fishing. Active recreation, such as ballfields,

SJRWMD2 - Comment noted.

William M. Segal, CHAIRMAN, WINTER PARK
Dan Roach, VICE CHAIRMAN, PENSACOLA BEACH
James T. Stevens, TREASURER, COCOA
Ods Masson, SECRETARY, ST. AUGUSTINE
Kathy Chinoy, JACKSONVILLE
Griffin A. Greene, VERO BEACH
James H. Williams, OCALA
Patricia T. Harden, SANFORD
Reid Hughes, DAYTONA BEACH

tennis courts, and equestrian arenas will be located outside the Natural and Recreation Corridor. Sufficient acreage has been provided for these active recreation developments.

3 This corridor plan is being prepared in conjunction with the US Navy, Cecil Field Development Commission, City of Jacksonville, Jacksonville Port Authority, Clay County, Florida Department of Environmental Protection, Florida Division of Forestry, and the Florida Game and Freshwater Fish Commission. The amendments to the City of Jacksonville and Clay County comprehensive plans should contain language and policy that implement the above scenario.

SJRWMD3 - Comment noted.

4 If the subsequent Final Environmental Impact Statement and comprehensive plan amendments do not support this scenario and provide direction to establish the Natural and Recreation Corridor with a sufficient protection tool and land management regime, we will have major concerns regarding the Reuse Plan and future development of the NAS properties. However, we do not believe the current direction to establish the Natural and Recreation Corridor will change, because of the cooperative venture among the parties described above.

SJRWMD4 - Comment noted.

5 There is an inconsistency between the Preferred Reuse Plan and the Natural and Recreation Corridor in the depiction of a future additional runway on the west side of the NAS. While this is an impediment to the corridor, we believe this will be worked out during the development of the corridor agreement and airport master plan.

SJRWMD5 - Comment noted.

6 With regard to land outside the corridor, the DEIS points out that development under the Preferred Reuse Plan could occur without significantly affecting areas with environmental constraints because of the large amount of land available. In order to assure that development does occur in that manner and that the Navy's excellent stewardship of the station's natural resources is continued, we recommend that the Record of Decision and agreements for transfer of land contain requirements for development to be located outside of wetlands, 100-year floodplains, and habitats of species of concern as depicted in the Constrained Land Areas map (Figure 4-3), and for significant impacts to those areas to be avoided through appropriate performance standards.

SJRWMD 6 - Comment noted.

As requested by Robert Teague, Southern Division, Naval Facilities Engineering Command, US Navy, by personal communication to SJRWMD staff, the following section contains SJRWMD's specific comments and suggested changes to language in the DEIS using underlining and strike-outs.

7 pg. v, 1st paragraph, 3rd sentence: amend to say "~~and~~, road improvements and wetland mitigation via protection of the Natural and Recreation Corridor would"

SJRWMD 7 - Comment noted. Text has been revised.

8 | pg. v, 2nd paragraph, 3rd sentence: Interim forestry management for future airport expansion on the west side of the NAS is inconsistent with Natural and Recreation Corridor.

SJRWMD 8 - Comment noted. First sentence deleted.

9 | pg. v, 2nd paragraph, 4th sentence: amend to say "would be reused for passive, conservation areas, and active parks"

SJRWMD 9 - Comment noted. Text has been revised.

10 | pg. v, 2nd paragraph, 5th sentence: amend to say "balance of the property, with the exception of the Natural and Recreation Corridor, would be..."

SJRWMD 10 - Comment noted. Table has been revised.

11 | pg. v., 3rd paragraph, first sentence: amend to say "preservation of a Natural and Recreation Corridor throughout ~~the station on the lands~~ the western portion of the station including lands that are not best suited for development, but are better suited for long-term conservation, including floodplains ~~areas~~, and habitat for species of concern."

SJRWMD 11 - Comment noted. Text has been revised.

12 | pg. viii, 1st paragraph, 2nd and 3rd sentence under ES.3.1: These two sentences are confusing. The first figure uses the 2010 planning horizon and the second figure uses the build-out scenario.

SJRWMD 12 - Comment noted. The sentences have been revised for clarification. The 29 million square feet represents the maximum potential development at NAS Cecil Field using CFDC's floor-area ratios and avoiding constraint areas. This is to show that the 3.9 million square feet of development proporsed under the Preferred Reuse Plan can be supported on unconstrained lands.

13 | pg. viii, Land Use and Aesthetics, 1st paragraph: add to end of paragraph "Any impacts to natural resources will be partially mitigated with the establishment of the Natural and Recreation Corridor."

SJRWMD 13 - Comment noted. Text has been revised.

14 | pg. xii, 1st paragraph, last two sentences: replace with "However, impacts would be minimized by enforcement of existing FAR standards and adoption of requirements that surrounding native vegetation be retained and that connections between habitats, including upland and wetland systems, be maintained."

SJRWMD 14 - Comment noted. Text has been revised.

15 | pg. xii, 3rd paragraph: insert sentence after first "The planned Natural and Recreation Corridor on the west side will assist in mitigating terrestrial impacts on the east side development area."

SJRWMD 15 - Comment noted. Text has been revised.

16 | pg. xiv, Water Quality and Hydrology: insert as a new paragraph after the first paragraph "Black Creek, which drains about half of NAS Cecil Field, experiences severe flooding. Standards greater than existing permit criteria need to be investigated to assist in preventing or ameliorating current flooding. New standards would also assist in maintaining water quality of this sensitive system. A joint Floodplain Management Study (Section 22) by the ACOE, SJRWMD, and Clay County is underway and a feasibility study is being considered. Clay County is also preparing a stormwater drainage study. Several additional studies on flood warning systems have been completed by the SJRWMD. The recommendations from these studies should be considered in development plans for the area.

SJRWMD 16 - Comment noted. Text has been inserted under Section 4.4.7, Mitigation Measures for Water Quality and Hydrology.

17 pg. xiv, Water Quality and Hydrology: delete 1st sentence of existing 2nd paragraph, as it is not supported by the rest of the paragraph.

18 pg. xxviii, Infrastructure and Utility, 3rd paragraph: add to end of paragraph "Wastewater reuse should be considered for the planned modifications by the City of Jacksonville Utilities Department and for future water and wastewater customers."

19 pg. 1-12, Table 1-3, amend rows 8, 10, and 13 to reflect that the St. Johns River Water Management District implements the Environmental Resource Permitting (ERP) program (stormwater management, management and storage of surface waters, and wetland resource) for the majority of projected development and redevelopment for NAS Cecil Field, and Consumptive Uses Permitting (CUP) for water supply. The FDEP will issue permits for activities associated with fuel storage, water and wastewater treatment systems, air quality, and solid waste disposal. The ERP program is coordinated so that only one permit is required and one agency works on a particular project. CUP is not part of this program.

20 pg. 2-3, last paragraph: We support the establishment or use of an existing authority to oversee redevelopment.

21 pg. 2-5, Figure 2-1, Land Use Plan - Preferred Reuse Plan map: amend map to reflect the boundary of the Natural and Recreation Corridor or change land uses to reflect long-term protection and management of the Natural and Recreation Corridor.

22 pg. 2-7, 4th paragraph: add "reused for passive recreation, conservation areas, and active parks"

23 pg. 2-7, last paragraph: amend to say "preservation of a Natural and Recreation Corridor throughout ~~the station on the lands~~ the western portion of the station including lands that are not best suited for development, but are better suited for long-term conservation, including...floodplains ~~areas~~, and habitat for species of concern."

24 pg. 2-11, 1st paragraph: amend to say "an ~~memorandum of~~ agreement for use of these areas with the SJRWMD, FDEP, ~~and/or~~ Department of Agricultural and Consumer Services, Division of Forestry, ~~or~~ and develop an overall management plan that would allow public access ~~rights~~ for hiking, camping, and other passive and resource-based ~~active~~ recreation activities.

25 pg. 2-37, Table 2-12, amend table to reflect the Natural and Recreation Corridor within the Preferred Reuse Option related to Terrestrial Resources, and concern for Black Creek flooding and water quality for all scenarios.

SJRWMD 17 - Comment noted. First sentence deleted.

SJRWMD 18 - Comment noted. Text has been revised.

SJRWMD 19 - Comment noted. Table has been revised.

SJRWMD 20 - Comment noted. The Jacksonville Economic Development Commission will be the master developer (e.g., coordinating new development, leases) for all land at Cecil Field within Duval County, including land conveyed to the Jacksonville Port Authority.

SJRWMD 21 - Comment noted. Preferred Reuse Plan Map has been revised to reflect the boundary of the Natural and Recreation Corridor (see Figure 2-1).

SJRWMD 22 - Comment noted. Text has been revised.

SJRWMD 23 - Comment noted. Text has been revised.

SJRWMD 24 - Comment noted. Text has been revised.

SJRWMD 25 - Comment noted. Tables have been revised for each scenario.

26 pg. 3-9, Figure 3-3: Jennings State Forest boundary should be moved to the east. It is currently too far westward.

27 pg. 4-8, External Land Use Consistency, 3rd paragraph, last sentence: amend "include the eastern portion of NAS Cecil Field property not within the Natural and Recreation Corridor."

28 pg. 5-1, Applicable Statutes and Regulations: amend to reflect that the St. Johns River Water Management District implements the Environmental Resource Permitting (ERP) program (stormwater management, management and storage of surface waters, and wetland resource) for the majority of projected development and redevelopment for NAS Cecil Field, and Consumptive Uses Permitting (CUP) for water supply. The FDEP will issue permits for activities associated with fuel storage, water and wastewater treatment systems, air quality, and solid waste disposal. The ERP program is coordinated so that only one permit is required and one agency works on a particular project. CUP is not part of this program.

29 pg. 6-1: add after 1st sentence "Permanent as well as short-term environmental impacts may occur if the constrained land areas are not avoided and buffered from development. The Natural and Recreation Corridor will assist in offsetting these impacts via a wetland mitigation scenario that will preserve both uplands and wetlands on the west side." Start a new paragraph with the existing 2nd sentence, "Early stages of redevelopment..."

30 pg. 7-1, 2nd paragraph, last sentence: amend to say "according to regulations of the City of Jacksonville and St. Johns River Water Management District ~~Comprehensive Plan requirements~~.

31 pg. 7-1, 3rd paragraph, 1st sentence: amend to say "forestry management, ~~and clearing activities~~ development location and site design, and preservation of the Natural and Recreation Corridor."

32 pg. 8-1, 1st paragraph: add new last sentence "Preservation of the Natural and Recreation Corridor is a major component to mitigate against the irreversible and irretrievable commitment of natural resources of NAS Cecil Field, an existing public investment."

33 pg. D-53, 1st paragraph, 4th sentence: amend to say "they would ~~not~~ be indirectly affected by loss of associated uplands through ~~by~~ the proposed reuse"

34 pg. D-54, 1st paragraph: change FGFWFC to Division of Forestry. Add as the beginning of a new paragraph following the first complete sentence "Wetlands are protected from most direct impacts, yet associated functions of uplands are typically lost. The Natural and Recreation Corridor on the west side is designed to assist in meeting the long-term need of having an area of preserved uplands and wetlands. On the east side, development location, site design, and

SJRWMD 26 - Comment noted. Boundary revised.

SJRWMD 27 - Comment noted. According to the Public Facilities Map prepared by the Jacksonville Planning and Development Department, to be adopted as an attachment to the NAS Cecil Field Transition Element, all of Cecil Field will be considered to be within the Suburban Fiscal Commitment Area (i.e., the urban service area).

SJRWMD 28 - Comment noted. Text has been revised.

SJRWMD 29 - Comment noted. Table has been revised.

SJRWMD 30 - Comment noted. Text has been revised.

SJRWMD 31 - Comment noted. Text has been revised.

SJRWMD 32 - Comment noted. Text has been revised.

SJRWMD 33 - Comment noted. Text has been revised.

SJRWMD 34 - Comment noted. Text has been revised.

standards including buffers and connections between habitats can support the long-term existence of habitats of concern on the east side, as well, with minimal effect to planned development."

If you have any questions concerning the above comments, please contact, Kraig McLane, Intergovernmental Coordinator at our Jacksonville Service Center, (904) 448-7904, or Margaret Spontak, Director of our Policy and Planning Division in Palatka, (904) 329-4374.

Sincerely,

Henry Dean
Executive Director

BKM/REG/ls

cc: Robert Teague, U.S. Navy, Southern Division, Engineering Command
Herb McCarthy, Executive Director, Cecil Field Development Commission
Bob Simpson, Project Manager-Cecil Field NAS, Jacksonville Port Authority
Susan Fraser, Director, Clay County Planning Department
Ernie Frey, Director, NE District, DEP
Brian Teeple, Executive Director, NE Florida Planning Council

COUNTY: Duval

Message:

DATE: 05/05/97
COMMENTS FROM: E-2 WKS: 05/20/97
CLEARANCE DUE DATE: 06/19/97
SAI#: FL9705050395C

STATE AGENCIES	WATER MANAGEMENT DISTRICTS	OPB POLICY UNITS
Community Affairs Environmental Protection Game and Fresh Water Fish Comm OTED State X Transportation	St. Johns River WMD	Environmental Policy/C & ED

RECEIVED
MAY 16 1997
State of Florida Clearinghouse

The attached document requires a Coastal Zone Management Act/Florida Coastal Management Program consistency evaluation and is categorized as one of the following:

— Federal Assistance to State or Local Government (15 CFR 930, Subpart F). Agencies are required to evaluate the consistency of the activity.

X Direct Federal Activity (15 CFR 930, Subpart C). Federal Agencies are required to furnish a consistency determination for the State's concurrence or objection.

— Outer Continental Shelf Exploration, Development or Production Activities (15 CFR 930, Subpart E). Operators are required to provide a consistency certification for state concurrence/objection.

— Federal Licensing or Permitting Activity (15 CFR 930, Subpart D). Such projects will only be evaluated for consistency when there is not an analogous state license or permit.

Project Description:

Department of the Navy - Fiscal Year 1997 - Draft Environmental Impact Statement - Disposal and Reuse of Naval Air Station Cecil Field - Jacksonville, Duval County, Florida.

To: Florida State Clearinghouse
Department of Community Affairs
2555 Shumard Oak Boulevard
Tallahassee, FL 32399-2100
(904) 922-5438 (SC 292-5438)
(904) 414-0479 (FAX)

EO. 12372/NEPA	Federal Consistency
☒ No Comment	☐ No Comment/Consistent
☐ Comments Attached	☐ Consistent/Comments Attached
☐ Not Applicable	☐ Inconsistent/Comments Attached
	☐ Not Applicable

From:
Division/Bureau: FDOT DIST. 2 PLANNING
Reviewer: James W. Miller
Date: 5/13/97

COUNTY: Duval

DATE: 05/05/97
COMMENTS DUE-2 MKS: 05/20/97
CLEARANCE DUE DATE: 06/19/97
SAI#: FL9705050395C

Message:

STATE AGENCIES	WATER MANAGEMENT DISTRICTS	OPB POLICY UNITS
Community Affairs Environmental Protection Game and Fresh Water Fish Comm OTED State Transportation	X St. Johns River WMD	Environmental Policy/C & ED

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EO. 12372/NEPA
- ☐ No Comment
- ☐ Comments Attached
- ☐ Not Applicable

Federal Consistency
- ☐ No Comment/Consistent
- ☒ Consistent/Comments Attached
- ☐ Inconsistent/Comments Attached
- ☐ Not Applicable

From:
Division/Bureau: Policy and Planning
Reviewer: Margaret H. Spontak
Date: June 16, 1997

COUNTY: Duval

DATE: 05/05/97
COMMENTS DUE-2 WKS: 05/20/97
CLEARANCE DUE DATE: 06/10/97
SAI#: FL9705050395C

Message:

STATE AGENCIES	WATER MANAGEMENT DISTRICTS	OPB POLICY UNITS
Community Affairs Environmental Protection Game and Fresh Water Fish Comm CFSD State Transportation	St. Johns River WMD	X Environmental Policy/C & ED

RECEIVED
JUN 19 1997
State of Florida Clearinghouse

RECEIVED
MAY 8 1997
OFFICE OF PLANNING & BUDGETING
ENVIRONMENTAL POLICY UNIT

The attached document requires a Coastal Zone Management Act/Florida Coastal Management Program consistency evaluation and is categorized as one of the following:

— Federal Assistance to State or Local Government (15 CFR 930, Subpart F). Agencies are required to evaluate the consistency of the activity.

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Project Description:

Department of the Navy - Fiscal Year 1997 - Draft Environmental Impact Statement - Disposal and Reuse of Naval Air Station Cecil Field Jacksonville, Duval County, Florida.

To: Florida State Clearinghouse
Department of Community Affairs
2555 Shumard Oak Boulevard
Tallahassee, FL 32399-2100
(904) 922-5438 (SC 292-5438)
(904) 414-0479 (FAX)

EO. 12372/NEPA
- [ ] No Comment
- [ ] Comments Attached
- [ ] Not Applicable

Federal Consistency
- [ ] No Comment/Consistent
- [ ] Consistent/Comments Attached
- [ ] Inconsistent/Comments Attached
- [ ] Not Applicable

From:
Division/Bureau: EO. OPB. Env. Policy
Reviewer:
Date: 6/19/97

Northeast Florida Regional Planning Council

Baker • Clay • Duval • Flagler • Nassau • Putnam • St. Johns

9143 Philips Highway, Suite 350, Jacksonville, Florida 32256
(904)363-6350 FAX (904) 363-6356
Suncom 874-6350 Suncom FAX 874-6356

June 2, 1997

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JUN 04 1997
State of Florida Clearinghouse

Florida State Clearinghouse
Department of Community Affairs
2555 Shumard Oak Boulevard
Tallahasee, Florida 32399-2100

Att.: Glenn Church

SAI#: FL9705050395C

Fiscal Year 1997 - Draft Environmental Impact Statement - Disposal and Reuse of Naval Air Station Cecil Field - U.S. Department of Navy - Jacksonville, Florida

The Northeast Florida Regional Planning Council staff has reviewed the above application for federal assistance. The enclosed responses or comments were received from local governments.

Based on the information contained in the Project Description and after a review of the Comprehensive Regional Policy Plan goals and policies the NEFRPC staff finds the proposal to be "consistent" with the following regional policies:

Policy: 10.3.3.1. Provide support to state and federal agencies for the development of compatible multi-use programs for public lands.

Policy: 10.4.1.1. Local governments should designate, acquire, expand and maintain open space, and recreational and park sites in accordance with their Local Government Comprehensive Plans and recreational standards.

Policy: 21.1.1.8. Develop a national and international center for finance, high technology, and processing capabilities.

Policy: 21.1.1.13. Develop a nationally recognized high technology and research park in Northeast Florida based on the region's business, manufacturing and educational strengths.

This letter signifies that the Northeast Florida Regional Planning Council staff has no objection to the above cited application for federal assistance.

Sincerely,

Gustave A. Rappold
ICAR Coordinator

enclosure

97MC34

FLOR A STATE C EARINGHC SE
RPC INTERGOVERNMENTAL COORDINATION AND RESPONSE SHEET

SAI #: FL9705058395C DATE: 05/05/97

COMMENTS DUE TO CLEARINGHOUSE: 06/04/97

AREA OF PROPOSED ACTIVITY: COUNTY: Duval County CITY: Jacksonville

☐ FEDERAL ASSISTANCE ☒ DIRECT FEDERAL ACTIVITY ☐ FEDERAL LICENSE OR PERMIT ☐ OCS

PROJECT DESCRIPTION

Department of the Navy - Fiscal Year 1997 - Draft Environmental Impact Statement - Disposal and Reuse of Naval Air Station Cecil Field - Jacksonville, Duval County, Florida.

ROUTING:

RPC

X NE Florida RPC



PLEASE CHECK ALL THE LOCAL GOVERNMENTS BELOW FROM WHICH COMMENTS HAVE BEEN RECEIVED; ALL COMMENTS RECEIVED SHOULD BE INCLUDED IN THE RPC'S CLEARINGHOUSE RESPONSE PACKAGE. IF NO COMMENTS WERE RECEIVED, PLEASE CHECK "NO COMMENT" BOX AND RETURN TO CLEARINGHOUSE.

COMMENTS DUE TO RPC: **05/26/97**

___Duval County

NO COMMENTS: X

(IF THE RPC DOES NOT RECEIVE COMMENTS BY THE DEADLINE DATE, THE RPC SHOULD CONTACT THE LOCAL GOVERNMENT TO DETERMINE THE STATUS OF THE PROJECT REVIEW PRIOR TO FORWARDING THE RESPONSE PACKAGE TO THE CLEARINGHOUSE.)

NOTES:

ALL CONCERNS OR COMMENTS REGARDING THE ATTACHED PROJECT (INCLUDING ANY RPC COMMENTS) SHOULD BE SENT IN WRITING BY THE DUE DATE TO THE CLEARINGHOUSE. PLEASE ATTACH THIS RESPONSE FORM AND REFER TO THE SAI # IN ALL CORESPONDENCE.

IF YOU HAVE ANY QUESTIONS REGARDING THE ATTACHED PROJECT, PLEASE CONTACT THE STATE CLEARINGHOUSE AT (904) 922-5438 OR SUNCOM 272-5438.

Northeast Florida Regional Planning Council
Baker • Clay • Duval • Flagler • Nassau • Putnam • St. Johns
9143 Phillips Highway, Suite 350, Jacksonville, Florida 32256
(904)363-6350 FAX (904) 363-6356
Suncom 874-6350 Suncom FAX 874-6356

June 9, 1997

Commanding Officer
Southern Division, Naval Facilities Engineering Command
Attn.: Mr. Robert Teague, P.E. (Code 064)
2155 Eagle Drive
P.O. Box 190010
North Charleston, SC 29419-9010

Dear Mr. Teague:

The Northeast Florida Regional Planning Council (NEFRPC) is in receipt of the Draft Environmental Impact Statement (DEIS) of Naval Air Station (NAS) Cecil Field in Jacksonville. While the official NEFRPC review of the proposed disposal and reuse of NAS Cecil Field will not go to full council until adoption of the Comprehensive Plan amendment pursuant to Chapter 288, Florida Statutes, the following comments are provided on the DEIS in order to avoid duplicative review and to provide assistance in ensuring that the information provided is adequate for the comprehensive plan amendment, pursuant to Subsection 288.975(6), F.S.

1. Section 3.1.3 of the DEIS refers to the NEFRPC Comprehensive Regional Policy Plan (CRPP). Please be advised that the basis for review of the Cecil Field Plan Amendment will be the Strategic Regional Policy Plan (SRPP), which has been adopted by the Council in draft form, with final approval expected prior to Jacksonville Plan amendment.

2. Table 3-21 includes 1993 ADTs, but the footnotes indicate that most counts are for years other than 1993. It is unclear as to the year for the ADTs in this table. Have counts for other years (e.g., 1991) been modified to reflect 1993 conditions?

3. Section 3.8 states that "as a result of gradual reductions in activities at the station associated with its pending closure, official estimates of total inbound and outbound traffic are approximately 12,000 vehicles per day." Pre-closure activity should be the basis for determining base traffic impacts.

NEFRPC 1 - Comment noted. See text change in Section 3.1.3.

NEFRPC 2 - Table 3-21 has been revised to point out the year for which the ADT count was calculated. For each roadway, the most recent ADT was used. Counts for other years were not modified to reflect 1993 conditions.

NEFRPC 3 - Comment noted. The text has been revised to show vehicle trips per day prior to personnel reductions associated with pending closure. It is believed that this is a more accurate representation of traffic prior to closure knowledge.

4

4. Ridership levels for mass transit serving Cecil Field could be provided to provide a benchmark for determining when future ridership levels are equal to current levels.

5

5. Section 4.8 shows traffic volumes on area roadways with and without Cecil Field redevelopment. While it is stated in Section 4.8.7 that Branan Field-Chaffee Road would add capacity to the regional roadway system, no analysis of traffic conditions on the roadway network with Branan Field-Chaffee Road in its planned configuration is provided. Construction of this road will have a profound effect on traffic patterns in the area of Cecil Field and needs to be included in the analysis.

Review comments on the DEIS are provided consistent with the requirements of Subsection 288.975(6), which states in part that in review of military base reuse plans, regional and state agencies shall make every effort to avoid duplicative reviews and to use information and analyses generated by the federal government impact statement process and the federal community base reuse plan process. It is believed that the comments provided herein will assist in the review of the Cecil Field base reuse plan and the required City of Jacksonville comprehensive plan amendment, which will be officially reviewed by the NEFRPC in accordance with Chapter 163, F.S., much as any other comprehensive plan amendment, and in lieu of the review requirements of Chapter 380, F.S. Please call me if you have any questions.

Sincerely,

Edward Lehman

Edward Lehman
Senior Regional Planner

cc: Mr. Bob Simpson
Mr. Herb McCarthy

NEFRPC 4 - According to the Jacksonville Transit Authority, mass transit ridership at Cecil Field in 1995 was approximately four in-bound and four out-bound passengers per day. Mass transit serviced the site once in the morning and once in the evening. Overall, current ridership in the city is approximately 15 passengers per vehicle (Smith 1998).

NEFRPC 5 - Navy, FDOT, and the Jacksonville MPO are in agreement that a traffic impact analysis needs to be completed to effectively evaluate the impact the Brannan Field-Chaffee Road extension will have on trip patterns in the Cecil Field area. According to FDOT District 2 (Worth 1997), work has begun on a traffic impact analysis; however, a number of issues need to be resolved prior to the final analysis. These issues include the exact roadway configuration, whether the road will be tolled, and replacement land uses at and around Cecil Field for the next 20 years (Worth 1997). FDOT will be responsible for completing this traffic impact analysis.

AIRPORTS
- Jacksonville International
- Craig
- Herlong

JAXPORT

JACKSONVILLE PORT AUTHORITY
Post Office Box 3005
2831 Talleyrand Avenue
Jacksonville, Florida 32206-0005

SEAPORTS
- Blount Island Terminal
- Talleyrand Terminal

June 9, 1997

Commanding Officer
Southern Division, Naval Facilities Engineering Command
Attn: Mr. Robert Teague, P.E. (Code 064)
2155 Eagle Drive
P.O. Box 190010
North Charleston, SC 29419-9010

Dear Mr. Teague:

Attached are comments on the NAS Cecil Field Draft Environmental Impact Statement from the Jacksonville Port Authority.

Sincerely,

Bob Simpson
Project Manager

JAXPORT **Memorandum**

To: Bob Simpson

From: Bruce Parker

Date: May 6, 1997

Subject: Comments on Cecil Field DEIS

---

1. **Page 3-94, Section 3.8 Transportation** - The primary development infrastructure cost in Florida is potentially any highway expansion needed for trips generated. The DEIS compares MPO projected trips with forecast future development trips. However, the significant number for growth management concurrency trip impacts is vested trips, presumedly the **peak hour trips generated by the existing Navy use of Cecil Field prior to beginning shutdown of operations**. The DEIS analysis may have generated this number. It would be helpful to have it included in the DEIS, if its not already there (I can't find it in pages 3-94 through 3-106 or pages 4-117 through 4-172. Total workday trips are provided).

   Although adoption of the EIS and Base Reuse Plan **"supersedes the provisions of Chapter 380 pertaining to developments of regional impact and the requirements of Part 11 of Chapter 163..."** According to Section 288.971 et. Seq. F.S., it is not clear that approval of the substitute procedure for a DRI includes highway trip vesting. Documentation of existing trip impacts can provide some assurance that no concurrency management highway impacts must be funded for the foreseeable future.

2. **Page 1-12** - Permits required should include Environmental Resource Permit for State surface water impacts - FDEP or WMD (includes stormwater impacts).

   Also required for construction affecting more than 5 acres - USEPA NPDES permit.

3. **Page 2-2 - Section 2.1** - "Section 288.03 F.S." should read **"Section 288.971 et. Seq. F.S."**.

4. **Page 3-11, Section 3.13** - The Comprehensive Regional Policy Plan (CRPP) is being replaced by the Strategic Regional Policy Plan (SRPP) currently in adoption hearings.

5. **Page 3-127, Section 3.11 - "Areas that have not been evaluated or require additional evaluation."** Need more description of the procedures and schedules for additional evaluation.

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F-43

JPA 1 - Transportation concurrency management for Jacksonville is based on trips during the PM peak hour (Farnsworth 1997). In Section 3.8.1 of the FEIS, preclosure traffic generated at NAS Cecil Field was estimated based on gate counts conducted in April 1987. Daily traffic was estimated to be 14,178 daily trips. Because the traffic count conducted by the NAS Cecil Field Security Department did not include a PM peak-hour count, information is not available for vehicles entering and exiting the site during the PM peak hour. However, typical peak-hour factors range from 0.08 to 0.10. That is, 8 to 10 percent of average daily trips would occur during the PM peak hour. PM peak-hour traffic generated by NAS Cecil Field during full operations is expected to encompass between 1,134 and 1,418 trips.

JPA 2 - As with any Development of Regional Impact (DRI), the Base Reuse Plan will be subject to a concurrency management review and approval by the Jacksonville's Concurrency Management Review Office prior to any development at the site. Within this FEIS, no trip vesting or credits were included for previous land use activities at NAS Cecil Field. However, in the subsequent Chapter 288, FS approval process, which is designed to meet the requirements of the DRI process, JEDC may opt to seek trip credits, as a redevelopment project, for previous land use activities at NAS Cecil Field.

JPA 3 -Comment noted. Tables have been revised. Also see response to comment SJRWMD 19.

JPA 4 -Comment noted. Language has been added to Table 1-3.

JPA 5 -Comment noted. Text has been revised.

JPA 6 -Comment noted. Text has been revised. Also see comment NFRPC 1.

JPA 7 - An Environmental Baseline Survey (EBS) was completed by Navy in 1995 in which several areas were color-coded "gray." As noted in the JPA comment, the "gray" areas were designated as "areas that have not been evaluated or require additional evaluation." Investigation of these areas has been ongoing by Navy and is expected to be completed by the end of calender year 1998. The status of this effort, including procedures and results, can be obtained by contacting the Base Environmental Coordinator through the NAS Cecil Field Public Affairs Office.

Memorandum
To: Bob Simpson

From: Bruce Parker

Date: May 6, 1997

Page 2

8 6. **Page 3-149, Section 3.11.14 - Adjacent Properties** - Although not a specific purpose of the EIS, if the area environmental assessment for hazardous materials conformed to the standards of ASTM Practice E 1527-94 guidelines and was so documented in the EIS it might provide future landowners with some **"innocent purchaser" defenses.**

9 7. **Page 4-73, Section 4.6 Noise** - Much of the analysis provided is suitable for an FAA Regulations Part 150 Noise Study. This analysis should be provided to JPA for this purpose.

10 8. **Page 4-93, Section 4.7 Education** - Several sections mention that additional local tax revenues will result from increased ad valorem property taxes when land ownership is transferred by the Navy. Local governments do not pay ad valorem taxes either. Property taxes will increase only on those lands which might eventually be transferred to private ownership.

Please call me at 630-3079 if you have any questions about these comments.

BMP/kje

JPA 8 - ASTM Practice 1527-94 guidelines were used by Navy in the preparation of the Phase I Environmental Baseline Survey for NAS Cecil Field.

JPA 9 - The noise analysis conducted as part of this EIS is available to JPA upon request.

JPA 10 - Comment noted.

BOARD MEMBERS:

Donald S. Van Fleet, Ed.D.

May 2, 1997

Commanding Officer
Southern Division, Naval Facilities Engineering Command
Attn: Mr. Robert Teague, P.E. (Code 064)
2155 Eagle Drive
P.O. Box 190010
North Charleston, SC 29419-9010

Dear Sir:

We have received and reviewed a copy of the Draft Environmental Impact Statement that evaluates the proposed disposal and reuse of the Naval Air Station at Cecil Field, Jacksonville, Florida.

1 We believe that acquiring acreage for a future elementary school, middle school, and high school would greatly benefit the long-range plans the Duval County School Board has for this area. Estimated acreage needed for the three schools totals 160 acres. We would prefer this acreage to be as close to 103rd Street as possible to maintain existing access. We would be interested in acquiring the 160 acres as soon as possible.

Thank you very much for inviting us to comment. Please keep us informed as the disposition of this base continues.

Sincerely,

McGlade L. Holloway
Assistant Superintendent
Facilities Services

MLH:hs

cc: Dr. Donald S. Van Fleet
Robert B. Ottesen
Karen S. Kuhlmann
Herb McCarthy

MISSION

DCPS1 - Request for property should be addressed to the Jacksonville Economic Development Commission.

RS&H

Architectural, Engineering, Planning and Environmental Services

Reynolds, Smith and Hills, Inc.
[illegible] Salisbury Road
Jacksonville, Florida 32256-0801
904-296-2000
Fax 904-279-249[illegible]

June 10, 1997

Commander Southern Division
Attn: Code 064BT (Mr. Robert Teague, P.E.)
Naval Facilities Engineering Command
P.O. Box 190010
North Charleston, SC 29419-9010

Dear Mr. Teague:

Re: Comments on the Disposal and Reuse of Naval Air Station Cecil Field

Reynolds, Smith and Hills, Inc. (RS&H) has been contracted by the Cecil Field Development Commission (CFDC) to develop a Cecil Field Transportation Plan to support the Final Cecil Field Base Reuse Plan. As a part of this study, CFDC requested we review and respond to the *Disposal and Reuse of Naval Air Station Cecil Field Draft Environmental Impact Statement* (EIS) prepared by Ecology and Environment for the U.S. Department of the Navy. We would like to submit the following comments regarding land use trip generation estimates for existing conditions and the Preferred EIS Alternative land use estimates.

EXISTING CONDITIONS

Estimated trip ends for the existing Base land uses were determined by traffic counts conducted by the NAS Cecil Field security department on April 23, 1987 at gates "A" and "D". These counts were taken between 0530 hours and 1800 hours and indicated 3,132 and 3,957 vehicles entered the base through each gate, respectively. The entering traffic was then doubled to arrive at the estimated 14,178 total daily trip ends for the base. Due to anticipated gradual reductions in base activities, the estimate is reduced to approximately 12,000 vehicles per day entering and exiting the base. This count does not accurately reflect the base's existing daily trip potential. 1

RS&H has reviewed the existing conditions regarding trip generation estimates and requests the following additional information be added to page 3-102, replacing the paragraph which reads "Traffic counts conducted... ...vehicles per day (Taylor 1997).

> Existing land uses within the base, as reported in the *NAS Cecil Field Final Base Reuse Plan*, prepared by Arthur Andersen in February 1996, were used for baseline trip generation estimates. These land uses were estimated to generate 31,970 daily (a 24-hour period) trip ends by using trip generation rates and equations reported in the Institute of Transportation Engineers (ITE) *Trip Generation, Fifth Edition*. document. Table 1 (proposed Table 3-XX) details the calculations for determining the estimated daily trip ends for the existing land uses, including adjustments for internal capture trips based on knowledge of the area and trip interaction relationships between various land uses. Using the ITE trip rates for the existing

F:\CECIL\DOCUMENT\RPT_DISCOMMENT2.DOC

F-46

RSH 1 - Comment noted. Although Navy appreciates the comment as noted and agrees that, for most land use activities, trip generation rates and equations reported in the Institute of Transportation Engineers (ITE) Trip Generation Manual, Fifth Edition, are appropriate, we do not believe that using ITE rates and equations for existing land uses at NAS Cecil Field accurately reflects the trip-generation characteristics at the station. Because public access to NAS Cecil Field is generally limited to military personnel and dependents and civilian workers and contractors, many land uses at the station (e.g., commercial) receive internal capture trips rather than new trips generated off station. For example, the general public is not coming to NAS Cecil Field to eat at the fast-food restaurant or the officers' club or to use the convenience station. Trips to these facilities can be attributed to residents of or workers at NAS Cecil Field and therefore should be considered internal capture trips. Similarly, we believe that an attempt to estimate the number of trips for personnel at the BEQ and BOQ using ITE's apartment rate is also an overestimation. These personnel typically work on station and many of the basic daily necessities are provided on station.

Navy has adjusted its original estimation of 12,000 vehicle trips per day to 14,178 trips per day, as originally estimated, based on 1987 gate counts. It is believed that 14,178 trips per day is a more reasonable estimation of the number of daily trip ends for existing land use at NAS Cecil Field, as opposed to trip potential. Navy's estimation of existing trips is supported by the Institute of Transportation Engineers Trip Generation Manual, Fifth Edition, 1991, land use code 501 (military base; see Section 3.8.1).

Also, see Comment NEFRPC3.

conditions analysis will allow an accurate comparison with the estimated trips for the Preferred EIS Alternative land uses.

The attached Table 1 (proposed Table 3-XX) should be inserted as supporting information for the above changes.

PREFERRED ALTERNATIVE SCENARIO

2 RS&H research indicates the preferred EIS alternative has omitted 150,000 total square feet as described in the *NAS Cecil Field Final Base Reuse Plan* prepared by Arthur Anderson & Company. In addition, the proposed recreational (the golf course and park areas) and residential land uses associated with the Yellow Water Navy housing are not included in the preferred EIS alternative trip generation estimates, though the Draft EIS text includes these land uses (refer to Table 4-37, page 4-120).

3 The source for the trip generation estimates in Table 4-37 is listed as *ITE Trip Generation, Fifth Edition*. However, we are unable to duplicate the estimated trips, daily or peak hour, using the ITE manual and the square footage independent variable for the land uses identified. The attached Table 2 is submitted to document the information we believe reflects the conditions in the preferred EIS alternative regarding land uses, their corresponding sizes and trip generation estimates as detailed in the Draft EIS. The ITE manual rates and/or equations have been used to calculate the estimated trip ends for the residential and recreational land uses. We propose the existing Table 4-37 be replaced with the attached Table 3 (Table 4-37 [Revised]) and Table 4 (Table 4-37 [a]) as discussed below.

We submit the attached Table 3 (proposed Table 4-37 [Revised]) and Table 4 (proposed Table 4-37 [a]) which we believe reflect the conditions in the Preferred EIS Alternative for the proposed land uses, their corresponding sizes and trip generation estimates. The trip generation estimates were calculated for the land uses in the Preferred EIS Alternative using ITE manual rates and/or equations. We request the following changes and additional information be made to page 4-119 and 4-129:

4 ~~At the completion of Phase 1 development, approximately 9,175 average daily trips are projected, while 1,108 peak hour trips are projected. Implementation of Phase 2 development is estimated to generate a total of 14,230~~ total buildout of the Preferred EIS Alternative (Phase 1 and Phase 2 combined) approximately 19,400 average daily trips and ~~1,678~~ 3,201 peak-hour trips are projected. Table 3 (Table 4-37 [Revised]) displays the estimated daily trips generated and Table 4 (proposed Table 4-37[a]) displays the estimated PM Peak Hour trips generated for proposed land uses under the Preferred Reuse Plan. Figures 4-13 and 4-14 display the traffic conditions associated with the Preferred Reuse Plan. Trips projected to be generated by the Preferred Reuse Plan were added to the Jacksonville MPO's projected traffic volumes for 2004 and 2010.

5 Roadways within the region influenced by the Preferred Reuse Plan would experience ~~a slight~~ no increase in traffic volumes over the MPO's projected levels. In ~~most~~ all cases the Preferred Reuse Plan would not result in ~~a significant~~ no modification of projected LOS on the roads. Table 4-38 displays the MPO's projected traffic volumes, traffic volumes resulting from redevelopment, and the associated LOSs.

6 Overall, proposed development would add ~~very little~~ no new traffic on the roads surrounding the station. ~~The only roads that would experience significant LOS changes would be portions of Chaffee Road, Normandy Boulevard, and 103rd Street. These deficiencies are projected to~~

RSH 2 - Comment noted. The 150,000 square feet and proposed recreational land uses were inadvertently omitted from the trip-generation estimation. Table 4-37 has been revised in accordance with land uses shown in Figure 6.1 of the NAS Cecil Field Base Reuse Plan. In addition, a parks and recreation land use category, in accordance with acreage shown, has been added to Table 2-1. Because the DEIS addresses only the environmental effects of reuse of station properties to be disposed of by Navy, trips generated by persons at the Yellow Water Navy Housing Complex were not included in the FEIS. This area will be retained by Navy for use by NAS Jacksonville.

RSH 3 - Table 4-37 has been revised with only land use categories described in the NAS Cecil Field Base Reuse Plan (Figure 6.1 of the plan). The land use categories are also shown in Table 2-2 of the FEIS. In addition, a parks and recreation land use category has been added to Table 4-37 to show trips generated by this land use activity. Acreage devoted to parks and recreation activities is shown in Table 2-1.

RSH 4 - Comment noted. Text has been revised in accordance with trip-generation totals shown in Table 4-37 of this FEIS.

RSH 5 - Comment noted. Text has not been revised as commented. Any redevelopment at NAS Cecil Field would result in an increase in traffic volumes over the MPO's projected levels because these levels assume closure of NAS Cecil Field with no redevelopment activity. See Table 4-38, footnote b.

RSH 6 - Comment noted. Text has not been revised as commented. At Phase 2 buildout, there would be a slight increase in vehicular traffic as opposed to preclosure conditions, and a degradation in the LOS standard for the roadways identified.

~~occur at the end of Phase 2, and would be addressed by already planned improvements to the regional roadway network discussed in Section 4.8.7.~~

Please note Figures 4-13 and 4-14 will need to be updated to include the revised projected trips as shown in Table 4-37 (Revised).

COORDINATION

We have discussed our comments with the Florida Department of Transportation (FDOT) and they also have questions concerning the estimated trip generation numbers in the Draft EIS. The FDOT staff is in agreement with the methodology we have employed to calculate trip generation estimates for the existing base conditions and the preferred EIS alternative. The FDOT will provide additional comments in a separate correspondence.

We ask that these comments are integrated into the Final EIS. If there are any questions or concerns, please contact me at 904.279.2328.

Sincerely,

Reynolds, Smith and Hills, Inc.

H.E. Seymour, III
Project Manager

KF

Attachments

CC: Mr. Herb McCarthy, CFDC
Mr. Bob Simpson, JAXPORT
Mr. Ray Newton, JPDD
Ms. Lea Gabbay, FDOT
Mr. Calvin Burney, JPDD
Mr. Dan Castle, E&E

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Existing Conditions Trip Generation Estimate

Daily Analysis

Land Use Category / ITE Defined Land Use	ITE Land Use Code	Size	Units	Rate/Equation	Trip Ends	Directional Distribution: Entering Trips %	Entering Trips	Exiting Trips %	Exiting Trips	Internal Capture[1] %*	Internal Capture Trips: Enter	Internal Capture Trips: Exit	External Trips: Enter	External Trips: Exit	Pass-By Capture %	Pass-By Capture Trips: Enter	Pass-By Capture Trips: Exit	Total Trips (External Less Pass-By Capture Trips): Enter	Total Trips (External Less Pass-By Capture Trips): Exit	Total Trips (External Less Pass-By Capture Trips): Totals
Existing Land Uses[2] (Year 1996)																				
INDUSTRIAL / WAREHOUSE / GENERAL USE																				
Industrial Park	130	699,665	sf GFA	T=(4.848*X)+760.587	4,229	50%	2,114	50%	2,114	70%	1,480	1,480	634	634	0%	0	0	634	634	1,268
Warehousing	150	232,488	sf GFA	T=(3.887*X)+342.850	1,188	50%	598	50%	590	70%	418	418	180	180	0%	0	0	180	180	360
Automobile Care Center[3]	840	13,064	sf GFA	15.98	207	50%	104	50%	103	50%	52	52	52	51	0%	0	0	52	51	103
Category Total					5,633		2,817		2,816		1,951	1,951	866	865		0	0	866	865	1,731
HANGER / AVIATION / MILITARY																				
General Aviation Aircraft[4]	022	480	Flights/Day	T=[0.822(X)-0.00039]*	756	50%	378	50%	378	50%	189	189	189	189	0%	0	0	189	189	378
Industrial Park	130	617,353	sf GFA								Included in INDUSTRIAL / WAREHOUSE / GENERAL USE Industrial Park category.									
Category Total					756		378		378		189	189	189	189		0	0	189	189	378
ADMINISTRATIVE																				
General Office	710	198,788	sf GFA	Ln(T)=0.756*Ln(X)+3.765	2,368	50%	1,180	50%	1,179	60%	590	590	590	589	0%	0	0	590	589	1,179
Medical/Dental Office Building	720	21,099	sf GFA	Ln(T)=1.118*Ln(X)+2.777	563	50%	282	50%	281	75%	72	72	210	210	0%	0	0	210	210	420
Post Office	732	9,478	sf GFA	T=[0.00078(X)+0.000027]*	2,787	50%	1,394	50%	1,393	30%	418	418	976	975	0%	0	0	976	975	1,951
Category Total					5,729		2,868		2,853		1,081	1,081	1,786	1,782		0	0	1,786	1,782	3,567
COMMERCIAL																				
Church	560	12,744	sf GFA	9.33	177	50%	89	50%	88	30%	27	26	46	46	0%	0	0	46	46	92
Day Care Center	565	17,472	sf GFA	79.26	1,385	60%	663	50%	692	30%	208	208	455	484	0%	0	0	455	484	939
Library	590	6,116	sf GFA	Ln(T)=0.344*Ln(X)+6.063	948	50%	475	50%	474	70%	333	332	142	142	0%	0	0	142	142	284
Medical-Dental Office Building (Clinic)	720	48,600	sf GFA	Ln(T)=1.118*Ln(X)+2.777	1,491	50%	746	50%	745	70%	522	522	224	223	0%	0	0	224	223	447
Shopping Center	820	25,870	sf GFA	Ln(T)=0.625*Ln(X)+3.986	3,038	50%	1,519	50%	1,519	25%	380	380	1,139	1,139	0%	0	0	1,139	1,139	2,278
High Turnover, Sit-Down Restaurant	832	42,007	sf GFA	205.36	8,627	50%	4,314	50%	4,313	60%	2,157	2,157	2,157	2,156	0%	0	0	2,157	2,156	4,313
High Turnover, Sit-Down Restaurant	832	36,500	sf GFA	205.36	7,352	50%	3,676	50%	3,676	60%	1,838	1,838	1,838	1,838	0%	0	0	1,838	1,838	3,676
High Turnover, Sit-Down Restaurant	832	4,854	sf GFA	205.36	997	50%	479	50%	478	30%	143	143	333	333	0%	0	0	333	333	666
Fast Food Restaurant with Drive Thru	834	2,500	sf GFA	632.12	1,580	50%	790	50%	790	80%	632	632	158	158	0%	0	0	158	158	316
Convenience Market with Gasoline Pumps[5]	844	8	Pumps	304.98	2,439	50%	1,220	50%	1,219	80%	976	976	244	243	0%	0	0	244	243	487
Drive - In Bank	912	3,000	sf GFA	Ln(T)=0.562*Ln(X)+6.161	896	50%	448	50%	448	25%	112	112	336	336	0%	0	0	336	336	672
Category Total					28,844		14,428		14,418		6,958	6,954	7,480	7,465		0	0	7,480	7,465	14,954
RECREATIONAL																				
Regional Park[6]	417	75	Acres	19.15	1,438	50%	719	50%	719	40%	287	287	431	431	0%	0	0	431	431	862
Golf Course	430	18	Holes	Ln(T)=1.237*Ln(X)+2.864	645	50%	323	50%	322	25%	81	81	242	241	0%	0	0	242	241	483
Health Club[7]	493	19,279	sf GFA	40.42	779	50%	390	50%	389	40%	156	156	234	233	0%	0	0	234	233	467
Bowling Alley	494	14,852	sf GFA	33.33	495	50%	248	50%	247	60%	199	198	30	49	0%	0	0	30	49	99
Drinking Place[8]	833	18,000	sf GFA	199.17	2,928	50%	1,464	50%	1,464	80%	1,171	1,171	293	293	0%	0	0	293	293	586
Category Total					6,283		3,143		3,140		1,893	1,893	1,250	1,247		0	0	1,250	1,247	2,497
RESIDENTIAL																				
Apartment	220	2,480	Persons	T=(3.367*X)-48.672	8,353	50%	4,177	50%	4,176	0%	0	0	4,177	4,176	0%	0	0	4,177	4,176	8,353
FAMILY HOUSING																				
Single Family Detached Housing	210	18	Dwelling	Ln(T)=0.921*Ln(X)+2.888	224	50%	112	50%	112	0%	0	0	112	112	0%	0	0	112	112	224
Residential Condominium/Townhouse	230	36	Dwelling	Ln(T)=0.850*Ln(X)+2.568	286	50%	143	50%	143	0%	0	0	143	143	0%	0	0	143	143	286
Category Total					510		255		256		0	0	255	256		0	0	255	255	510
TOTAL EXISTING LAND USES					56,108		28,091		28,047		12,070	12,068	16,021	15,979		0	0	16,021	15,979	31,970

Notes:

1 Internal Capture refers to trips completely contained on the Base, not reaching the "external" roadway network.

2 *NAS Cecil Field Final Base Reuse Plan*, February 1998, Arthur Anderson, Appendix 3, pg. 4

3 Trip Generation Rate is for a Saturday.

4 *Northeast Florida System Plan and Cecil Feasibility Study*, RS&H, 1998, Table 1.14, page 1-31. Flights per day based on 175,156 daily flights in 1993 divided by 366 days.

F:\DEC\LDOCUMENT\DRAFT_EIS\ESTIMATE.XLS Table 2

Table 2

Land Use and Trip Generation Estimates

Preferred EIS Alternative - Old Table 4-37 (Revised)
Using Land Uses and Trip Estimates from Draft EIS Report
Net External Trips

Land Use	Independent Variable	Phase I			Phase II			Total		
		Size	Estimated Trips		Size	Estimated Trips		Size	Estimated Trips	
			Daily	Peak Hour		Daily	Peak Hour		Daily	Peak Hour
Light Industrial	1,000 SF GFA	1,000,000	2,792	248	1,500,000	4,188	372	2,500,000	6,980	620
Business Park	1,000 SF GFA	250,000	2,003	242	250,000	2,183	230	500,000	4,186	472
Heavy Industrial	1,000 SF GFA	250,000	375	170	500,000	750	340	750,000	1,125	510
Aviation/Air Cargo	1,000 SF GFA	440,000	4,005	446	750,000	1,875	240	1,190,000	5,880	686
Commercial	1,000 SF GFA	0	0	0	100,000	5,450	510	100,000	5,450	510
Apartment (Navy Housing) *	Dwelling Units	200	631	121	0	0	0	200	631	121
Regional Park *	Acres	75	1,364	90	0	0	0	75	1,364	90
Passive Park *	Acres	500	237	15	1,700	772	51	2,200	1,009	66
Golf Course *	Golf Holes	18	613	60	0	0	0	18	613	60
Total			12,020	1,392		15,218	1,743		27,238	3,135

Note:
* Land uses not included in Draft EIS Report calculations.

Sources:
NAS Cecil Field Final Base Reuse Plan, February 1996, Arthur Andersen, Appendix C, pg. 4.
Draft EIS, Disposal and Reuse of NAS Cecil Field, April 1997, Table 4-37, Pg. 4-120.
Institute of Transportation Engineers, *Trip Generation, Fifth Edition*, 1991.

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Table 4 (proposed Table 4-37 [a])

PM Peak Hour Trip Generation Estimate

Land Use Category / ITE Defined Land Use	ITE Land Use Code	Size	Units	Rate/Equation
Proposed Land Uses[2] (Year 2010)				
General Aviation (FArNG)	022	250	Employees	3.50
General Aviation[3]	022	247	Flights/Day	0.45
Light Industrial	110	290,000	sf GFA	T=(1.433*X)-163.421
Industrial Park	130	500,000	sf GFA	$T=[(1.027/X)+0.00064]^{-1}$
Manufacturing	140	1,050,000	sf GFA	T=(0.748*X)+0.100
High-Cube Warehouse	152	2,500,000	sf GFA	0.12
Apartment	220	200	D.U.s	Ln(T)=0.923*Ln(X)-0.488
Retirement Community[4]	250	110	D.U.s	T=(0.268*X)+5.309
Regional Park	417	75	Acres	1.20
Passive Park[5]	413	2,200	Acres	0.02
Golf Course	430	18	Holes	T=(3.500*X)-2.600
Shopping Center	820	100,000	sf GLA	Ln(T)=0.637*Ln(X)+3.553
Totals				

Notes:

1 Internal Capture refers to trips completely contained on the Base, not reaching the "external" roadway network.
2 *Draft EIS: Disposal and Reuse of NAS Cecil Field*, April 1997.
3 *Draft EIS: Disposal and Reuse of NAS Cecil Field*, April 1997, Table 4-39, pg. 4-130. Flights per day based on 90,
4 Rate is 50% of the Mobile Home daily trip generation rate as determined by the peak hour trips rates for both land u
5 Trip generation rate for State Park (ITE Land Use Code 413) has been used to approximate trip generation conditio

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Trip Ends	Directional Distribution				Internal Capture[1]			External Trips		Pass-By Capture			Total Trips (External Less Pass-By Capture Trips)		
	Entering Trips		Exiting Trips			Trips					Trips				
	%	Trips	%	Trips	%	Enter	Exit	Enter	Exit	%	Enter	Exit	Enter	Exit	Totals
875	48%	420	52%	455	50%	210	228	210	227	0%	0	0	210	227	437
111	48%	53	52%	58	5%	3	3	50	55	0%	0	0	50	55	105
252	12%	30	88%	222	0%	0	0	30	222	0%	0	0	30	222	252
371	21%	78	79%	293	5%	4	15	74	278	0%	0	0	74	278	352
786	53%	417	47%	369	5%	21	18	396	351	0%	0	0	396	351	747
300	35%	105	65%	195	70%	74	137	31	58	0%	0	0	31	58	89
82	68%	56	32%	26	0%	0	0	56	26	0%	0	0	56	26	82
35	56%	20	44%	15	0%	0	0	20	15	0%	0	0	20	15	35
90	48%	43	52%	47	5%	2	2	41	45	0%	0	0	41	45	86
44	50%	22	50%	22	5%	1	1	21	21	0%	0	0	21	21	42
60	52%	31	48%	29	5%	2	1	29	28	0%	0	0	29	28	57
656	50%	328	50%	328	25%	82	82	246	246	45%	111	111	135	135	270
4,344		1,753		2,591		407	514	1,346	2,077		111	111	1,235	1,966	3,201

) projected annual General Aircraft flights divided by 365.

h and Hills, Inc.

Table 3 (proposed Table 4-37 [Revised])

Daily Trip Generation Estimate

Land Use Category / ITE Defined Land Use	ITE Land Use Code	Size	Units	Rate/Equation	Trip Ends	Direction Entering Trip %	Trips
Proposed Land Uses[2] (Phase 2 Development, Year 2010)							
General Aviation Airport (FArNG)	022	250	Employees	T=(16.201*X)+555.269	4,606	50%	2,3
General Aviation Airport[3]	022	247	Flights/Day	T=[(0.822/X)-0.00039]^1	340	50%	1
Light Industrial	110	290,000	sf GFA	T=(7.468*X)-101.921	2,064	50%	1,0
Industrial Park	130	500,000	sf GFA	T=(4.949*X)+765.587	3,240	50%	1,6
Manufacturing	140	1,050,000	sf GFA	T=(3.883*X)-13.112	4,064	50%	2,0
High-Cube Warehouse	152	2,500,000	sf GFA	1.26	3,150	50%	1,5
Apartment	220	200	D.U.s	T=(3.387*X)-46.672	631	50%	3
Retirement Community[4]	250	110	D.U.s	2.40	264	50%	1
Regional Park	417	75	Acres	19.15	1,436	50%	7
Passive Park[5]	413	2,200	Acres	0.50	1,100	50%	5
Golf Course	430	18	Holes	Ln(T)=1.237*Ln(X)+2.894	645	50%	3
Shopping Center	820	100,000	sf GLA	Ln(T)=0.625*Ln(X)+5.985	7,067	50%	3,5
Totals					28,607		14,3

Notes:

1 Internal Capture refers to trips completely contained on the Base, not reaching the "external" roadway network.

2 *Draft EIS: Disposal and Reuse of NAS Cecil Field*, April 1997.

3 *Draft EIS: Disposal and Reuse of NAS Cecil Field*, April 1997, Table 4-39, pg. 4-130. Flights per day based on 90,000 pr

4 Rate is 50% of the Mobile Home daily trip generation rate as determined by the peak hour trips rates for both land uses.

5 Trip generation rate for State Park (ITE Land Use Code 413) has been used to approximate trip generation conditions.

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al Distribution			Internal Capture[1]			External Trips		Pass-By Capture			Total Trips (External Less Pass-By Capture Trips)		
s	Exiting Trips			Trips					Trips				
	%	Trips	%	Enter	Exit	Enter	Exit	%	Enter	Exit	Enter	Exit	Totals
03	50%	2,303	50%	1,152	1,152	1,151	1,151	0%	0	0	1,151	1,151	2,302
70	50%	170	5%	9	9	161	161	0%	0	0	161	161	322
32	50%	1,032	0%	0	0	1,032	1,032	0%	0	0	1,032	1,032	2,064
20	50%	1,620	5%	81	81	1,539	1,539	0%	0	0	1,539	1,539	3,078
32	50%	2,032	5%	102	102	1,930	1,930	0%	0	0	1,930	1,930	3,860
75	50%	1,575	70%	1,103	1,103	472	472	0%	0	0	472	472	944
16	50%	315	0%	0	0	316	315	0%	0	0	316	315	631
32	50%	132	0%	0	0	132	132	0%	0	0	132	132	264
18	50%	718	5%	36	36	682	682	0%	0	0	682	682	1,364
50	50%	550	5%	28	28	522	522	0%	0	0	522	522	1,044
23	50%	322	5%	16	16	307	306	0%	0	0	307	306	613
34	50%	3,533	25%	884	883	2,650	2,650	45%	1,193	1,193	1,457	1,457	2,914
05		14,302		3,411	3,410	10,894	10,892		1,193	1,193	9,701	9,699	19,400

ojected annual General Aircraft flights divided by 365.

and Hills, Inc.

Questions 1:
Gerald Johnson: I'm representing a land, sea, and air military museum task force and we are interested in property at NAS Cecil Field. Has hazardous waste in and around the hangar area been addressed and do we know what needs to be done to clean it up?

Question 2:
Gerald Johnson: If general aviation moves into Cecil Field are those existing aviation wash areas going to be continued to be used?

Question 3:
Robert Scott (property owner adjacent to Cecil Field): Will the base have to be completely closed down and taken over by the receiving entity before any industry starts moving or becomes interested in locating at the station?

Question 4:
Elizabeth Messer: Are you looking into the future permitting, such as environmental permits on wastewater, air, etc.?

Response 1:
We studied all the facilities here at the station, including all the buildings. We looked at the groundwater throughout the entire flat land area. We surveyed all of the buildings. If we saw a problem, we took samples. We are right now getting back analytical results from all our sampling efforts. If there is a problem we'll clean it up, we're responsible.

Response 2:
That would depend largely upon the city's initiative, business plans as they are received, and whether there is a need to use them. If they are used, it would be safe to assume EPA standards would need to be met.

Response 3:
No. The Navy is trying to close as many buildings, get them ready for reuse, and turn them over to the Development Commission, and have interested parties come in as parcels become available for use at that particular time. We're working in a joint partnership with the city to turn over to the city, a viable, reusable piece of property within the constraints of laws and budget.

Response 4:
The Navy will not be responsible for future permitting. That will be the responsibility of the entity who receives the property or individual industrial uses or whoever will be proposing a use for a parcel of land, and that will be worked out between those parties. The EIS points out permits that will be needed, but at this point we do not know who will be applying for those permits or when.

G Natural and Recreation Corridor Memorandum of Understanding, Naval Air Station Cecil Field, Jacksonville, Florida

Memorandum of Understanding
between the
City of Jacksonville
the Jacksonville Port Authority
Clay County
the Department of Environmental Protection
and the
the St. Johns River Water Management District
to Establish a Cecil Field Wetland Mitigation Plan
and "Natural and Recreation Corridor"

This Memorandum of Understanding (MOU) is entered into between the City of Jacksonville, the Jacksonville Port Authority, Clay County, Department of Environmental Protection (FDEP), and the St. Johns River Water Management District, a public body existing under Chapter 373, Florida Statutes, (the "SJRWMD"), to establish the Parties' understanding of the uses of the property of NAS Cecil Field upon its transfer from the United States (the "Navy") to receiving entities. The Parties acknowledge that the property has development potential and significant natural resource value.

WHEREAS, Naval Air Station Cecil Field in Duval and Clay Counties, Florida will be closed under the Defense Base Realignment and Closure Act of 1993; and,

WHEREAS, Jacksonville Economic Development Commission the local redevelopment authority (LRA), formerly known as the Cecil Field Development Commission of the City of Jacksonville, has proposed a Base Reuse Plan under which certain portions of the base will be transferred to the City of Jacksonville, to the Jacksonville Port Authority, and to Clay County; and,

WHEREAS, the Base Reuse Plan and environmental impact statement recommend that the western side of Cecil Field, referred to as the "Natural and Recreation Corridor" and described on Attachment A hereto, is more suitable for conservation and passive, resource-based recreation; while, the eastern side is more suitable for aviation, industrial,

and commercial development; and,

WHEREAS, Cecil Field is contiguous to the Jennings State Forest and the Brannan Field Mitigation Park that are managed by the Division of Forestry, Florida Department of Agriculture and Consumer Services and the Florida Game and Fresh Water Fish Commission; and,

WHEREAS, Cecil Field is also in close proximity to Cary State Forest managed by the Division of Forestry of the Florida Department of Agriculture and Consumer Services; and,

WHEREAS, the southern portion of Cecil Field extends into Clay County, and,

WHEREAS, the primary economic concern of the City of Jacksonville and the Jacksonville Port Authority is marketing and generating revenue from the eastern portion of Cecil Field by encouraging balanced growth that creates jobs on the west side of Jacksonville and surrounding areas replacing those lost due to the base closure; and

WHEREAS, the final Cecil Field NAS Reuse Plan will be reviewed by several state and federal agencies, including the U.S. Army Corps of Engineers (ACOE) and the SJRWMD, because of its effect on the environment and natural resources, including water; and,

WHEREAS, the ACOE, Jacksonville District, is a cooperating entity in the establishment of the Cecil Field Wetland Mitigation Plan and "Natural and Recreation Corridor," and has expressed interest in continuing its working relationship, and will be contributing a supporting letter.

It is, therefore, agreed by and between the Parties:

1. That as the Navy transfers Cecil Field to receiving entities, the following general principles shall pertain to the Natural and Recreation Corridor:

A. Recognizing that the Natural and Recreation Corridor has resource value because of the abundance of wetlands, and extensive, relatively undisturbed upland forest, this side of Cecil Field should be maintained as a natural corridor. It is suitable for passive resource-based public recreation, forestry management integrated with the adjacent Cary and Jennings State Forests, mitigation to offset adverse impacts to water resources on the eastern side of Cecil Field and within Clay County, and for such uses as the Parties may agree upon in the future.

B. The Natural and Recreation Corridor shall be managed uniformly as an integrated wetland and upland system under a cooperative agreement between appropriate local and state agencies. Any such management agreement may include harvesting of upland forest products under a long-term rotation plan, with wetland buffers, similar to the forestry management plans for Cary and Jennings State Forests.

C. The management plan for the Natural and Recreation Corridor shall authorize public access to the property for passive, resource-based public recreation, including hiking and horseback riding trails, camping, hunting, fishing, and other mutually agreeable uses. Active recreation, such as ballfields and tennis courts, may be provided on lands outside the corridor. Such amenities may be managed by City of Jacksonville Recreation, Parks and Entertainment Department.

D. Considering the resource value of the Natural and Recreation Corridor, the Parties agree that mitigation in the Natural and Recreation Corridor as environmental compensation for adverse impacts of development on the eastern side of Cecil Field and in a designated area of Clay County is a viable alternative before pursuing other mitigation opportunities. However, at the time of execution of this MOU, the impacts on the eastern portion and the functional assessment of the Natural and Recreation Corridor as environmental compensation have not been determined. The corridor will be available for mitigation opportunities so long as the impacts on the eastern portion and designated portions within Clay County do not exceed the mitigative value of the corridor. The value will be determined amongst the Parties based on the corridor as a whole. The Natural and Recreation Corridor may be used as partial mitigation of impacts should insufficient value remain to fully mitigate proposed development impacts. For impacts that cannot be offset

by mitigation in the Natural and Recreation Corridor, other mitigation alternatives must be pursued to completely offset the proposed impacts.

2. That once the Navy transfers Cecil Field to receiving entities, the following general principles pertain to the portion of Cecil Field in Duval County:

A. The Parties recognize that the eastern portion of the property is suitable for economic development as an aviation facility and an industrial park. Developing the eastern portion of the property might impact wetlands and other water resources. Preserving, enhancing, or restoring an intact wetland and upland system on the western side, the portion of the Natural and Recreation Corridor within Duval County, will mitigate for some minimized and unavoidable wetland impacts on the eastern side of Cecil Field. The extent of the value of the corridor can be determined through an Environmental Resource Permit including a mitigation bank or conceptual permit, from the SJRWMD or FDEP. These proposed mitigated impacts and mitigation credits earned preserving, restoring, or enhancing the Natural and Recreation Corridor's ecosystem will be documented in a wetland mitigation plan by October 1, 1998 which can be incorporated into the permit.

B. The City of Jacksonville, the Jacksonville Port Authority, and associated interests in Cecil Field may submit an application to the appropriate regulatory agencies, in consultation and with assistance provided by the SJRWMD, the DEP, and the ACOE for a conceptual permit and/or mitigation bank permit. This permit may establish the extent of the value of the Natural and Recreation Corridor as a preservation area and determine the credits for its preservation, enhancement, or restoration under the prescribed management and restoration plan. Credits attributable to the portion of the Natural and Recreation Corridor within Duval County and to the portion of the Natural and Recreation Corridor within Clay County will be separately quantified. This predetermination of the value of the corridor for mitigation derived from the portion of the Natural and Recreation Corridor within Duval County will facilitate Environmental Resource Permit review for development impacts on the eastern portion of Cecil Field.

C. Such determinations will be negotiated to mitigate adverse

environmental consequences of development on the eastern portion of Cecil Field and within the designated area of Clay County referenced in subparagraph 3.A; to encourage the Florida Department of Community Affairs to promptly issue development approvals; to maximize the marketing advantage of pre-approved development of the commercial portion of the site; and, to garner the benefits of early, integrated management of the Natural and Recreation Corridor.

3. That once the Navy transfers Cecil Field to civilian ownership, the following general principles pertain to the Clay County portion of Cecil Field:

A. The Parties recognize that preserving, enhancing, or restoring an intact wetland and upland system in the Clay County portion of the Natural and Recreation Corridor, will mitigate for some minimized and unavoidable wetland impacts within a designated area of Clay County. Proposed impacts and mitigation opportunities of preserving, restoring, or enhancing the Natural and Recreation Corridor's ecosystem will be documented in a wetland mitigation plan by October 1, 1998. Future development plans would be required to meet Environmental Resource Permit requirements. However, unavoidable impacts could be offset through the mitigation plan submitted as part of the application.

B. Clay County may submit an application to the appropriate regulatory agencies, in consultation with and assistance provided by the SJRWMD, FDEP, and the ACOE for a conceptual permit and/or mitigation bank permit. This permit may establish the extent of the value of the portion of the Natural and Recreation Corridor within Clay County as a preservation area and determine the credits for its preservation, enhancement and restoration under the prescribed mitigation plan. This predetermination of the value of the corridor for mitigation derived from the portion of the Natural and Recreation Corridor within Clay County will also facilitate Environmental Resource Permit Review for development impacts within the designated area of Clay County referenced in subparagraph 3.A.

C. Such determinations will be negotiated to mitigate adverse

environmental consequences of development within the designated area of Clay County referenced in subparagraph 3.A; to encourage the Florida Department of Community Affairs to promptly issue development approvals; to maximize marketing advantage; and to garner the benefits of early integrated management of the Natural and Recreation Corridor.

4. That within ten days after the effective date of this Memorandum, the Parties will notify each other of the name(s), address(es) and telephone number(s) of their authorized representative(s). The effective date of this Memorandum is the latest date on which a signatory signed. This agreement may be signed in multiple parts, each of which is deemed an original hereof.

5. That representatives of the parties will meet as soon as practicable after the Navy agrees to transfer Cecil Field to the City of Jacksonville, Clay County, and the Jacksonville Port Authority to draft further agreements to streamline the development of Cecil Field while preserving and enhancing the natural setting of the western portion of the property (Natural and Recreation Corridor), and/or expeditiously process permit applications to accomplish the commitments contained herein.

6. That the Parties will work cooperatively to accomplish the goals set out herein.

7. That with respect to that portion of Cecil Field located in Duval County, this agreement may be amended upon the written concurrence of all signatories hereto, except Clay County; and with respect to that portion of Cecil Field located in Clay County, this agreement may be amended upon the written concurrence of all signatories hereto, except the City of Jacksonville and the Jacksonville Port Authority. However, all Parties will be noticed at least thirty (30) days before any proposed amendment is publicly announced for the first time, regardless of the location of the proposed change.

Done this 13TH day of March, 1998 at Jacksonville, Florida.

CITY OF JACKSONVILLE

By: _____
Michael B. Weinstein
Exec. Dir., Jacksonville
Its: Econ. Dev. Comm.
Date: 2/24/98
Pursuant to Ord. 97-1137-A

Form approved:

_____
Assistant General Counsel

JACKSONVILLE PORT AUTHORITY

By: _____
Date: February 19, 1998

CLAY COUNTY

By: _____, Chairman
Date: February 24, 1998

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

By: _____
Dan Roach, CHAIR
Date: 3/4/98

By: _____
Otis Mason, SECRETARY

Approved By The Office of General Counsel

_____
John W. Williams
Deputy General Counsel
SJRWMD

DEPARTMENT OF ENVIRONMENTAL PROTECTION

By: _____
Date: 3/13/98

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