SECTION 5

ENVIRONMENTAL OVERVIEW

5.1 INTRODUCTION

An airport is an important transportation resource that provides both metropolitan and rural areas with access to the national transportation system, as well as being a direct stimulator to local and regional economies. Because of the size and nature of the airport, it may generate impacts to the natural, social and economic environments in the area. Through careful planning and implementation of mitigation measures, an airport can provide valuable transportation services, economic development opportunities, and be compatible with the surrounding environment.

As part of the Master Plan Update for Melbourne International Airport (MLB), an overview of the environmental conditions has been prepared to examine potential impacts of the proposed airport development alternatives. The primary emphasis of this environmental overview is to present the general environmental conditions at MLB, and use this information to determine what specific projects and environmental concerns may require further study in a federal-level Environmental Assessment, Environmental Impact Statement, or other specialized environmental study. In order to accomplish this objective and present the environmental overview information in a concise working document, each environmental impact category described in Federal Aviation Administration (FAA) Order 5050.4A, *Airport Environmental Handbook*, was analyzed and the results presented in this Section.

5.2 FEDERAL ENVIRONMENTAL REQUIREMENTS

The National Environmental Policy Act (NEPA) of 1969 provides for the study and documentation of the impacts of any proposed "Federal Action." A "Federal Action" may be any of the following FAA actions:

- Approval of an airport location.
- Approval of an airport layout plan or revisions to an airport layout plan.
- Approval of funding for airport development (including separate funding of plans and specifications for development).

- Requests for conveyance of government land under Section 516 of the Airport and Airway Improvement Act of 1982 (as amended) for development or improvement of a public airport.
- Approval of release of airport land.

The FAA is typically the lead governmental agency that is obligated to review major airport development and improvement actions proposed by an airport sponsor, as most major projects involve some form of funding grant request by the airport sponsor to the FAA. As a result, the FAA must review the project for environmental impacts prior to providing funding. As mandated by Congress, and implemented through NEPA, adverse environmental impacts must be avoided or minimized to the greatest extent possible when federal money is being expended. NEPA requires that alternatives be considered to avoid or reduce potential adverse affects, to identify necessary mitigation measures, and to document public participation in the decision-making process. The guiding document for the evaluation of airport environmental matters is FAA Order 5050.4A, *Airport Environmental Handbook*.

Three levels of FAA environmental review of development projects are outlined in Order 5050.4A. Each review is dependent upon the level of development being proposed. The three levels of FAA environmental review include:

- Those development projects which are normally Categorically Excluded from further environmental analysis.
- Those development projects normally requiring an Environmental Assessment (EA).
- Those development projects normally requiring an Environmental Impact Statement (EIS).

5.2.1 Categorical Exclusions:

FAA Order 5050.4A defines certain airport development projects as being Categorically Excluded (CATX) from formal environmental study. When a project is identified as a CATX, the proposed airport development project is allowed to proceed without further environmental review. In Order 5050.4A, airport development actions normally considered CATX and excluded from environmental review (EA or EIS) include:

- Runway, taxiway, apron or loading ramp construction or repair work including extension, strengthening, reconstruction, resurfacing, marking, grooving,

filets and jet blast facilities and new heliports on existing airports (except where such action would create environmental impacts off airport property).

- Installation or upgrading of airfield lighting systems, including runway end identifier lights, visual approach aids, beacons and electrical distribution systems.
- Installation of miscellaneous items including segmented circles, wind or landing direction indicators, measuring devices or fencing.
- Construction or expansion of passenger terminal facilities.
- Construction, relocation or repair of entrance and service roads.
- Grading or removal of obstructions on airport property and erosion control actions with no off-airport impacts.
- Landscaping generally, and landscaping or construction of physical barriers to diminish the impacts of aircraft jet blast and noise.
- Projects to carry out noise compatibility programs.
- Land acquisition and relocation associated with any of the above items.
- Federal release of airport land.
- Removal of displaced thresholds.

5.2.2 Environmental Assessment

An EA examines potential impacts to determine whether the impacts exceed a predefined threshold of significance or create sufficient controversy to require the FAA to prepare a full EIS, or, if the FAA can provide a Finding of No Significant Impact (FONSI). The FAA will either issue a FONSI as a result of the EA review process and the proposed airport development can proceed, or it will determine that an EIS must be prepared. Actions normally requiring an EA include the following:

- A new airport location.
- A new runway.
- A major runway extension.
- Runway strengthening that would result in a 1.5 DNL (the average day-night sound level) increase in noise impacting a sensitive area within the 65 DNL contour.
- Construction or relocation of entrance or service road connections to public roads which adversely affect the capacity of such public roads.

- Land acquisition associated with any of the above items including land acquisition that would result in the relocation of residential units when there is evidence of insufficient compatible replacement dwellings, major disruptions of business activities, or acquisition which involves lands typically referred to as Section 4(f) properties.
- Establishment or relocation of an Instrument Landing System (ILS) or an approach lighting system.
- An airport development action which involves extraordinary circumstances or involves Section 4(f) lands; land areas or structures eligible for or designated as historical, archeological, architectural or culturally significant; land acquisition for conversion of farmland; impacts to wetlands, coastal areas, or floodplains; or endangered or threatened species.

5.2.3 Environmental Impacts Statement

If a proposed development will result in a significant environmental impact, an EIS may be required. An EIS is a thorough review process that provides federal, state, regional and other local agencies an opportunity to participate on the project as coordinating or commenting agencies. The detail of the EIS is determined by the EA, or during the FAA environmental scoping process. Full evaluation of the proposed project or action, as well as all reasonable and prudent alternatives, must be undertaken. Actions normally requiring an EIS include:

- The development of a first-time airport layout plan, or airport location approval for a commercial service airport in a Standard Metropolitan Statistical Area (SMSA).
- Financial participation in, or airport layout plan approval of, a new runway capable of handling air carrier aircraft at a commercial service airport in an SMSA.

5.2.4 Federal, State, Regional and Local Environmental Coordination

In addition to satisfying FAA regulations, proposed airport development also needs to comply with federal, state, regional and local environmental and permitting requirements, and will require approval by those agencies. Potential federal, state, regional and local agencies, other than FAA, that would be involved in the review process for MLB include the following:

- City of Melbourne
- Florida Department of Environmental Protection – Central District
- United States Fish and Wildlife Service (USFWS)
- Army Corps of Engineers – Jacksonville District (USACOE)
- Florida Fish and Wildlife Conservation Commission
- St. Johns River Water Management District (SJRWMD)
- United Stated Department of the Interior, Bureau of Land Management – Eastern States Office
- United States Department of Agriculture
- National Parks Service
- Florida Department of State – Division of Historical Resources
- United States Environmental Protection Agency
- Federal Emergency Management Agency
- Florida Department of Community Affairs
- Brevard County Metropolitan Planning Organization

5.3 AIRPORT MASTER PLAN ENVIRONMENTAL OVERVIEW

MLB contains 2,462 acres of diverse habitat. Airport property can be divided into essentially three distinct parts: 1) 1,936 acres of contiguous Airport property which is surrounded by public roads and contains all of the aviation related functions typical of a transport category commercial airport; 2) 457 acres of property which lies on the opposite side of the roads which surround the Airport and which are predominantly comprised of undeveloped lands, commercial developments or mobile home communities; and 3) a 69 acres parcel of land northwest of the contiguous Airport property, acquired in 1999 to be used for environmental mitigation purposes. A small portion of Airport property (approximately 20%) is made up of impervious surface consisting of pavement and buildings. Of the remaining land area, approximately half is forested and half is cleared and grassed. Potential environmental constraints on development include jurisdictional wetlands, scrub jay habitat, gopher tortoise habitat, and a bald eagle nest located outside the Airport property boundaries.

The environmental overview prepared for this Master Plan Update is neither intended nor required to be prepared at the level of detail required for an EA or EIS. Its intended purpose is to provide a review of the environmental topics that may need to be considered in a future formal environmental study. Historically, MLB has produced documents that identify areas

of environmental sensitivity and used those documents to prepare future development plans. Those documents include a Comprehensive Wetland Inventory, Impact, and Mitigation Plan completed in December 2002, which delineates wetlands and planned development. Other documents include various environmental assessment reports and other studies which have been summarized in Section 1. Through the use of these documents, and the environmental overview analysis provided below, eight (8) geographic planning areas at MLB have been identified and will be used to identify development opportunities, environmental constraints, and present an analysis of proposed Master Plan developments. The discussion of these geographic planning areas and the specific environmental constraints associated with each is presented separately in Section 5.5. Generally, this overview recommends avoidance and minimization of impacts to federal and state-protected wetlands, threatened/endangered species, and areas identified as archaeologically significant. The evaluation, recommendations, and results of this report will be coordinated with all federal, state, county, and City of Melbourne environmental and planning agencies.

A preliminary analysis of environmental conditions related to the Airport recommended development alternatives was prepared in relation to the 21 impact categories outlined in FAA Order 5050.4A. These impact categories include:

- Noise
- Compatible Land Use
- Social Impacts
- Inducted Socioeconomic Impacts
- Air Quality
- Water Quality
- Section 4(f) lands
- Historic, Architectural, Archaeological and Cultural Resources
- Biotic Communities
- Endangered and Threatened Species of Flora and Fauna
- Wetlands
- Floodplains
- Coastal Zone Management Program
- Coastal Barriers
- Wild and Scenic Rivers
- Prime and Unique Farmland

- Energy Supply and Natural Resources
- Light Emissions
- Solid Waste Impacts
- Construction Impacts
- Other considerations

The discussion below is provided to summarize the potential impacts to these environmental categories resulting from the proposed MLB Master Plan Update.

5.3.1 Noise Impacts

Noise is defined as "undesirable sound" and is one of the major concerns of both airport owners and airport neighbors. Various methods (known as noise metrics) have been developed to measure sound. Aircraft sound levels are measured using the A-weighted decibel scale (dBA). This noise metric was developed because it approximates how the human ear hears sound.

Overall aircraft noise at an airport is derived as a cumulative measurement over a 24-hour period based on annual traffic activity. These noise measurements are then used to develop average day-night sound level (DNL) contours. The DNL contours graphically depict the average noise envelope surrounding the airport environment. The EPA has identified DNL as the most appropriate means of evaluating airport noise. Most public agencies addressing noise exposure, including the FAA, the Department of Defense (DOD) and the Department of Housing and Urban Development (HUD), have formally adopted the DNL as the standard measure to determine noise impacts. The FAA specifically requires that the DNL be used in describing cumulative noise exposure and in identifying aircraft noise and land use compatibility issues.

DNL sound levels can be measured through noise monitoring or can be calculated through computer noise modeling. Most airport noise studies utilize computer-generated DNL estimates depicted in terms of equal exposure noise contours (similar to contour lines of equal elevation on a topographic map). The computer program used to develop average annual day-night aircraft noise contours is the FAA's Integrated Noise Model (INM). These noise contours depict noise impact areas based on input of an airport's activity levels, fleet mix, day-night operations percentage, approach and takeoff profiles, and flight tracks. The

purpose of airport noise analysis is to examine existing and future noise impacts on the nearby land uses and surrounding community.

Noise control plans have been successfully implemented at both the local and national levels. The FAA has reduced aircraft noise by mandating retirement of aircraft that do not meet established noise reduction standards. At the local level, cities and counties have successfully formulated and implemented land use controls that have reduced the number of incompatible land uses in the vicinity of airports. Airport operators also have the ability to conduct Federal Aviation Regulations Part 150 Noise Compatibility Studies in an effort to quantify and reduce the noise burden on the surrounding community. FAR Part 150 study elements include the following:

- Provisions for the development and submission to the FAA of Noise Exposure Maps (NEM's) and Noise Compatibility Programs (NCP) by airport owners;
- Use of standard noise measurement units, methods and analytical techniques;
- Identification of land uses that are normally compatible or incompatible with various noise levels in the vicinity of an airport; and
- Procedures and criteria for approval and disapproval of noise compatibility programs by the FAA.

The FAA requires that the NEM show the 65, 70 and 75 DNL contours. Of these categories, the 75 DNL noise contour reflects the most severe impact, while the 65 DNL noise contour reflects the least severe impact. Human tolerance to noise has been determined to be below the 65 DNL, and land areas outside the 65 DNL noise contour are considered to be non-noise impacted compatible land uses. At or above the 65 DNL, measures should be taken to mitigate sound to limit or eliminate interference with human activities. Residential, and some business and commercial, development is not normally compatible within the 65 to 75 DNL noise contour unless sound insulation or other mitigating actions are taken. It is recommended that the Airport have an ownership interest (preferable fee simple) in all land impacted by the 75 DNL contour to ensure compatible land uses are maintained. Table 5.1 provides a detailed listing of normally compatible land uses based on FAR Part 150 criteria. However, the responsibility for determining the acceptable and permissible land uses remains with the local authorities (i.e. City of Melbourne and Brevard County). As the airport owner and sponsor, the Melbourne Airport Authority and City of Melbourne are charged by

FAA Grant Assurances to ensure local ordinances provide the necessary protection for airport property. Section 5.4.2 further examines off-airport land use compatibility.

Table 5.1 Land Use Compatibility Guidelines with Yearly Day-Night Average Sound Levels Melbourne International Airport - Master Plan Update

	Yearly Day-Night Average Sound Level (DNL) in Decibels					
Land Use	**Below 65**	**65-70**	**70-75**	**75-80**	**80-85**	**Over 85**
Residential						
Residential, Other than Mobile Homes and Transient Lodgings	Y	N(1)	N(1)	N	N	N
Mobile Home Parks	Y	N	N	N	N	N
Transient Lodging	Y	N(1)	N(1)	N(1)	N	N
Public Use						
Schools	Y	N(1)	N(1)	N	N	N
Hospitals and Nursing Homes	Y	25	30	N	N	N
Churches, Auditoriums and Concert Halls	Y	25	30	N	N	N
Governmental Services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(3)	Y(4)	N
Commercial Use						
Offices, Business and Professional	Y	Y	25	30	N	N
Wholesale and Retail-Building Materials, Hardware and Farm Equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Retail Trade-General	Y	Y	25	30	N	N
Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Communication	Y	Y	25	30	N	N
Manufacturing and Production						
Manufacturing, General	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and Optical	Y	Y	25	30	N	N
Agriculture (Except Livestock) and Forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock Farming and Breeding	Y	Y(6)	Y(7)	N	N	N
Mining and Fishing, Resource Production and Extraction	Y	Y	Y	Y	Y	Y
Recreation						
Outdoor Sports Arenas and Spectator Sports	Y	Y(5)	Y(5)	N	N	N
Outdoor Music Shells, Amphitheaters	Y	N	N	N	N	N
Nature Exhibits and Zoos	Y	Y	N	N	N	N
Amusements Parks, Resorts and Camps	Y	Y	Y	N	N	N
Golf Courses, Riding Stables and Water Recreation	Y	Y	25	30	N	N

Source: FAR Part 150, 1993

Key: SLUCM: Standard Land Use Coding Manual.
Y (Yes): Land use and related structures compatible without restrictions
N (No): Land use and related structures are not compatible and should be prohibited
NLR: Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.
25, 30 or 35: Land use and related structures generally compatible; measures to NLR of 25, 30 or 35 dB must be designed into construction of structures

Table 5.1 Land Use Compatibility Guidelines with Yearly Day-Night Average Sound Levels - Continued
Melbourne International Airport - Master Plan Update

*The designations contained in this table do not constitute a federal determination of any use of land covered by the program as acceptable or unacceptable under federal, state or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for these determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.

Notes:
(1) Where the community determines that residential or school use must be allowed, measures to achieve outdoor to indoor NLR of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as five, ten or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year-round. However, the use of NLR criteria will not estimate outdoor noise problems.
(2) Measure to achieve NLR 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal level is low.
(3) Measures to achieve NLR 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal level is low.
(4) Measures to achieve NLR 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal level is low.
(5) Land use compatible provided special sound reinforcement systems are installed.
(6) Residential buildings require a NLR of 25.
(7) Residential buildings require a NLR of 30.
(8) Residential buildings not permitted.

5.3.1.1 Summary of the 1993 Noise Compatibility Study

In 1991 the Melbourne Airport Authority commissioned a Part 150 Noise Compatibility Study. The purpose of the Study was to provide an opportunity to analyze aircraft noise impacts on the surrounding community, and to formally establish a forum for aviation representatives, local officials and the community at large to address noise and land use compatibility issues. The results of this Study included the issuance of a set of Noise Exposure Maps, which were approved by the FAA on June 30, 1992, and the development of a Noise Compatibility Program. Due to changes in economic conditions, the transition of the scheduled air carrier fleet to all Stage 3 aircraft, and changing regulatory requirements, a review and update of this Study is appropriate. The report also recommended six (6) noise abatement strategies and three (3) land use strategies to reduce the impact of noise on the surrounding community.

Approved Noise Abatement Strategies

The noise abatement strategies focused on operational control mechanisms. The first noise abatement strategy involved controlling air carrier and commuter aircraft drift away from the extended runway centerline when departing to the west. Under this strategy aircraft would be confined, to the extent possible, to a flight corridor as close to the runway departure heading as possible to avoid residential areas.

The second noise abatement strategy concerned general aviation aircraft departures off Runway 27L. The issue presented was that the general aviation aircraft that depart 27L are turning south before gaining sufficient altitude, and are flying too low over communities south of the airport. Under this strategy general aviation aircraft are encouraged to maintain runway heading until reaching the end of the runway. Upon crossing the western end of the runway a turn to the south may be commenced. Although this procedure would not completely avoid flyovers of certain residential communities, it will increase the altitude of the aircraft.

The third noise abatement strategy concerned missed approach procedures for instrument training traffic utilizing Runway 9R. The issue presented was that aircraft who conduct practice instrument approaches to Runway 9R are executing the missed approach procedure by flying directly over certain residential communities located south of the airport. Under this strategy, the recommendation was to require aircraft to execute the missed approach procedure before reaching decision height, at a distance of ½ to 1 mile from the approach end of the runway. Although this procedure would not completely avoid all residential areas, it will place most missed approach traffic further west and northwest of those communities.

The fourth noise abatement strategy involved a complete phase-out of State 2 aircraft in conformance with FAR Part 91 standards. The Stage 2 phase-out implementation date of December 31, 1999 has been met.

The fifth noise abatement strategy concerned modifying the tough-and-go procedures on Runway 9L/27R. The issue was that aircraft in the traffic pattern for Runway 9L/27R were flying directly over or slightly to the east of Wickham Road and over certain residential communities. Under this strategy aircraft would be directed to fly west of Wickham Road during the base leg of the traffic pattern, and thus avoid concentrated residential areas.

The sixth noise abatement strategy concerned construction of a noise barrier to suppress ground run-up noise associated with aircraft maintenance activity. Under this strategy, a noise barrier would be constructed and all aircraft requiring a run-up for maintenance purposes would be required to use the facility.

Approved Land Use Actions

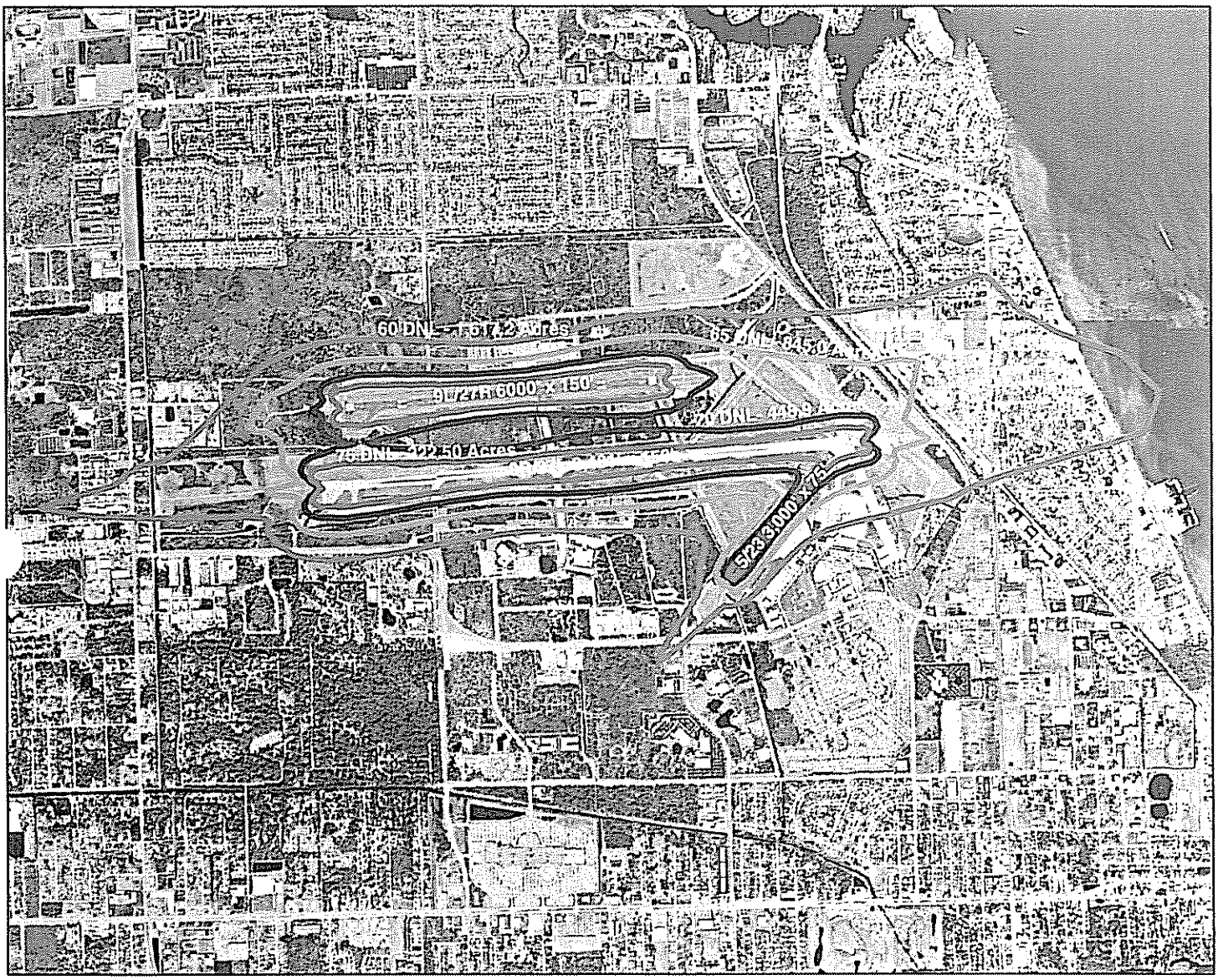
Whereas the noise abatement strategies were focused on operational control mechanisms, the land use strategies were focused on zoning regulations and compliance with state law. The first land use strategy involved a recommendation to rezone vacant tracts of land located in an area east of the Airport, commonly referred to as the "Bluffs," from residential to commercial use. Due to what appears to be a resistance to implement this strategy, the final report recommend that any future development immediately east of the Airport be limited to low density residential infill or aviation compatible development.

The second land use strategy involved an examination of the possibility of rezoning the residential/commercial area located on the barrier island east of the Airport. However, it was ultimately determined that since the barrier island was almost fully developed, little could be done to rezone the land to a more compatible use.

The third land use strategy involved the possibility of rezoning a parcel of property west of the airport and within the jurisdictional limits of the City of West Melbourne. The parcel lies along the southwest portion of the flight corridor for Runways' 9/27, and is currently zoned residential. During the Part 150 process it was determined that it would not be appropriate to rezone this parcel, since access to the parcel is only available through an existing residential area to the south. Acquisition of the property in fee, or transfer of development rights, were also identified as options to ensure future compatibility.

5.3.1.2 Noise Exposure Map Update

Updated aircraft NEM's for the base year (2002) and future conditions (2007) at MLB were developed using the FAA's Integrated Noise Model, Version 5.1a. The INM was used in accordance with FAR Part 150, Appendix A, *Airport Noise Compatibility Planning*, and FAA Advisory Circular 150/5210-1, *Noise Control and Compatibility Planning for Airports*. Figure 5.1 depicts the existing (2002) noise contours and Figure 5.2 depicts the 2007 noise contours. The following assumptions were made in preparing the noise contours:



0 1,300 2,600 5,200 7,800 10,400
Feet

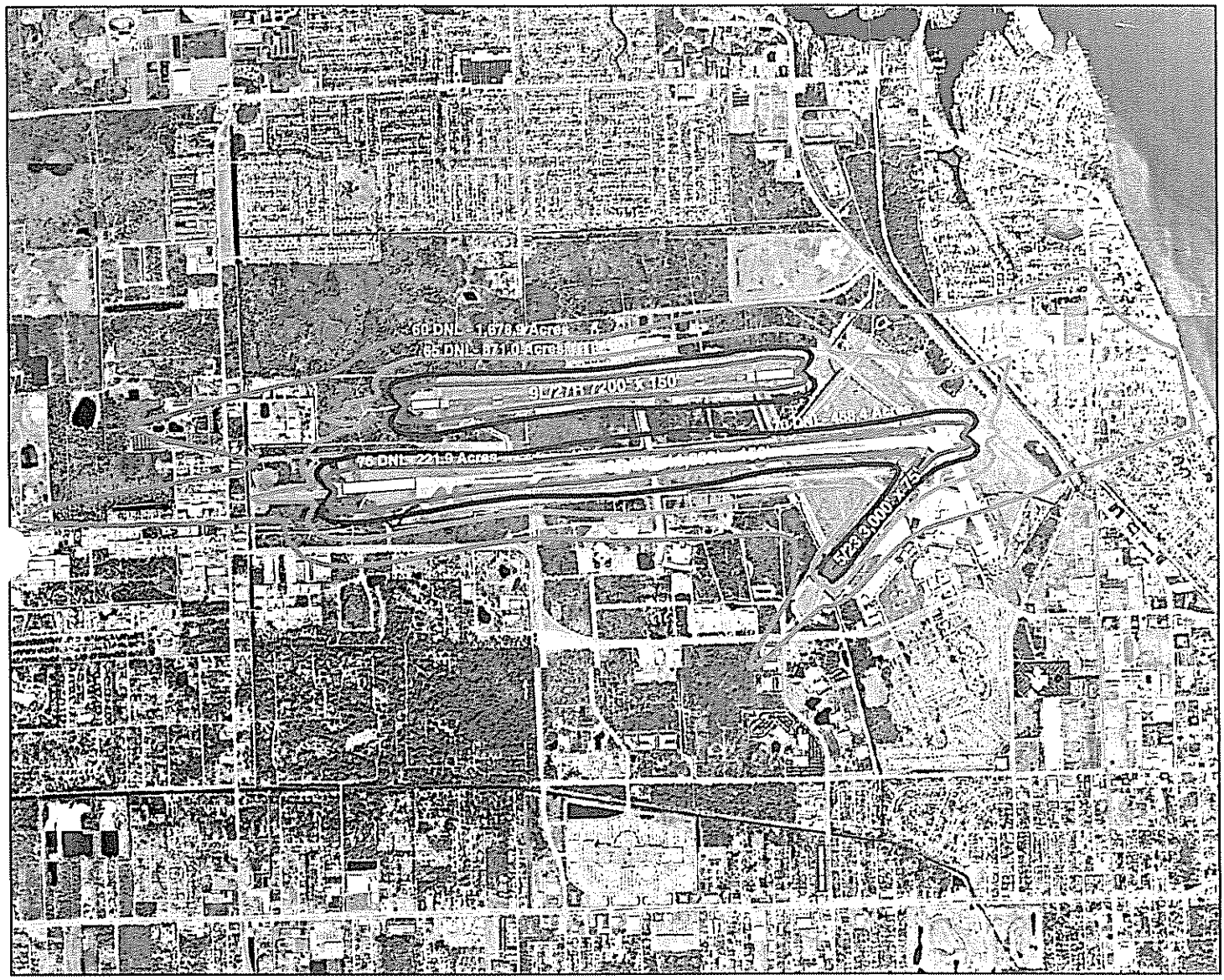
RS&H

Reynolds, Smith and Hills, Inc.

Architechtural. Engineering. Planning
and Environmental Services
Jacksonville, Florida

Melbourne International Airport
Master Plan Update

Figure 5-1
Existing (2002) Noise Contours



0 1,250 2,500 5,000 7,500 10,000 Feet

RS&H

Reynolds, Smith and Hills, Inc.

Architechtural. Engineering. Planning
and Environmental Services
Jacksonville. Florida

Melbourne International Airport
Master Plan Update

Figure 5-2
Future (2007) Build Noise Contours

1. Existing (2002) noise exposure contours:
   - Runways remain in the existing configuration
   - Runway utilization percentages – 67% Runways 9/27; 33% Runway 5/23
   - Aviation Activity - 189,410 annual operations
2. Year 2007 noise exposure contours:
   - Existing runway configuration with all runway extensions constructed
   - Runway utilization percentages – 67% Runways 9/27; 33% Runway 5/23
   - Aviation Activity – 209,558 annual operations

Existing (2002) Noise Contours

As previously mentioned, Figure 5.1 depicts the INM-generated airport noise contours for the existing conditions (Year 2002). Portions of the 60, 65, and 70 DNL contours extend off airport property. The 65 DNL is 845 acres in size, with a total of 825 acres located on Airport property and 20 acres extending off Airport property. The 70 DNL is 449 acres in size, with a total of 447 acres located in Airport property, and less than 1 acre located off Airport property. The 75 DNL is 223 acres in size and is located entirely within the Airport property boundaries.

Year 2007 Noise Contours

Figure 5.2(a) depicts the INM-generated airport noise contours for the Year 2007 conditions with the proposed runway extensions constructed. Portions of the 60, 65 and 70 DNL contours extend off airport property. The 65 DNL is 871 acres in size, with a total of 854 acres located on Airport property and 17 acres extending off Airport property. The 70 DNL is 458 acres in size and located entirely within the Airport property boundaries. The 75 DNL is 222 acres in size and is located entirely within the Airport property boundaries.

Table 5.2 summarizes the on-airport and off-airport acreage for the 65, 70 and 75 DNL noise contours produced by the INM.

Table 5.2 Total On-Airport and Off-Airport Acreage for the 65, 70 and 75 DNL (By Planning Year and Percentage Change from 1988)

Year	65 DNL		70 DNL		75 DNL	
	Acreage	Percent Change	Acreage	Percent Change	Acreage	Percent Change
1992 (1)						
Acreage	884	N/A	unknown	N/A	unknown	N/A
Acreage On	845					
Acreage Off	39					
2002						
Acreage	845	-4.5	448	N/A	223	N/A
Acreage On	825		447		223	
Acreage Off	20		1		0	
2007						
Acreage	871	+3.0	458	+2.2	222	-<1.0
Acreage On	819		0		0	
Acreage Off	18		0		0	

Note: 1. 1992 conditions taken from the MLB Part 150 Study
2. Based on existing airfield configuration
Land acreages are rounded.

Sources: *1993 Melbourne International Airport Noise Compatibility Study*
Reynolds, Smith and Hills, 2003

5.3.2 Compatible Land Use

Compatibility of existing and future land uses in the vicinity of an airport is associated with two measures: 1) the extent of noise impacts on the adjoining land uses as it relates to airport operations; and, 2) height restrictions outlined in local zoning ordinances for parcels of land in the immediate vicinity of the airport. FAA Advisory Circular 150/5300-13, *Airport Design*, establishes a Runway Protection Zone (RPZ) for all runways at an airport. The RPZ is a trapezoidal shaped area at the end of the runway. Within this area, development is limited to land uses that do not involve "places of public assembly" (e.g., schools, hospitals, churches, residential area, etc.), and fuel storage facilities. Certain land uses are allowed in the RPZ, such as golf courses (but not clubhouses), automobile parking facilities and agricultural operations. The FAA recommends that the airport sponsor (i.e., Melbourne Airport Authority) own all land within the RPZ. Advisory Circular 150/5300-13 outlines the following specific land uses which are either limited or prohibits within the RPZ:

- Fuel handling and storage facilities.
- Smoke and dust generating activities.
- Misleading lights and those activities which may create glare or attract wildlife.

- Residences or places of public assembly (churches, schools, hospitals, office buildings, shopping centers, and other uses with similar concentrations of persons).

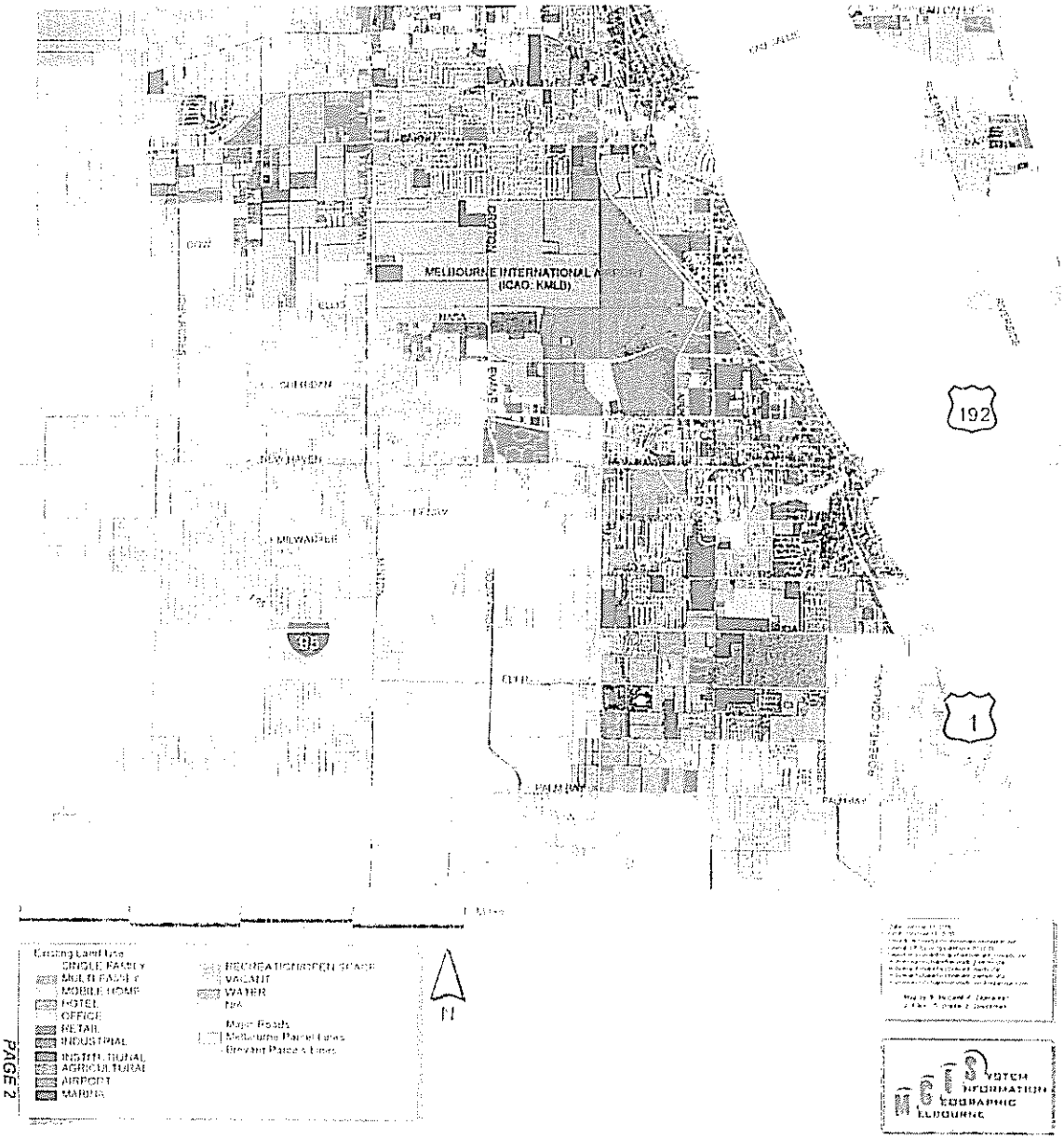
Currently all land within each MLB RPZ for all runways is owned by the Airport. Future property boundaries and any proposed extensions of existing runways should include the property acquisition necessary for the future RPZ's.

FAA Advisory Circular 150/5200-23, *Hazardous Wildlife Attractants On or Near Airports*, which provides guidance on locating certain land uses having the potential to attract hazardous wildlife to or in the vicinity of public-use airports. For airports serving turbine-powered aircraft, the FAA recommends against land use practices that attract or sustain populations of hazardous wildlife within 10,000 feet of the airport's movement areas, loading ramps or aircraft parking areas and within five statute miles of approach or departure airspace, where practicable. These land uses include any waste disposal site, wastewater treatment facilities and some wetland mitigation projects. The EPA requires any operator proposing a new or expanded waste disposal operation within five statute miles of a runway end notify the appropriate FAA Airport District Office (ADO) and airport owner.

5.3.2.1 Land Use Regulations

The area surrounding the Airport is within the jurisdiction of multiple units of local government. Those entitles that are most important for purposes of land use compatibility analysis are the City of Melbourne, City of West Melbourne and Brevard County. Figure 5.3 illustrates the Existing Land Use map as documented in the Comprehensive Plan for the City of Melbourne. Within the City of Melbourne jurisdictional limits, land use adjoining the Airport is comprised of mostly single-family residential, industrial, institutional and retail. The residential areas immediately east of the Airport are the areas most likely to be considered incompatible with existing airport operations.

In the Future Land Use element of the Comprehensive Plan, the City of Melbourne identifies and establishes the desired future land use for all lands within the Melbourne planning area, based on existing use patterns, natural conditions, compatibility of uses, growth trends,



Source: City of Melbourne

Reynolds, Smith and Hills Inc.

Architectural. Engineering. Planning
and Environmental Services
Jacksonville. Florida

Melbourne International Airport
Master Plan Update

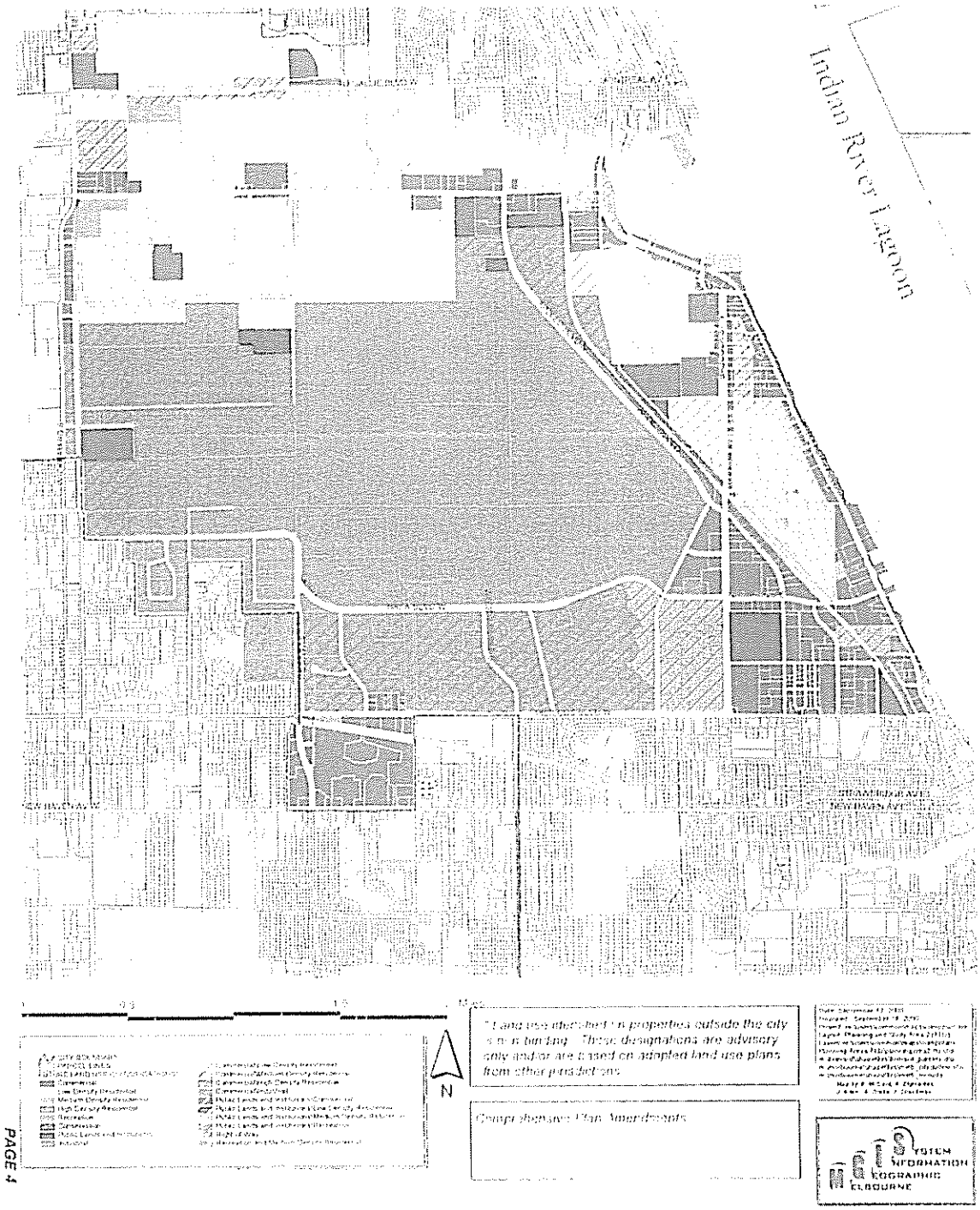
Figure 5-3
Existing Land Use Map

community goals and projected provision of services. Figure 5.4 illustrates the Future (2020) Land Use map for the City of Melbourne. By examining future land use, the Airport can identify possible incompatible land-uses and allow the governmental agency to correct the incompatible land use before any incompatible development is present. Although a majority of the residential use immediately east of the Airport is being maintained through 2020, there appears to be an effort to encourage a transition to low-density residential or commercial use. The Airport should continue to encourage the City of Melbourne to change the land use adjoining the eastern boundaries of the Airport from a residential to commercial use.

In the Future Land Use Element of the Comprehensive Plan for Brevard County, the County establishes the proposed land uses for all land with their jurisdiction. Future land uses are based on growth patterns, historical use trends and consistency with planning efforts of the incorporated jurisdictions within the County. Figure 5.5 illustrates the Existing Land Use map for the unincorporated portions of Brevard County. While a significant amount of the land use in the immediate vicinity of the Airport is low density residential, there are areas both north and south of the Airport which permit a much higher level of concentration of residential units. Although these land uses are not currently incompatible with Airport operations, the Airport should continue to work with and encourage Brevard County to change these land uses from a residential to a commercial/industrial type use over the long-term.

The City of Melbourne and Brevard County have also adopted airport zoning regulations which control the use of land within the vicinity of MLB. Chapter 333 of the Florida Statues also provides for land use controls and requires local units of government which underlie an "airport hazard area" to adopt land use controls to protect the public health, safety and general welfare of its' citizens, and to prevent the establishment of airport hazards and incompatible land uses.

Appendix A, *Airport Zoning Ordinance*, of the City of Melbourne Code of Ordinances, and an almost identical provision in the Code of Ordinances for Brevard County (Section 62-2201-2210, *Airport and Airspace Restrictions*) creates certain airport hazard zones that are



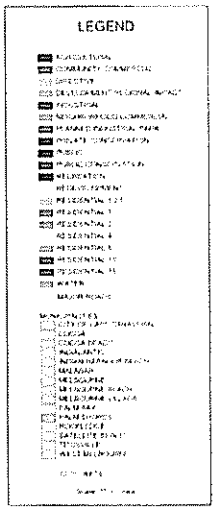
Source: City of Melbourne

Reynolds, Smith and Hills Inc.
Architectural, Engineering, Planning
and Environmental Services
Jacksonville, Florida

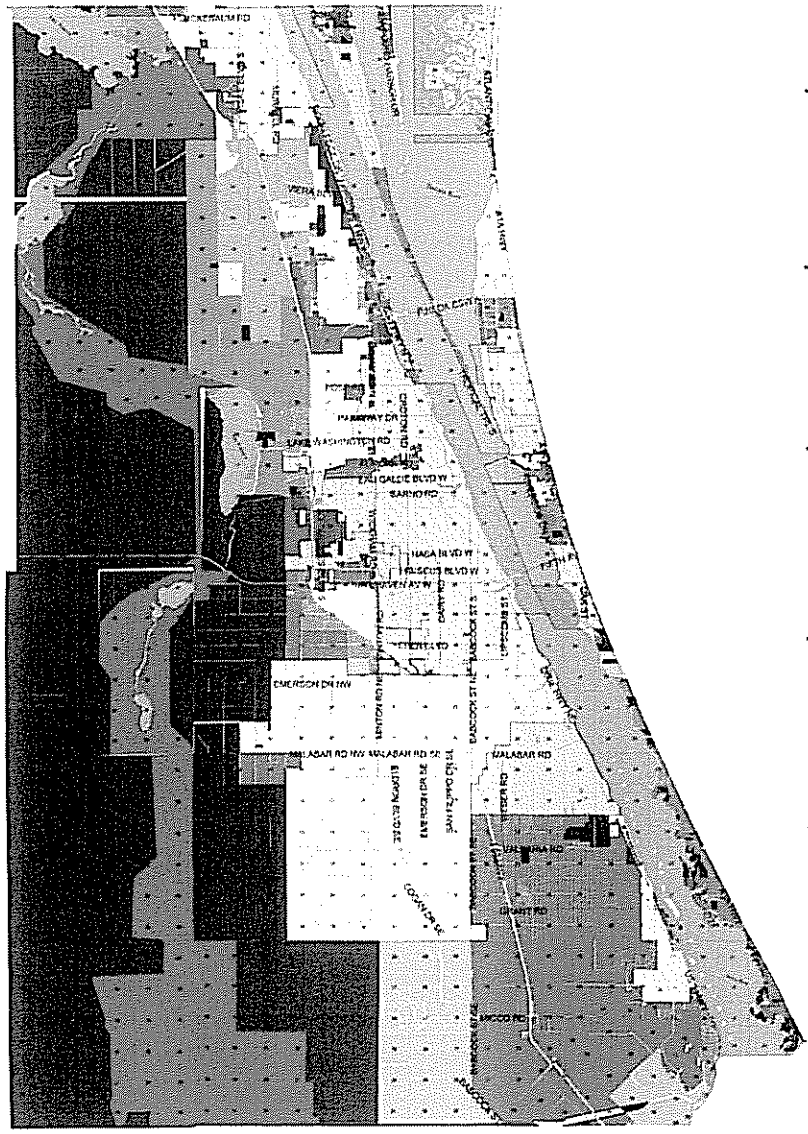
Melbourne International Airport
Master Plan Update

Figure 5-4
Future (2020) Land Use Map

BREVARD COUNTY
FUTURE LAND USE



Brevard County Planning & Zoning Office
March 2003



T25
T26
T27
T28
T29
T30

R35 R36 R37 R38 R39

Source: Brevard County Planning and Zoning Office

Reynolds, Smith and Hills Inc.
Architectural. Engineering. Planning
and Environmental Services
Jacksonville. Florida

Melbourne International Airport
Master Plan Update

Figure 5-5
Brevard County Land Use Map

based primarily on the imaginary surface criteria outlined in FAR Part 77. Zoning within the vicinity of the Airport includes lands lying beneath the following zones:

- Utility runway visual approach zone;
- Utility runway non-precision instrument approach zone;
- Runway larger than utility visual approach zone;
- Runway larger than utility with a visibility minimum greater than three-fourths mile non-precision instrument approach zone;
- Runway larger than utility with a visibility minimum as low as three-fourths mile non-precision instrument approach zone;
- Precision instrument runway approach zone;
- Transitional zones;
- Horizontal zone; and
- Conical zone.

These Airport Zoning Regulations also direct that no structure or tree shall be erected, altered, allowed to grow or be maintained in any zone to a height in excess of the applicable height established for such zone. Furthermore, in conjunction with the height limitations within the zones described above, no structure shall be erected to a height of two hundred (200) feet above the Airport elevation within three (3) nautical miles of the Airport, a height of three hundred (300) feet within four (4) nautical miles, a height of four hundred (400) feet within five (5) nautical miles, or elsewhere at a height of five hundred (500) feet above the ground at the site of the proposed structure, unless it can be shown:

- That notice of proposed construction or alteration has been given as required by Part 77 of the Federal Aviation Regulations.
- That the proposed structure will not raise the Federal Aviation Administration established minimum descent altitude or decision height for an instrument approach to any runway, or cause the minimum obstruction clearance altitude or minimum en route altitude to be increased on any federal airway.
- That the structure does not otherwise constitute an obstruction to air navigation.

In addition to the land use restrictions provided in the Airport Zoning Regulations, it is unlawful to make any use of land or water within any airport zone established by the

Regulations in such a manner as to create electrical interference with navigational signals or radio communication between the Airport and aircraft, make it difficult for pilots to distinguish between Airport lights and others, result in glare in the eyes of pilots using the Airport, or impair visibility in the vicinity of the Airport. However, the Regulation does not affect the use of grove heaters for agricultural purposes.

5.3.3 Social Impacts

The purpose of a social impact analysis is to determine the effect of airport development on the human environment in the surrounding community. The types of social impacts that generally result from airport development include:

- Relocation of residences and/or businesses;
- Disruption of communities;
- Division or disruption of established communities;
- Disruption of orderly, planned development; and
- Alterations in traffic patterns that may permanently or temporarily restrict traditional community access.

It is not anticipated that current or future development will have significant social impacts to the community.

5.3.4 Induced Socio-Economic Impacts

For major airport development proposals there is a potential for induced or secondary economic impacts on the surrounding community. These potential airport development impacts include the following:

- Shifts in patterns of population movement and growth.
- Changes in the demand for public services.
- Changes in business or economic activity.

The MLB Airport Master Plan will have a positive economic impact on the City of Melbourne, Brevard County, and the entire Central Florida region. The development of expanded domestic and international terminal facilities, as well as continued growth of corporate and general aviation activity, will stimulate the economy of the local community. For this reason, it is expected that the projects proposed in this Master Plan will result in a positive long-term socioeconomic impact.

5.3.5 Air Quality

FAA Order 5050.4A provides guidelines to determine whether an air quality analysis is required for future development. Air quality analysis has been reviewed in previously completed Environmental Assessments for MLB and no outstanding environmental air quality issues were defined.

5.3.6 Water Quality

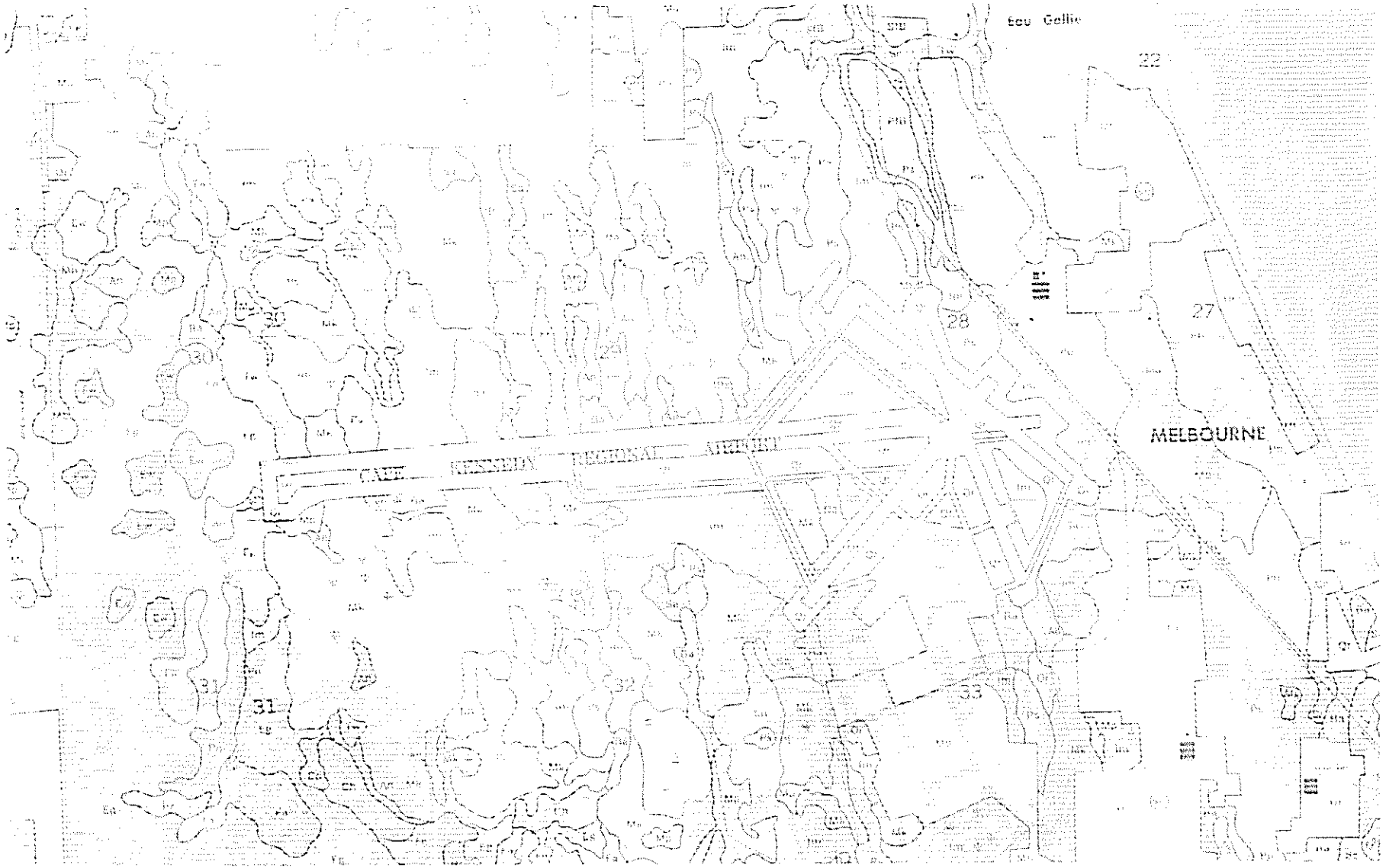
The Federal Water Pollution Control Act, as amended by the Clean Water Act of 1977 (commonly referred to as the Clean Water Act), provides the authority to establish water quality standards, control discharges into surface and subsurface waters, develop waste treatment management plans and practices, iissue permits for discharge (Section 402), and for environmental resource permits (previously referred to as dredge and fill permits, Section 404). The improvements in this Master Plan Update must be implemented in conformance with all state water quality standards and federal, state, and local permitting requirements.

Stormwater design is determined, to a large extent, by the soils at MLB. Soils at the Airport are shown in Figure 5.6 - *Soil Conservation Service (SCS) Map of Melbourne International Airport*. The soils types for MLB include the following along with descriptions:

An—Anclote sand:

This is a nearly level, very poorly drained sandy soil in marshy depressions in the flatwoods, in broad areas on flood plains, and in poorly defined drainageways. In most years the water table is within a depth of 10" for more than 6 months. In dry seasons it is deeper, but is
seldom below a depth of 40". This soil is occasionally flooded 2 to 7 days following heavy rains. Permeability is rapid in all layers. The available water capacity is moderate in the surface layer and low below this layer. Organic-matter content is high in the surface layer, and natural fertility is low.

Included with this soil in mapping are small areas of Terra Ceia muck or Tomoka muck and Felda and Floridana soils. Also included are a few areas where the texture is fine sand, loamy fine sand, or loamy sand and small areas that have a black surface layer less than 10" thick. Many areas are in natural vegetation of



Source: Soil Conservation Service

RS&H

Reynolds, Smith and Hills, Inc.

Architectural, Engineering Planning and Environmental Services

Jacksonville, Florida

Melbourne International Airport
Master Plan Update

Figure 5-6

Soil Conservation Service (SCS) Map

grass, and a few are covered with thick stands of hardwoods. Some areas are used for range. If drainage and water control are adequate, this soil is well suited to vegetables, improved pasture grasses and clover (*Trifolium* spp.), lawn grasses, and most kinds of ornamental plants. It is poorly suited to citrus (*Citrus* spp.).

Ba—Basinger sand:

This is a nearly level, poorly drained, sandy soil in sloughs of poorly defined drainageways and depressions in the flatwoods. It is occasionally flooded for 2 to 7 days following heavy rains. In most years the water table is within a depth of 10" for 2 to 6 months of the year, and between 10" and 40" for 6 months or more. In the dry seasons it is below a depth of 40" for short periods. Permeability is very rapid and the available water capacity is very low to low in all layers. Natural fertility and organic-matter content are low.

Included with this soil in mapping are small areas of St. Johns sand and some small areas of fine sands. Also included are small areas where this Basinger sand lacks brownish-stained layers below the surface layers. Most of the acreage is in natural vegetation of pineland three-awn (*Aristida stricta*) and thinly scattered pine (*Pinus* spp.). The lowest areas are covered with maidencane (*Panicum hemitomon*) and St.-Johnswort (*Hypericum* spp.). Some areas are used for range. If drainage and water control are adequate, this soil is moderately well suited to vegetables and well suited to improved pasture grasses and clover. It is poorly suited to citrus, lawn grasses, and most kinds of ornamental plants.

Ch—Chobee sandy loam:

This is a nearly level, very poorly drained, loamy soil that has a thick black surface layer. It is in marshy depressions and on flood plains along streams. In most years the water table is within a depth of 10" for 6 to 9 months and between 10" to 40" for 3 to 6 months. In very dry seasons the water table is below a depth of 40" for short periods. This soil is continuously flooded for 1 to 6 months in many places. Permeability is moderately rapid to a depth of about 14" and moderate below that depth. The available water capacity is moderate, and organic-matter content is high. Natural fertility is moderate.

Included with this soil in mapping are small areas of Floridana sand. Also included are small areas of soils that have a finer textured surface layer and small areas of Terra Ceia muck. A large part of the acreage is in natural vegetation of sand cordgrass (*Spartina bakeri*), and some areas are covered with swamp hardwoods. Some areas are used for range, and a few are in improved pastures. If drainage and water control are adequate, this soil is well suited to vegetables, improved pasture grasses and clover, lawn grasses, and most kinds of ornamental plants. It is poorly suited to citrus.

Cp—Copeland complex:

This complex consists of several nearly level, very poorly drained soils on low flats. In most years the water table is within a depth of 10" for more than 6 months. In dry seasons it is between 10" and 30". This soil is flooded for 7 days to a month once in 5 to 20 years. Some areas are underlain by coquina rock instead of limestone.

The soils in this complex are so intermixed that it was impractical to map them separately. About 6% is Copeland loamy fine sand; 55% is a soil that is similar to Copeland loamy fine sand, but has limestone at a depth of about 20" and a subsoil of sandy loam; about 8% is an area where the black surface layer is underlain by hard limestone, generally within a depth of 10"; about 5% is a Wabasso soil; 10% is a soil similar to the Wabasso soil, but has limestone beneath the loamy layers; and 16% is scattered spots of Bradenton shallow variant, Chobee, Felda, Myakka, and St. Johns soils.

The natural vegetation is typically a few pines and a thick growth of cabbage palm (*Sabal palmetto*) and hardwoods, such as live oaks (*Quercus virginiana*), magnolia (*Magnolia grandiflora*), bay (*Persea borbonia*), and sweetgum (*Liquidambar styraciflua*). These soils are poorly suited to vegetables and other cultivated crops. They are also poorly suited to citrus, but some areas have been cleared of the thick growth and citrus trees have been planted. Bedding and water control have altered the soils enough in these places to make them moderately well suited to citrus. If drainage and water control are adequate, these soils are well suited to improved pasture grasses and clover, lawn grasses, and many kinds of ornamental shrubs.

Eg—EauGalllie sand:

This is a nearly level, poorly drained soil on broad, low ridges in the flatwoods. It has the profile described as representative of the series. In most years the water table is within a depth of 10" for 1 to 4 months and between 10" and 40" for more than 6 months. In dry seasons it is below a depth of 40". This soil is flooded for 7 days to a month, once in every 5 to 20 years. Permeability is rapid to a depth of about 22", moderate to moderately rapid 22" to 35", rapid from 35" to 55", moderate to moderately rapid from 55" to 61", and rapid below 61". The available water capacity is very low in the upper sandy layers, low in the layers from a depth of 22" to 55", and medium in the layers below 55". Organic-matter content and natural fertility are low.

Included with this soil in mapping are areas where the organic-stained layers are lighter colored and more weakly cemented than is typical. Also included are a few areas of EauGallie fine sand and small areas of Malabar, Myakka, Oldsmar, Pineda, and Wabasso soils. The natural vegetation is open forest of second-growth slash pine (*Pinus elliottii*) and an understory of saw-palmetto (*Serenoa repens*), runner oak (*Quercus pumila*), native grass, some gallberry (*Ilex glabra*), and scattered cabbage palm. Much of the acreage is still in natural vegetation and commonly is used for range. Areas near the flood plains of the river generally are covered with scattered live oak and dense stands of pine and cabbage palm. The hammocks of dense pine and cabbage palm make good shelter for cattle and wildlife.

Unless drained, bedded, irrigated, and properly managed, this soil is poorly suited to citrus. If drainage and water control are adequate, it is well suited to improved pasture grasses and clover, vegetable crops, lawn grasses, and many kinds of ornamental plants.

Ew—EauGallie, Winder, Felda soils, ponded:

This mapping unit is about 40% EauGallie soils, 20% Winder soils, 20% Felda soils, and 20% other soils. One or more of these soils occupies at least 70% of any particular area, but the proportion varies from place to place. These soils are in shallow ponds and sloughs in the flatwoods.

Included with these soils in mapping are small areas of Chobee, Floridana, Holopaw, and organic soils. Permeability is rapid to a depth of about 22", moderate to

moderately rapid 22" to 35", rapid from 35" to 55", moderate to moderately rapid from 55" to 61", and rapid below 61". The available water capacity is very low in the upper sandy layers, low in the layers from a depth of 22" to 55", and medium in the layers below 55". Organic-matter content and natural fertility are low.

The depressions or shallow ponds and sloughs receive runoff from the surrounding soils and are flooded for more than 6 months in most years. Some areas are flooded the entire year if rainfall is heavy. In the lowest places water is 2 or more feet deep. Most areas are in natural vegetation of cypress and water-tolerant grasses, such as maidencane and St.-Johnswort. Many are used for range during the drier periods. These soils are not suited to citrus, vegetable crops improved pasture grasses and clover, lawn grasses, and most kinds of ornamental plants.

An adequate drainage system is difficult to establish because in most places suitable outlets are not available. In their native state, these soils provide watering places and some grazing for cattle. They are important feeding grounds for many kinds of wading birds and other wildlife.

Fa—Felda sand:

This is a nearly level, poorly drained soil on broad, low flats and in sloughs, depressions, and poorly drained drainageways. It has the profile described as representative of the series. The water table is within a depth of 10" for 2 to 6 months in most years and is typically between 10" and 40" the rest of the year. Water rises above the surface for 2 to 7 days in 1 to 3 months of each year. Depressions are flooded for more than 6 months in most years. Permeability is rapid in the sandy layers and moderate to moderately rapid in the loamy layers. The available water capacity is very low in the sandy layers and moderate in the loamy layers. Organic-matter content is low, and natural fertility is moderately low.

Included with this soil in mapping are areas where the texture is fine sand and small areas of Floridana, Holopaw, and Winder soils. Also included are a few areas, at slightly higher elevations, that have a weak organic-stained layer above the subsoil. A large part of the acreage is in natural vegetation of sand cordgrass and few to common, scattered cabbage palms. Slightly higher areas are in a forest of mixed pine and cabbage palm. Many areas in natural vegetation are used for range. If

drainage and water control is adequate, this soil is well suited to citrus, vegetables, improved pasture grasses and clover, lawn grasses, and many kinds of ornamental plants.

Im—Immokalee sand:

This is a nearly level, poorly drained sandy soil in broad areas in the flatwoods, on low ridges between sloughs, and in low, narrow areas between sand ridges and lakes and ponds. It has a dark-colored, weakly cemented layer below a depth of 30". This layer is dark colored because the sand grains are coated with organic matter. In most years the water table is within a depth of 10" for 1 to 2 months. It is between 10" and 40" more than half the time, and during short, dry periods it is below 40". The soil is flooded for 2 to 7 days once in 1 to 5 years. Permeability is moderate to moderately rapid in the weakly cemented layers and rapid in all other layers. The available water capacity is moderate in the weakly cemented layers and very low in the surface and subsurface layers and from a depth of 55" to 80". Organic-matter content and natural fertility are low.

Included with this soil in mapping are small areas of St. Johns, Myakka, and Oldsmar soils and a few areas of Basinger and Pompano soils in low places. Also included are a few areas of gently sloping Immokalee sand and some areas where the texture is fine sand. The natural vegetation is saw-palmetto, gallberry, longleaf and slash pine (*Pinus palustris* and *Pinus elliottii*), and wiregrass (pineland three-awn). Much of the acreage is in natural vegetation and commonly is used for range.

If drainage and water control are adequate, this soil is well suited to vegetables, improved pasture grasses and clover, lawn grasses, and many kinds of ornamental plants. It is poorly suited to citrus, but under the most favorable conditions and good management citrus can be grown. Some areas are in urban development.

Ma—Malabar sand:

This is a nearly level, poorly drained soil in broad low areas, in sloughs, and in poorly defined drainageways. It has the profile described as representative of the series.

In most years the water table is within a depth of 10" for 1 to 2 months. It is 10" to 40" below the surface most of the time. Sloughs, however, are flooded for 1 to 3 months in most years, and the water table is within a depth of 10" for 2 to 6 months. Other areas are flooded for 7 days to a month once in 1 to 5 years. Permeability is rapid in all sandy layers and moderate in the loamy layers that extend from a depth of 45" to 61". The available water capacity is very low in the sandy layers and moderate in the loamy layers. Natural fertility and organic-matter content are low.

Included with this soil in mapping are small areas of Pineda or Holopaw soils and a few places where calcareous streaks are evident in the yellow layers of this Malabar sand. Also included are small areas where the surface layer is slightly darker colored and thicker and small areas where the yellow layer is below a depth of 30". Many of the broad low areas are open forest of scattered pine and cabbage palm and a ground cover of native grasses. Sloughs are in wetland grasses. Other areas are covered with thick stands of pine, some cabbage palm, and a few live oaks. Many areas are used for native range.

If drainage and water control are adequate, this soil is moderately well suited to vegetables. If water control is adequate, it is well suited to pasture grasses and clover, lawn grasses, and many kinds of ornamental plants. This soil is poorly suited to citrus.

Mb—Malabar, Holopaw, and Pineda soils:

This mapping unit is about 33% Malabar soils, 28% Holopaw soils, 20% in Pineda soils, and 19% other soils. The proportion varies from place to place. These nearly level, poorly drained soils are in intricately interwoven patter of sloughs, low depressions, and low ridges. They are so intermixed, both in the sloughs and on the low ridges, that is impractical to map them separately. Each is described under the heading of its respective series. Permeability is rapid in all sandy layers and moderate in the loamy layers that extend from a depth of 45" to 61". The available water capacity is very low in the sandy layers and moderate in the loamy layers. Natural fertility and organic-matter content are low.

Included with these soils in mapping are areas of EauGallie, Felda, and Oldsmar soils. Sloughs and low depressions are flooded for 1 to 3 months of the year, and the water table is within a depth of 10" for 2 to 6 months in most years. On the low ridges the water table generally is within a depth of 10" for 1 to 2 months of the year and between 10" and 40" the rest of the time. Most areas are in natural vegetation. On low ridges the vegetation generally is an open forest of scattered pine and cabbage palm and an understory of saw-palmetto and native grasses. Other areas are in thick stands of mixed pine, some palm, and a few live oaks. The sloughs are in wetland grasses.

If water control and drainage are adequate, these soils are well suited to improved pasture, clover and lawn grasses, and many kinds of ornamental plants and are moderately well suited to vegetables. They are poorly suited to citrus. A large part of the acreage is used for range.

Mk—Myakka sand:

This is a nearly level, poorly drained sandy soil in broad areas in the flatwoods and in areas between sand ridges and sloughs and ponds. It is the profile described as representative of the series. In most years the water table is within a depth of 10" for 1 to 4 months and between 10" and 40" for more than 6 months. In dry seasons it is below a depth of 40". The soil is flooded for 2 to 7 days once in 1 to 5 years. Permeability is rapid in the sandy layers to a depth of about 22", moderate from about 22" to 46", and rapid from about 46" and 63". Available water capacity is very low to low to a depth of about 22" and moderate from about 22" to 46". Organic-matter content and natural fertility are low.

Included with this soil in mapping are small areas of Immokalee and St. Johns sands; some areas of Myakka fine sand; a few areas that contain loamy material below the weakly cemented layer; and small areas where the substratum is coquina rock. Also included are areas on the coastal ridge where sand and shells are below the weakly cemented layers.

A large part of the acreage is in natural vegetation of open forest of second-growth longleaf or slash pine and an understory of saw-palmetto, runner oak (*Quercus pumila*), native grass, and, in places, gallberry. Some areas are used for range. If

drainage, water control, and irrigation are adequate, this soils is moderately well suited to vegetables. Unless conditions are favorable, management is good, and a water control system is properly designed, it is poorly suited to citrus. If water control is adequate, it is well suited to improved pasture grasses and clover, lawn grasses, and many kinds of ornamental plants. Some areas near expanding population centers have been developed for urban areas.

Mp—Myakka sand, ponded:

This is a nearly level, poorly drained, sandy soil in shallow depressions in the flatwoods. Most areas are small; only a few are larger than 50 acres. This soil is similar to Myakka sand, but it is in low places where water accumulates. In most years it is flooded for 6 to 12 months. Permeability is rapid in the sandy layers to a depth of about 22", moderate from about 22" to 46", and rapid from about 46" and 63". Available water capacity is very low to low to a depth of about 22" and moderate from about 22" to 46". Organic-matter content and natural fertility are low.

Included with this soil in mapping are small ares of Basinger, St. Johns, EauGallie, and Holopaw soils. Most areas are still in natural vegetation of maidencane or St.-Johnswort. Clumps of water-tolerant trees are in some places. Water lilies and flags (*Thalia* spp.) are in places where standing water is deepest. This soil is not suited to citrus, vegetables, improved pasture grasses and clover, lawn grasses, or most kinds of ornamental plants. An adequate drainage system is difficult to establish because in most places suitable outlets are not available. In their native state these soils provide watering places and some grazing for cattle. They are important feeding grounds for many kinds of wading birds and other wetland wildlife.

Pn—Pineda sand:

This is a nearly level poorly drained sandy soil on broad hammocks and in low sloughs. It has the profile described as representative of the series. The water table is within a depth of 10" for 1 to 2 months in most years and between 10" and 40" for

more than 6 months. In dry periods it is at a depth of more than 40". This soil generally is flooded for 2 to 7 days once in 1 to 5 years. Permeability is rapid in the sandy layers that extend to a depth of about 38", moderately rapid in the loamy layers that extend from a depth of 38" to 60", and rapid from a depth of 60" and 64".

The available water capacity is low in all the sandy layers and moderate in the loamy layers. Organic-matter content is low, and natural fertility is moderate.

Included with this soil in mapping are some areas of Malabar, Wabasso, or Felda soils. Also included are a few areas where the surface layer is thicker and darker colored than is typical, and a few areas that are fine sand instead of sand. Also included are a few areas where the loamy layers are calcareous. A large part of the acreage is in natural vegetation of open forest of scattered pine and cabbage palm and an understory of native grasses. Some areas are covered with thick stands of mixed pine and palm and a few live oak. Sloughs are covered with wetland grasses. Many areas are frequently used for range. If drainage and water control are adequate, this soil is well suited to citrus, vegetables, improved pasture grasses and clover, lawn grasses, and many kinds of ornamental plants.

Ps—Pomello sand:

This is a nearly level, moderately well drained sandy soil on broad low ridges and low knolls. The water table is 30" to 40" below the surface for 2 to 4 months in most years and between 40" and 60" for more than 6 months. During dry periods, it is below 60" for short periods. Permeability is very rapid to a depth of about 50", moderately rapid between 50" and 62", and rapid between 62" and 80". The available water capacity is very low as far down as 50" and is moderate below. Organic-matter content and natural fertility are low.

Included with this soil in mapping are a few areas of Myakka and Immokalee soils. Also included are areas of fine sand, small sloping areas, and areas on the Atlantic Coastal Ridge where shell fragments are mixed with sand beneath the weakly cemented layers. Also included are a few areas where the weakly cemented, dark-colored layer is within a depth of 30". Most areas are in natural vegetation of a few, scattered, second-growth longleaf pine and an undergrowth of scrubby live oak, saw-palmetto, and native grasses. This soil is not suited to most vegetables and is poorly suited to citrus. It is poorly suited to improved pasture grasses, lawn grasses, and most kinds of ornamental plants.

Pu—Pomello-Urban land complex:

This complex is about 45% to 60% Pomello sand, 20% Pomello sand that has been altered for use as building sites, and about 20% to 45% Urban land or areas covered by houses, streets, driveways, buildings, parking lots, and other related uses. The open areas of Pomello sand are mostly in lawns, vacant lots, or playgrounds. These areas are usually so small and intermixed that it was impractical to map them separately. Permeability is very rapid to a depth of about 50", moderately rapid between 50" and 62", and rapid between 62" and 80". The available water capacity is very low as far down as 50" and is moderate below. Organic-matter content and natural fertility are low.

Included with this complex in mapping are small areas of Myakka and Immokalee soils that make up about 5% of some areas. Also included are a few small areas that are as much as 60% or as little as 15% Urban land. Many areas have been modified by grading and shaping. Reworking of the soil has not been so great in the older communities as in the newer, more densely populated ones. Streets excavated below the original land surface and excavated soil material spread over adjacent land areas are common. Soil material from local drainage ditches or hauled in from elsewhere has been used to fill low places. Pomello-Urban land complex is poorly suited to lawn grasses and most kinds of ornamental shrubs. In most years the water table is at a depth of 30" to 40" for 2 to 4 months and between 40" and 60" for more than 6 months. In dry seasons it is below 60" for short periods.

Sa—Satellite sand:

This is a nearly level, somewhat poorly drained sandy soil on broad low ridges in the flatwoods. The water table is 10" to 40" below the surface for 2 to 6 months in most years. Most of the time it is within a depth of 60". During prolonged dry periods it is below 60". Permeability is variable but generally is very rapid. Available water capacity is also variable but generally is very low. Natural fertility and organic-matter content are low.

Included with this soil in mapping are areas of soils that are darker colored in some layers below the surface layer and areas where the texture is coarse sand instead of sand. Most areas have a natural vegetation of longleaf or slash pine and scattered scrub live oak and an understory of saw-palmetto, runner oak, native grasses, and

gallberry. Some areas are used for range. This soil is not suited to most vegetables and is poorly suited to citrus. It is poorly suited to improved pasture grasses and clover, lawn grasses, and most kinds of ornamental plants.

Sc—St. Johns soils, ponded:

These soils are in sloughs, poorly defined drainageways, and shallow intermittent ponds in the flatwoods. Individual areas are generally long and narrow, but some cover 40 acres or more. They consist of St. Johns soils and soils that are similar but have a weakly cemented layer at a depth of 40" to 45". The water table is within a depth of 10" for 6 to 12 months in most years. Most areas are continuously flooded for 6 months or more in most years. Permeability is moderate in the weakly cemented layers and very rapid in all other layers. The available water capacity is moderate in the surface layer and weakly cemented layers and very low to low in all other layers. Organic-matter content is moderate in the surface layer and weakly cemented layers and low in other layers. Natural fertility is low.

Included in mapping are soils that have a dark-colored surface layer more than 20" thick and a weakly cemented layer at a depth of 40" to 45". Also included are small areas of Myakka, Micco, and Tomoka soils. The proportion of included soils varies from place to place. Individual soils could not be mapped separately because of prolonged wetness and, in some places, dense vegetation.

These soils are very wet, and drainage is generally not feasible because no suitable outlets are available. Almost all areas are in natural vegetation of marsh, grasses, sedges, and St.-Johnswort. Some are wooded with water-tolerant hardwoods and pond pine (*Pinus serotina*). These soils are not suited to cultivated crops, citrus, lawn grasses, or most kinds of ornamental plants. They are poorly suited to improved pasture grasses and clover.

Tw—Tomoka muck:

This is a nearly level, very poorly drained muck soil in broad flat marshes, small depressions, and swamps. Sandy and loamy layers are at a depth of 16" to 40". The water table is within a depth of 10" for 9 to 12 months in most years, and water is frequently above the surface. In dry periods it is between 10" and 30".

Permeability is rapid in the organic layers and sandy layers and moderate to moderately rapid in the loamy layers. The available water capacity is very high in the organic layers, low in the sandy layers, and moderate in the loamy layers. Organic-matter content is very high, and natural fertility is low.

Included with this soil in mapping are areas of Terra-Ceia muck, small areas of Floridana soils, and areas where the organic material is less than 16" thick. Most areas are in natural vegetation of maidencane, sawgrass (*Cladium jamaicensis*), cattails (*Typha* spp.), flags (*Thalia* spp.), and scattered to dense thickets of woody buttonbush (*Cephalanthus occidentalis*). A few areas are wooded with swamp hardwoods consisting of maple (*Acer rubrum*), gum (*Nyssa* spp.), bay (*Persea borbonia*), and other wetland hardwoods. Some areas are used for range and improved pasture.

If reclaimed from its native state by drainage and water control, this soil is suited to vegetables. Water control structures are needed to keep the water level at the proper depth for vegetables and improved pasture grasses and clover, and to reduce the hazard of subsidence by oxidation of the organic matter. The soil is not suited to citrus, but if water is controlled properly, it is well suited to improved pasture grasses and clover, lawn grasses, and many kinds of ornamental plants.

Ur—Urban land:

Urban land consists of areas that are 60% to more than 75% covered with streets, buildings, large parking lots, shopping centers, industrial parks, airports, and related facilities. Unoccupied areas, mostly lawns, parks, vacant lots, and playgrounds, are Astatula, Paola, Myakka, St. Lucie, Immokalee, Pomello, Cocoa, and Canaveral soils in tracts too small to be mapped separately. Based on this information, there will be no significant water quality impacts as a result of proposed development as identified

in this Master Plan Update. All projects will be closely coordinated with the USACOE and SJRWMD.

5.3.7 Department of Transportation Act, Section 4(f)

Section 4(f) of the Department of Transportation (DOT) Act provides that the DOT shall not approve any program or project which requires the use of any of the following categories that have national, state, or local significance:

- Publicly owned parks or recreation areas
- Wildlife or waterfowl refuges
- Historic sites

The Master Plan identifies no impacts on any programs or projects which require the use of any publicly owned land from a public park, recreation area, or wildlife and water fowl refuge of national, state, or local significance, or land of a historic site of national, state, or local significance as determined by the officials having jurisdiction. There are no Section 4(f) properties located on or near Melbourne International Airport.

5.3.8 Historical, Architectural, Archaeological, and Cultural Resources

Two federal laws apply to this category: 1) The National Historic Preservation Act of 1966; and 2) The Archaeological and Historic Preservation Act of 1974. The National Historic Preservation Act of 1966 requires an initial review to determine whether properties contained within the national Register of Historic Places, or properties eligible for inclusion in the Register, are located in the vicinity of the project site. The Archaeological and Historic Preservation Act of 1974 requires a survey, recovery and preservation of historic and pre-historic data that may be destroyed or irreparably lost due to a federal, federally licensed, or federally funded, project.

All federally funded projects at MLB over the past ten years have had Cultural Resource Assessments (CRAs). These assessments have included all runway extension projects, taxiway improvement projects, roadway development, and aviation-related development sites. This also included a review and evaluation from the Florida Department of State/Division of Historical Resources. The proposed developments in this Master Plan Update have been reviewed by Registered Professional Archaeologists (RPAs). It is not anticipated that the proposed development sites will have any adverse impacts to historic, architectural, archaeological or cultural resources.

5.3.9 Biotic Communities

A survey of biotic communities was conducted in December 2002 and revised for this Master Plan Update. As previously mentioned, for purposes of the environmental overview the Airport was divided into eight (8) discrete geographic planning areas. Within each geographic planning area all significant biotic communities were evaluated and documented, as well as documentation of wetland and important upland habitats (see Section 5.5). The Master Plan Update has identified both wetland and upland communities at MLB. A listing of these communities from the FLUCCS are as follows:

610—Wetland Hardwoods Forests:

Wetland hardwood forests are those wetland areas which meet the crown closure requirements for forestland as outlined under the Upland Forest Classification (400) <minimum 10% closure>. To be included in the Wetland Hardwood Forest category, the stand must be 66% or more dominated by wetland hardwood species, either salt- or freshwater.

616—Inland Ponds and Sloughs:

These communities are associated with depressions and drainage areas that are not associated with streams or lakes. One or a combination of the following species will generally be predominant: pond cypress (*Taxodium distichum* var. *nutans*), swamp tupelo (*Nyssa sylvatica* var. *biflora*), water tupelo (*Nyssa aquatica*), titi (*Cyrilla racemiflora*), or willows (*Salix* spp.).

617—Mixed Wetland Hardwoods:

This category is reserved for those wetland hardwood communities which are composed of a large variety of hardwood species tolerant of hydric conditions yet which exhibit an ill-defined mixture of species.

620—Wetland Coniferous Forests:

Wetland coniferous forests are wetlands which meet the crown closure requirements for coniferous forests (see 400 and 410) and are the result of natural generation. These communities are commonly found in the interior wetlands in such places as river flood plains, bogs, bayheads and sloughs.

621—Cypress:

This community is composed of pond cypress (*Taxodium distichum* var. *nutans*) or bald cypress (*Taxodium distichum* var. *distichum*) which is either pure or predominant. In the case of pond cypress, common associates are swamp tupelo, slash pine, and black titi (*Cliftonia monophylla*). In the case of bald cypress, common associated are water tupelo, swamp cottonwood (*Populus heterophylla*), red maple, American elm (*Ulmus americana*), pumpkin ash (*Fraxinus profunda*), Carolina ash (*Fraxinus caroliniana*), overcup oak (*Quercus lyrata*), and water hickory (*Carya aquatica*). Bald cypress maybe associated with laurel oak (*Quercus laurifolia*), sweetgum (*Liquidambar styraciflua*), and sweetbay (*Magnolia virginiana*) on less moist sites. Note that some authorities do not distinguish between the two varieties of cypress.

622—Pond Pine:

This category is composed of pond pine (*Pinus serotina*) which is either pure or predominant. Its major associate is titi. Minor associates include sweetbay, loblolly bay (*Gordonia lasianthus*), red bay, and swamp tupelo.

630—Wetland Forested Mixed:

This category includes mixed wetlands forest communities in which neither hardwoods or conifers achieve a 66% dominance of the crown canopy composition.

640—Vegetated Non-Forested Wetlands:

Vegetated, non-forested wetlands include marshes and seasonably flooded basins and meadows. These communities are usually confined to relatively level, low-lying areas. This category does not include areas which have a tree cover which meet the crown closure threshold for the forested categories. When the forest crown cover is less than the threshold for wetland forest or is non-woody, it will be included in this category. Sawgrass (*Cladium jamaicensis*) and cattail (*Typha* spp.) are the predominant species in freshwater marshes while spartina (*Spartina* spp.) and needlerush (*Juncus effusus*) are the predominant species in the saltwater marsh communities.

641—Freshwater Marshes:

The communities included in this category are characterized by having one or more of the following species predominate:

Sawgrass	(*Cladium jamaicensis*)
Cattail	(*Typha domingensis*)
	(*Typha latifolia*)
	(*Typha angustifolia*)
Arrowhead	(*Sagittaria* spp.)
Maidencane	(*Panicum hemitomon*)
Buttonbush	(*Cephalanthus occidentalis*)
Cordgrass	(*Spartina bakeri*)
Switchgrass	(*Panicum virgatum*)
Bulrush	(*Scirpus americanus*)
	(*Scirpus validus*)
	(*Scirpus robustus*)
Needlerush	(*Juncus effusus*)
Common reed	(*Phragmites communis*)
	(*Phragmites australis*)
Arrowroot	(*Thalia dealbata*)
	(*Thalia geniculata*)

Important upland habitats include the following FLUCFCS types:

411—Pine Flatwoods:

These forests are quite common throughout much of northern and central Florida. Originally, longleaf pines (*Pinus palustris*) were common on drier sites while slash pines (*Pinus elliottii*), which are less fire resistant, were confined to moist sites, wildfire being the contributing factor in this distribution. However, fire control and artificial reforestation have extended the range of slash pine into former longleaf sites. The pine flatwoods class is dominated by either slash pine, longleaf pine, or both. The common flatwoods understory species include saw-palmetto (*Serenoa repens*), wax myrtle (*Myrica cerifera*), gallberry (*Ilex glabra*), and a wide variety of herbs and brush.

413—Sand Pine:

This pine community grows on deep, infertile deposits of marine sands and clays. There are two varieties of sand pines, both occurring in Florida. The Ocala variety of north-central Florida (*Pinus clausa* var. *clausa*) grows in densely stocked, pure, even-aged stands. The Choctawhatchee variety of western panhandle Florida (*Pinus clausa* var. *immuginata*) commonly occurs in uneven-aged stands invading oak (*Quercus* spp.) communities. A root disease complex gives many sand pine stands a disheveled appearance. Its dark crown coloration distinguishes it from southern pines.

421—Xeric Oak:

This forest community is similar to and occupies the same sites as the Longleaf PineCXeric Oak community except that the pines, if present, are not the dominant species. In many cases, longleaf pine may have been present in significant numbers prior to harvesting, but were never regenerated. Species common to this class include bluejack oak (*Quercus incana*), turkey oak (*Quercus laevis*), and sand post oak (*Quercus stellata* var. *margaretta*).

These upland habitats are important because a number of federal and state-protected species inhabit them. In particular, xeric habitats (FLUCFCS Type 421CXeric Oak) are important because of the occurrence of a number of federal and State of Florida protected species. Not all xeric habitats have federal and/or State of Florida protected species, but all need to be evaluated prior to development. MLB has an active review process for development sites and coordinates these environmental reviews with the USFWS, USACOE, SJRWMD, and the City of Melbourne.

5.3.10 Endangered and Threatened Species of Flora and Fauna

Federally listed threatened and endangered plant and animal species are protected by the Endangered Species Act of 1973 which is administered by the USFWS. State-listed animal species are protected under the auspices of the Florida Fish and Wildlife Conservation Commission (FFWCC). State-listed plant species are protected by the Preservation of Native Flora of Florida Act, which is administered by the Florida Department of Agriculture. Legal protective status of state and federally listed plant and animal species are derived

from the Official Lists of Endangered and Potentially Endangered Fauna and Flora of Florida.

Wildlife inventories that comply with USFWS and FFWCC guidelines are conducted on all federally funded projects. As previously mentioned, Section 5.5 describes eight (8) geographic planning areas and includes photo-inventories which depict both upland and wetland species areas throughout MLB.

The evaluation of Endangered and Threatened Species of Flora and Fauna includes an evaluation of Florida Land Use, Cover, and Forms Classification System (FLUCFCS) habitat types (see Section 5.4.9 - Biotic Communities) as well as soils types (see Section 5.4.6 - Water Quality) for MLB. A listing of federal and State of Florida protected species was enumerated in August 2003 and a wildlife survey was conducted at the Airport by Storm L. Richards & Associates, Inc., following the recommended guidelines of the Florida Game and Fresh Water Fish Commission, to identify potential threatened and endangered species. The wildlife survey was completed using the "Wildlife Methodology Guidelines for Section 18.D of the Application for Development Approval." Certain modifications were also incorporated because of the size of the project.

The vegetation, soil, and topography at the site in their natural conditions were conducive to a number of protected species, including gopher tortoise (*Gopherus polyphemus*), eastern indigo snake (*Drymarchon corais couperi*), Florida pine snake (*Pituophis melanoleucus mugitus*), gopher frog (*Rana areolata aesopus*), sand skink (*Neoseps reynoldsi*), Florida scrub lizard (*Sceloporus woodi*), and Florida mouse (*Peromyscus floridanus*). These protected species likely inhabit the upland areas, which comprise the majority of the site. There was a likelihood of the presence of species including the Florida scrub jay (*Aphelocoma coerulescens coerulescens*), little blue heron (*Egretta caerulea*), tricolored heron (*Egretta tricolor*), southeastern American kestrel (*Falco sparverius paulus*), Florida sandhill crane (*Grus canadensis pratensis*), wood stork (*Mycteria americana*), osprey (*Pandion haliaetus*), marsh hawk (*Circus cyaneus*), and white ibis (*Eudocimus albus*). Large portions of the area have broadleafed grasses, grape vine, and low ground cover which are suitable habitat for gopher tortoises (*Gopherus polyphemus*) and commensal species. There are active, inactive and abandoned gopher tortoise burrows on many sites. A full gopher

tortoise relocation permit should be secured prior to development in areas where tortoises are located in the development footprint. The presence of these gopher tortoise burrows in isolated areas suggests the possible presence of other commensal species to a limited extent. There is xeric oak habitat and Florida scrub jay (*Aphelocoma coerulescens coerulescens*) and bald eagle (*Haliaeetus leucocephalus*) habitat areas are identified on the site.

A listing of occurring or potentially occurring species within or adjacent to the Airport development areas include, but are not limited to, the following species:

Gopher tortoise (*Gopherus polyphemus*)
Florida scrub jay (*Aphelocoma coerulescens coerulescens*)
Florida pine snake (*Pituophis melanoleucus mugitus*)
Florida gopher frog (*Rana areolata aesopus*)
Great egret (*Casmerodius albus*)
Florida sandhill crane (*Grus canadensis pratensis*)
Louisiana heron (*Hydranassa tricolor ruficollis*)
Wood stork (*Mycteria americana*)
Osprey (*Pandion haliaetus*)
Gopher tortoise scarab (*Aphodius troglodytes*, *Copris gopheri*, and *Onthophagus polyphemi polyphemi*)
Spotted turtle (*Clemmys guttata*)
Eastern indigo snake (*Drymarchon corais couperi*)
Mole snake (*Lampropeltis calligaster rhombomaculata*)
Bald eagle (*Haliaeetus leucocephalus*)
Little blue heron (*Egretta caerulea*)
Florida mouse (*Peromyscus floridanus*)

There are no bald eagle (*Haliaeetus leucocephalus*) nests located on the Airport as of August 2003. There are Florida scrub jay (*Aphelocoma coerulescens coerulescens*) resident populations at the Airport and as well as areas which Florida scrub jays frequent for feeding and habitat. These areas are routinely monitored by both Airport staff and professional Certified Environmental Consultants. The USFWS is routinely evaluating MLB sites for existing and future developments. The Master Plan Update identifies several of the areas most frequently used by federal and State of Florida protected species (see Section 5.5).

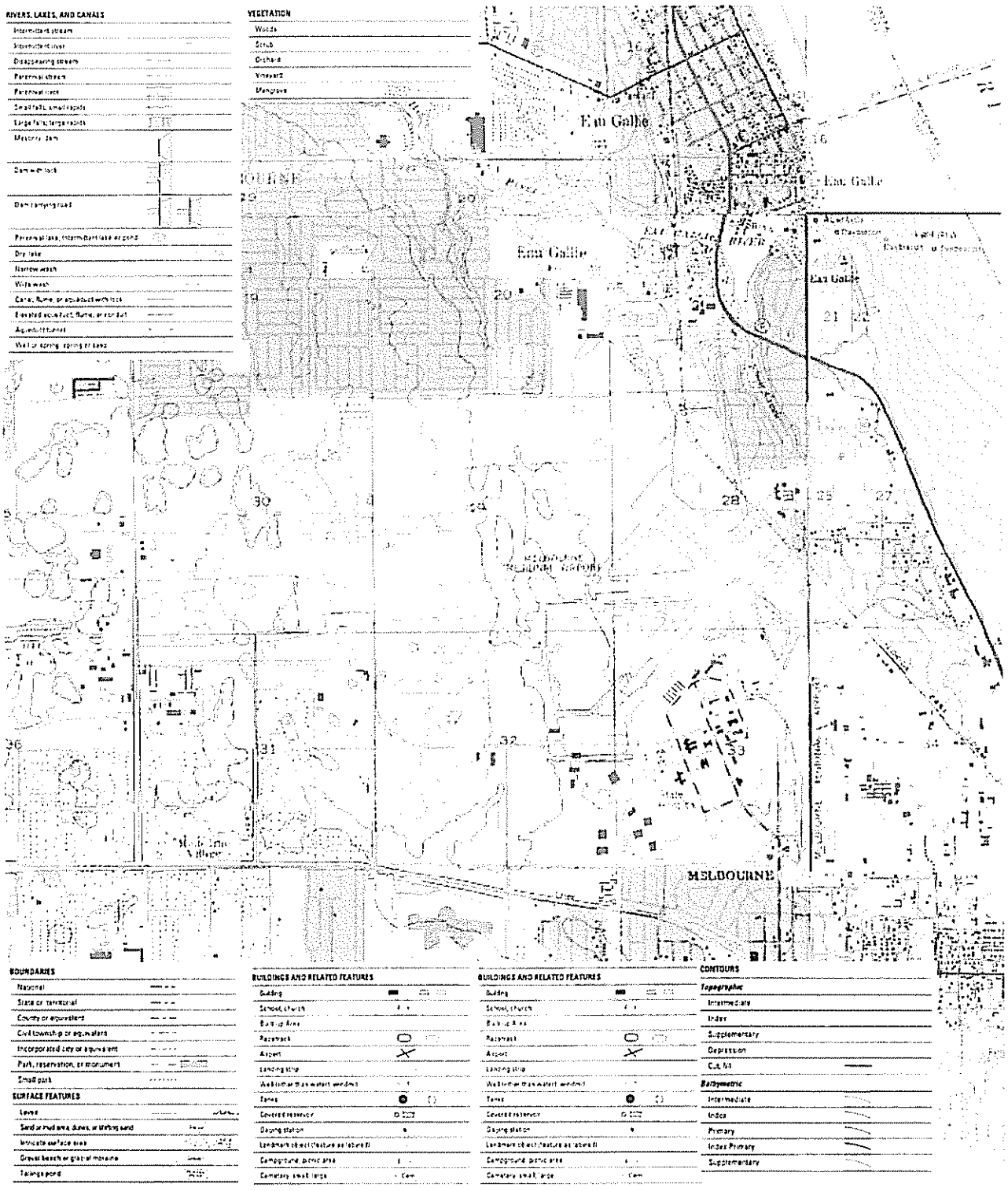
5.3.11 Wetlands

Wetland areas serve several important functions: 1) as a wildlife habitat to a variety of plants and animals; 2) as important water quality functions in an agricultural area; and 3) provide flood retention benefits during high runoff events. Wetlands are defined as those areas that are inundated by surface or ground water with a frequency sufficient to support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, natural ponds, estuarine areas, tidal overflows and shallow lakes and ponds with emergent vegetation.

DOT Order 5660.1A, *Preservation of the Nation's Wetlands*, directs federal agencies to avoid to the extent possible long and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative. Order 5660.1A also directs federal agencies to avoid undertaking or providing assistance for new construction located in wetlands unless the head of the agency providing support finds that there are no practicable alternative to such construction, and that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use.

Wetlands at MLB were inventoried by Storm L. Richards and Associates, Inc. The inventory was based on a detailed review of topographic maps, including U.S. Geological Survey (USGS) Quad sheets (see Figure 5.7), and a photogrammetrically-derived topographic map having closely spaces spot elevations and one-foot elevation contours. USDA Soil Conservation Service Maps and National Wetland Inventory Maps (see Figure 5.8) were also reviewed, as well as a full field investigation conducted. Some of the wetlands were flagged, reviewed by USACOE personnel and SJRWMD staff, and surveyed. These inventories are further documented in Section 5.5.

The total area occupied by jurisdictional wetlands (including previously completed mitigation areas, but not including upland-cut drainage channels) is only 81 acres, or approximately 3% of the total land area owned by the Airport. Most of this land area is located in the extreme western portion of Airport property. Of this 81 acres, planned development will



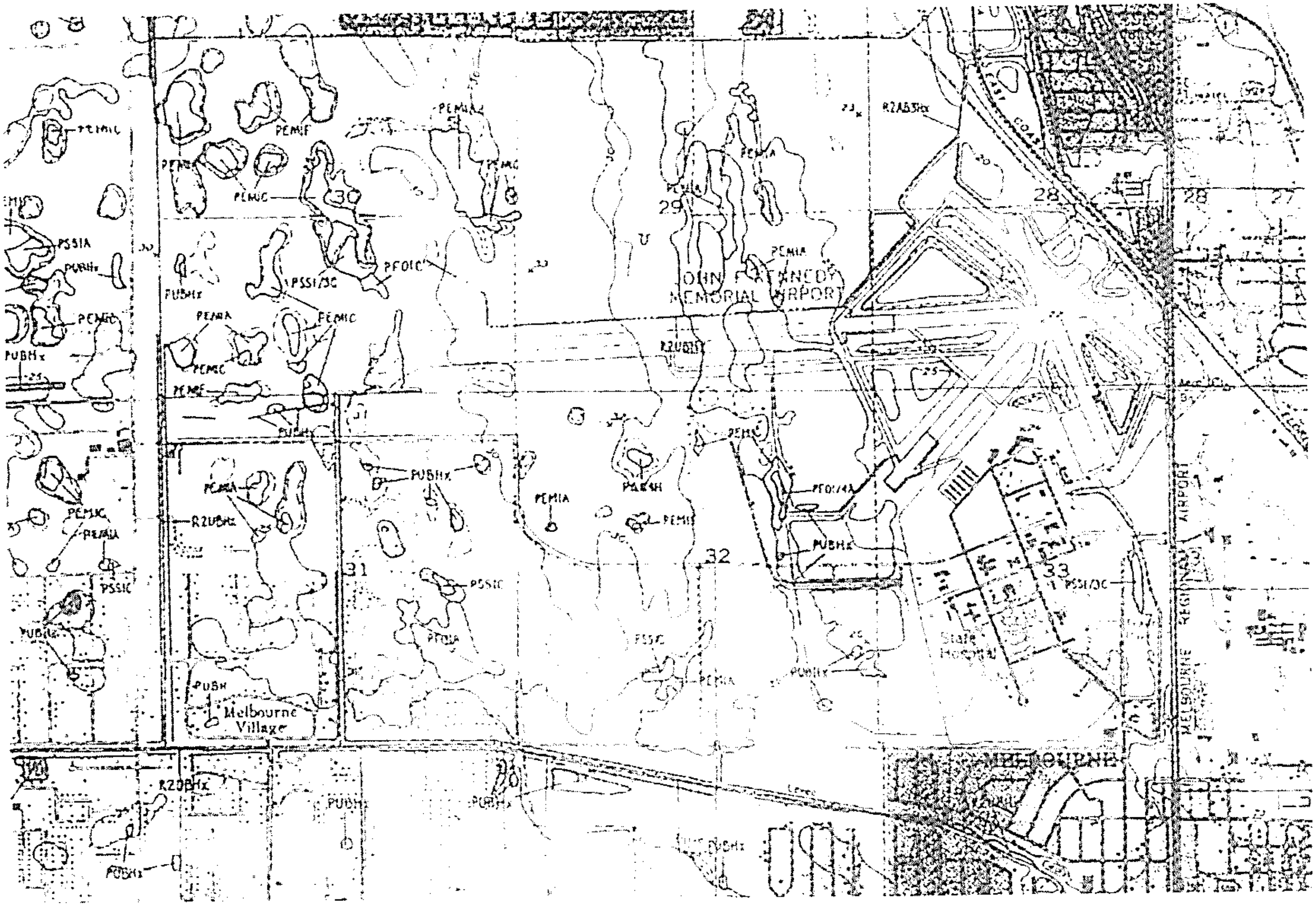
Source: United States Geological Survey

Reynolds, Smith and Hills Inc.

Architectural. Engineering. Planning
and Environmental Services
Jacksonville. Florida

Melbourne International Airport
Master Plan Update

Figure 5-7
USGS Map



Source: National Wetlands Inventory

RS&H
Reynolds, Smith and Hills, Inc.
Architectural, Engineering Planning and Environmental Services
Jacksonville, Florida

Melbourne International Airport
Master Plan Update

Figure 5-8

National Wetlands Inventory Map

impact approximately 9 acres. The proposed impacts to wetlands for development purposes at MLB (by filling) are identified in the following phases:

Phase 1 (2004-2008):	0.49 acres
Phase 2 (2008-20013):	3.49 acres
Phase 3 (beyond 2013):	4.48 acres

The existing wetlands are generally herbaceous, and only seasonally wet. In general they are fair to poor quality, containing invasive plant species and provide little habitat that is diverse or quality for wetland dependent species. An exception is the mitigation area in the 69 acres parcel which was created in 2000 for mitigation purposes. This area was intentionally excavated to elevations that would assure ponded water throughout the year. The eastern portion of this mitigation area was enriched with a thick layer of much before planting, and both portions were densely planted with wetland species that have thrived in this new habitat.

Future impacts are anticipated to be minimal because of avoidance and minimization of wetland impacts and MLB practices. However, any site that has been identified for development that appears to have wetland characteristics (i.e., long-term ponding of water, hydric soil, or wetland type vegetation) should be examined by an environmental specialist having expertise in wetland issues.

5.3.12 Floodplains

Floodplains are defined as lowland and relatively flat areas adjoining inland and coastal waters. At a minimum floodplains include areas that are subject to a one-percent or greater chance of flooding in a given year (i.e., the area that would be inundated by a 100-year flood). A review of the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) was performed as part of the Master Plan Update. Since MLB is not located within any 100 year floodplain, no impacts to proposed development in anticipated and this category would be excluded from further environmental review.

5.3.13 Coastal Zone Management

The Coastal Zone Management Act of 1977 requires federal agencies to review activities with regard to direct affects to coastal zones. Any activities which directly affect the state

coastline are subject to a determination of consistency with Florida's Coastal Zone Management Program. Activities which are likely to require a consistency determination include:

- Any project subject to state or federal dredge and fill permitting review;
- Any point or non-point source discharge to surface waters, and;
- Major industrial expansion or development projects.

All projects at MLB are within the boundaries of the Coastal Zone Management Program. All federally funded projects will be reviewed by the appropriate federal and State of Florida environmental agencies.

5.3.14 Coastal Barriers

The Coastal Barrier Resource Act of 1982 (CBRA) prohibits, with some exceptions, federal financial assistance for developments within the Coastal Barrier Resource System. CBRA maps were reviewed to determine potential impacts to coastal barriers due to proposal Airport development. This system includes the undeveloped coastal barrier islands along the Atlantic Coast. No proposed development at MLB is contained within this geographic area. Based on this information, no impacts on Coastal Barrier areas will result from the proposed development alternatives of this Master Plan.

5.3.15 Wild and Scenic Rivers

The Wild and Scenic Rivers Act protects rivers that are described as free-flowing and possessing "outstandingly remarkable scenic, recreational, geological, fish and wildlife, historic, cultural, and other similar values." The U.S. Department of the Interior maintains a National Inventory of river segments that qualify for inclusion in the National Wild and Scenic River System. There are no National Wild and Scenic Rivers on or near MLB. Based on this information, there will be no impacts on Wild and Scenic Rivers as a result of implementing any of the development alternatives proposed in the Master Plan.

5.3.16 Farmland

Prime and unique farmland is considered to be available land that is best suited for producing food, feed, forage and other types of crops. In addition, prime and unique farmland has the soil quality and moisture supply needed to produce and sustain high yields of crops when treated and managed according to modern farming methods. MLB is located

in an urbanized area that does not sustain agricultural operations. Existing and future land uses in the vicinity of the Airport are residential, commercial, and industrial in nature. Therefore, there are no farmlands located at MLB and no potential impacts to prime or unique farmland.

5.3.17 Energy Supply and Natural Resources

In terms of future Airport development projects, there are typically two areas of concern with regard to energy supply and natural resources:

- Stationary sources (i.e., terminal facilities, general aviation facilities, airfield lighting and other support facilities).
- Mobile sources (i.e., aircraft, ground support equipment, automobiles, etc.).

The increase in demand for energy supply will be dependent on the implementation of specific projects. Development of expanded terminal, general aviation, corporate and cargo facilities at MLB would be the primary sources of increased energy consumption for stationary sources. Mobile energy consumption is primarily from the consumption of aircraft fuels. Due to the forecasted increase in aircraft operations, an increase in fuel consumption for mobile sources should be expected. However for stationary sources, MLB has goals, policies, and objectives for the conservation of energy based on planning, construction, and operations for Airport improvements and future use of MLB properties. Although an increase in consumption of energy supply is anticipated, MLB will not have a significant adverse impact on local or regional carbon fuel production or consumption.

5.3.18 Light Emissions

Airport lighting systems are generally located in the airfield, apron, terminal, parking lots and access roadways. FAA Order 5050.4A states that the airport sponsor shall consider the extent to which any lighting associated with an airport action will create an annoyance among people in the vicinity of an installation. Several factors are considered to determine if an annoyance may exist:

- Site location of lights or lighting systems.
- Purpose of the light system, either pole or ground mounted, beam angle, intensity, color, flashing frequency and other pertinent characteristics.
- Possible measures, including shielding or angular adjustments, available to lessen any annoyances.

Light emissions which may create an annoyance to residents in the vicinity of the airport must be taken into account. Currently the existing land-use surrounding the Airport is primarily commercial and industrial in nature, with a minimal amount of residential along the southern boundary. Light emissions are routinely evaluated by the staff of MLB. In areas near residential development light emissions are minimized by operation Best Management Practices (BMPs). The proposed alternatives in this Master Plan will not result in any significant negative impacts to the surrounding community with regard to light emissions.

5.3.19 Solid Waste Impact

Solid waste is typically affected by commercial, industrial and terminal development rather than airfield development. Projects which relate only to airfield development (i.e., runways, taxiways, aprons, etc.) do not normally result in any direct impact to solid waste collection, control, or disposal, other than that associated with the construction itself. The impact of the construction of new facilities at MLB will result in a minimal increase in solid waste.

Landfills near airports are considered to be a potential hazard due to the landfill's tendency to attract birds, possibly creating strike hazards with approaching and departing aircraft. FAA Order 5200-5A, *Waste Disposal On or Near Airports*, provides guidance regarding the location of sanitary landfills on or near airports. Landfills located within the distance outlined in Order 5200.5A are considered incompatible land uses. There are no active landfills located within 10,000 feet of a runway used by turbine powered aircraft at MLB. The proposed projects identified in this Master Plan will not result in any significant impacts to solid waste generation in Brevard County.

5.3.20 Construction Impacts

Potential construction impacts include the following items:

- Noise – Heavy construction equipment will generate noise. However, it is expected that this noise will occur only during daylight hours. During construction of new facilities, it is expected that temporary noise impacts will not affect adjacent residential areas.
- Dust – Potential impacts of dust during construction include reduced visibility, unsightly coatings on building and discomfort for dust-sensitive individuals. Methods for dust control can be implemented to minimize dust generation

and transport. Dust generation and transport is expected to be a temporary impact.

- Air Emissions – Air emission impacts from construction activity would occur. Construction activity would produce emissions from vehicular, equipment and other construction activity associated with the projects. A temporary increase in emissions would occur due to the presence of constantly running internal combustion engines. While these activities would produce a temporary increase of emissions, they are typical of large construction projects and would not pose any lasting negative impacts.
- Erosion – Some erosion and subsequent sedimentation in the vicinity of the proposed projects may occur. Erosion control measures required by the FAA, FDEP, SJRWMD and other agencies would be incorporated into project design plans and specifications. The potential amount of erosion is determined by the volume of work, the duration of the operations and the time of exposure. FAA Aadvisory Circular 150/5370-10A, *Standards for Specifying Construction of Airport,* provides guidance in the avoidance of adverse construction impacts.

Potential impacts are associated with this impact category. The impacts of noise, dust and erosion would be quantified in a detailed EA for major development projects. Air emission would be quantified for any of the pollution categories monitored by the EPA.

5.3.21 Other Considerations

One other environmental consideration worthy of note for purposes of this environmental overview includes documentation and discussion of hazardous materials. A Phase One (1) Environmental Assessment and ASTM Database Review was conducted for MLB as part of this Master Plan Update. As a result of this assessment, several areas have been identified with recommendations for additional review, to include the following:

1. Closure of existing monitored land fill area within a specified time period

2. Update on all petroleum storage tanks on the Airport with updated status

3. Current spill prevention plan and emergency clean-up plans for petroleum products and hazardous materials at MLB.

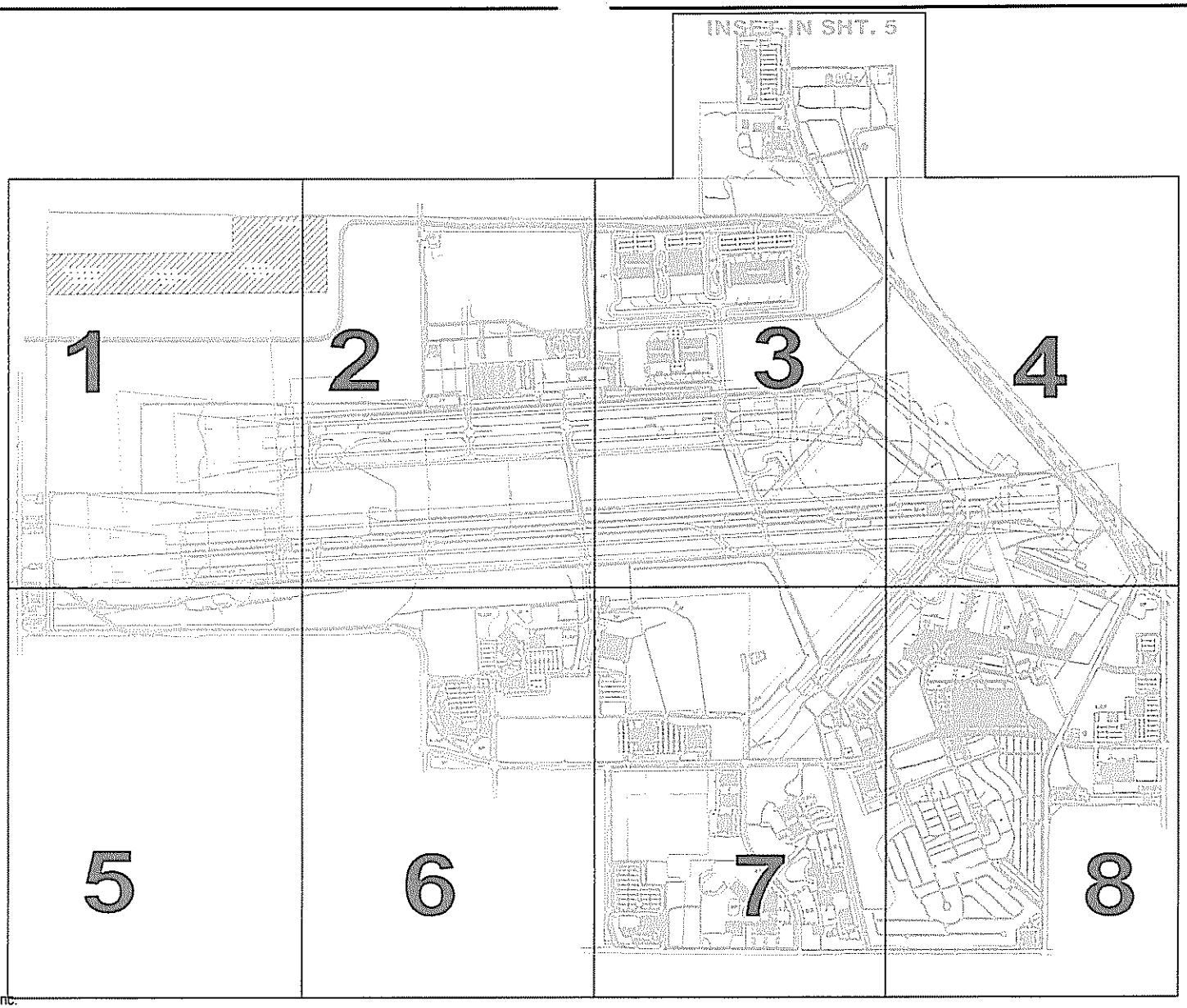
There are no significant environmental issues identified in the Master Plan Update as applicable to the Phase One (1) Environmental Assessment and ASTM Database Review. MLB is evaluated annually for federal, state, Brevard County, and City of Melbourne listings of hazardous and toxic materials on-site and off-site. This evaluation is consistent with ASTM Practice E-1527 methodology.

5.4 GEOGRAPHIC PLANNING AREAS

The examination of environmental conditions and constraints for future development at MLB were an important component in preparing the Master Plan Update. In order to graphically present the overall environmental constraints for future development, as described in this Section, eight (8) geographic planning areas were developed as presented below. An overview for each planning area as it pertains to the overall Airport boundaries is provided in Figure 5.9.

5.4.1 Planning Area 1

Planning Area 1 includes the western ends of Runways 9R-27L and 9L-27R respectively, with the associated proposed runway extensions, see Figure 5.10. Figure 5.11 depicts the view of the west approach to Runway 9L-27R looking south, and view of a wetland area located south of Runway 9L-27R. Located within this planning area are various jurisdictional wetlands, and Pine flatwoods (FLUCFCS Type #411) which have the potential to provide habitat for State of Florida protected species. Implementation of the proposed extension to Runway 9R/27L would require the impacting of approximately 3.39 acres of wetlands. Implementation of the new taxiway connector between the approach end of Runway 9R and 9L would require impacting approximately 3.79 acres of wetlands. An isolated area for mitigation of the impacted wetlands and protected species habitat enhancement area has been identified north of Runway 9L/27R, as depicted in Figure 5.10.



Source: Airport Engineering Co., Inc.
Storm L. Richards and Associates, Inc.

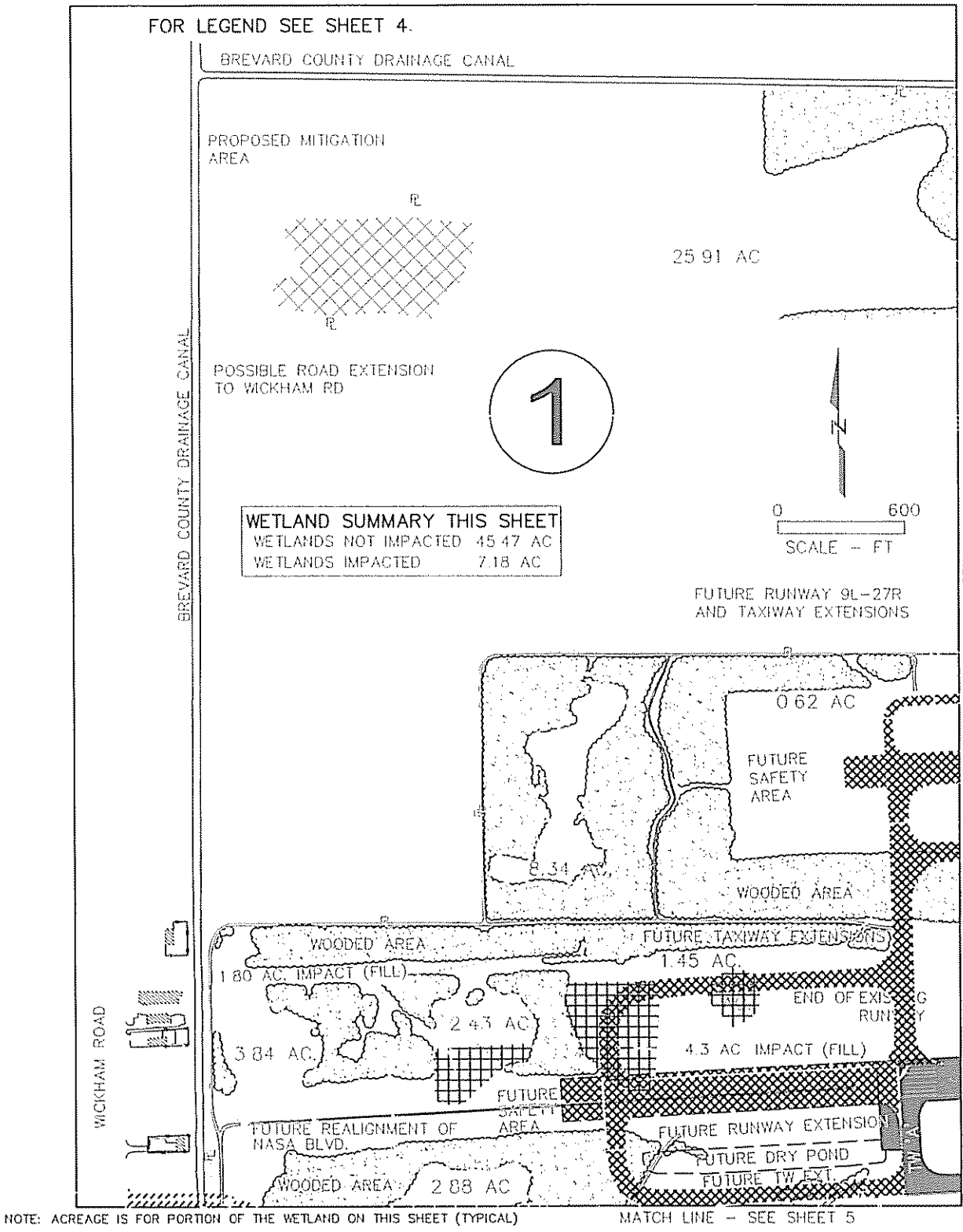
RS&H

Reynolds, Smith and Hills Inc.

Architectural, Engineering, Planning
and Environmental Services
Jacksonville, Florida

Melbourne International Airport
Master Plan Update

Figure 5-9
Geographic Planning Areas

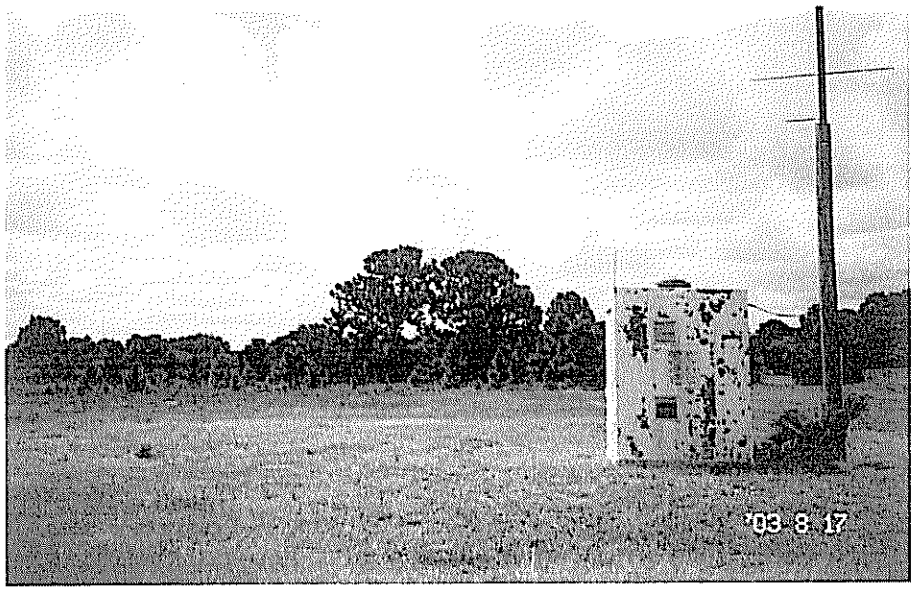


Source: Airport Engineering Co., Inc.
Storm L. Richards and Associates, Inc

Reynolds, Smith and Hills Inc.
Architectural, Engineering. Planning
and Environmental Services
Jacksonville, Florida

Melbourne International Airport
Master Plan Update

Figure 5-10
Geographic Planning Area 1



Source: RS&H

RS&H

Reynolds, Smith and Hills, Inc.

Architectural, Engineering Planning and Environmental Services

Jacksonville, Florida

Melbourne International Airport
Master Plan Update

Figure 5-11

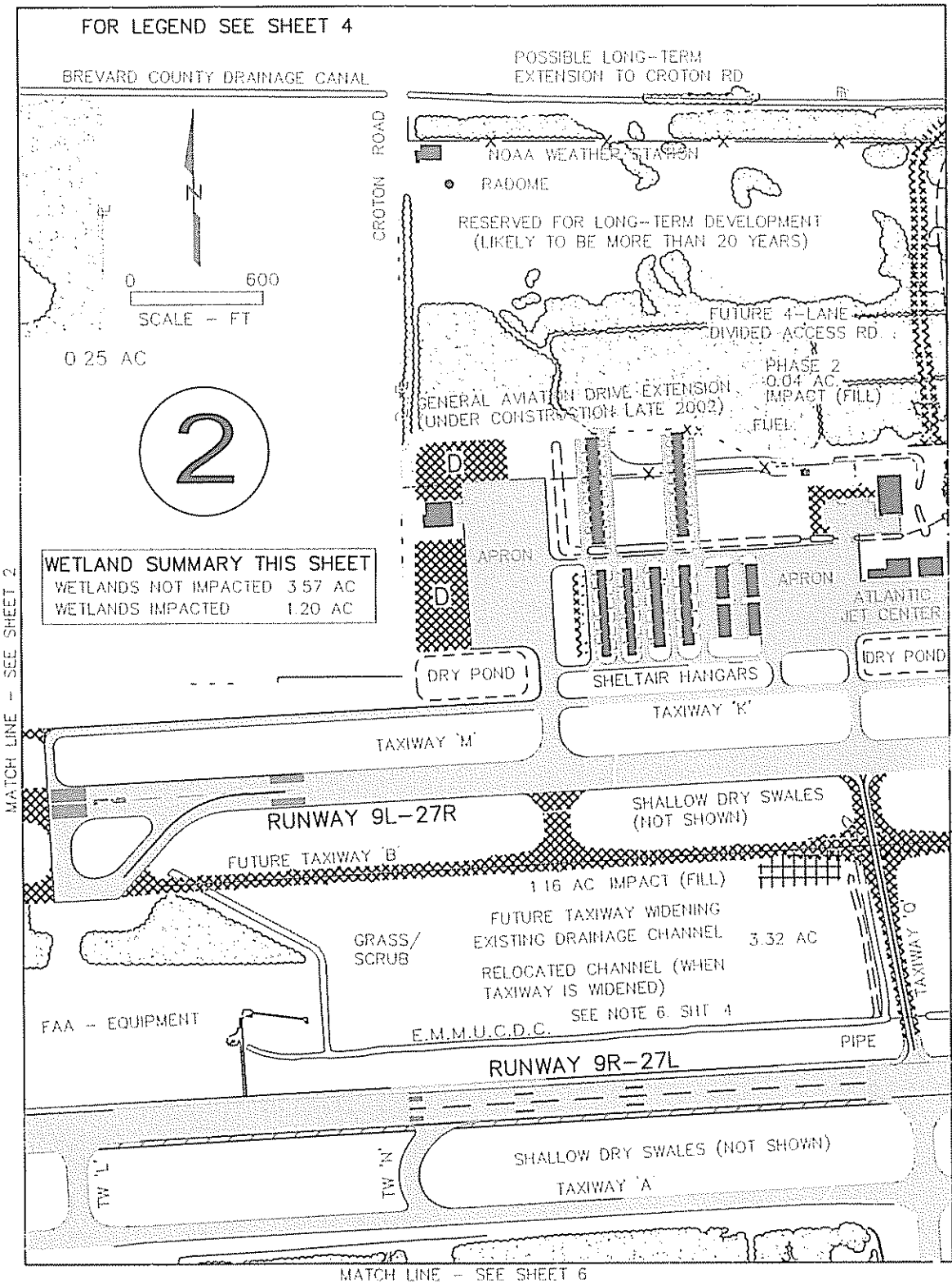
Wetland Areas

5.4.2 Planning Area 2

Planning Area 2 is located in a diverse habitat area with a mixture aviation related developments, runways, taxiways, aprons, aircraft hangars and developable properties located north of the General Aviation Drive extension, see Figure 5.12. Figure 5.13 depicts the view of the cleared area between Runways 9L/27R and 9R/27L, and the view of the apron area in the northwestern quadrant of the Airport. Located within this planning area are various jurisdictional wetlands, and a large tract of xeric oak between Runways 9R/27L and 9L/27R which has the potential to provide habitat for State of Florida protected species. Implementation of the proposed Taxiway "B" would require impacting approximately 1.16 acres of wetlands. An isolated area for mitigation of the impacted wetlands and protected species habitat enhancement area has been identified north of Runway 9L/27R, as depicted in Figure 5.10.

5.4.3 Planning Area 3

Planning Area 3 is predominantly developed with airfield infrastructure, but the addition of new taxiways and apron areas north of Runway 9L/27R present future development opportunities, see Figure 5.14. Specifically, the area north of General Aviation Drive has considerable opportunity for future aviation related development, but contains areas of wetlands and flatwood (FLUCFCS Type #411) which has the potential to provide habitat for State of Florida protected species. Isolated wetland areas also exist between the runways, and east of Atlantic Jet Center. An area east of the proposed Service Road is xeric oak habitat (FLUCFCS Type #421) which contains protected species identified by the USFWS. Figure 5.15 depicts a view of the existing xeric habitat. Prior to any development within this Planning Area, threatened and endangered species surveys should be conducted. Implementation of the proposed Taxiway "B" would require impacting approximately 2.11 areas of wetlands. An isolated area for mitigation of the impacted wetlands and protected species habitat enhancement area has been identified north of Runway 9L/27R, as depicted in Figure 5.10.



Source: Airport Engineering Co., Inc.
Storm L. Richards and Associates, Inc

Reynolds, Smith and Hills Inc.
Architectural, Engineering, Planning and Environmental Services
Jacksonville, Florida

Melbourne International Airport
Master Plan Update

Figure 5-12
Geographic Planning Area 2

Source: RS&H

RS&H

Reynolds, Smith and Hills, Inc.

Architectural, Engineering Planning and Environmental Services

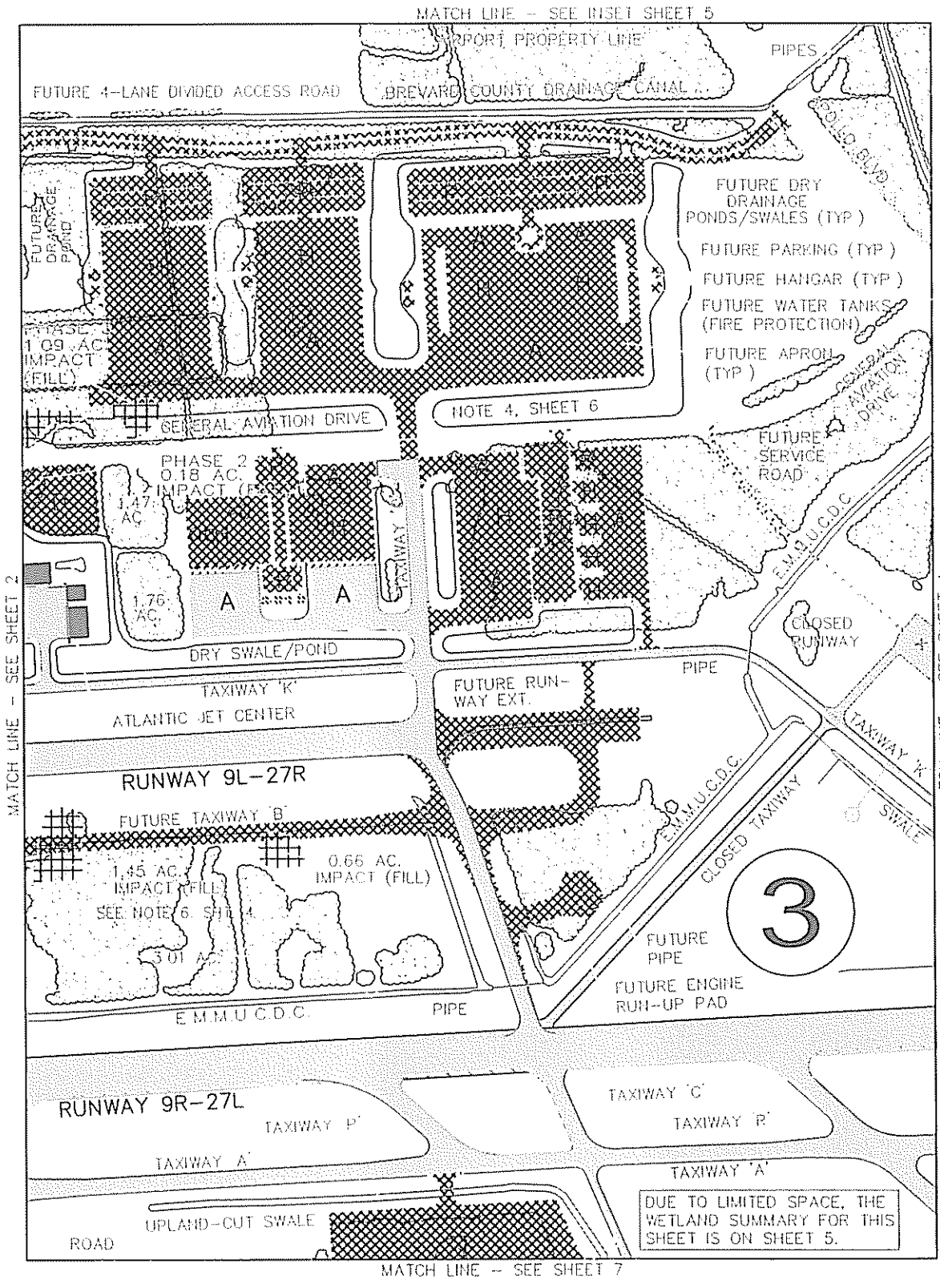
Jacksonville, Florida

Melbourne International Airport
Master Plan Update

Figure 5-13

Wetland Areas

FOR LEGEND SEE SHEET 4



Source: Airport Engineering Co., Inc
Storm L. Richards and Associates, Inc

Reynolds, Smith and Hills Inc.
Architectural, Engineering, Planning
and Environmental Services
Jacksonville, Florida

Melbourne International Airport
Master Plan Update

Figure 5-14
Geographic Planning Area 3

Source: RS&H

RS&H
Reynolds, Smith and Hills, Inc.
Architectural, Engineering Planning
and Environmental Services
Jacksonville, Florida

Melbourne International Airport
Master Plan Update

Figure 5-15
Wetland Areas

5.4.4 Planning Area 4

Planning Area 4 includes the frontage along Apollo Blvd, cargo facility and the current Foreign Trade Zone, see Figure 5.16. This area contains minimal xeric habitat (FLUCFS Type #421), with a majority of the land cleared and maintained. Figure 5.17 depicts the maintained upland habitat and the drainage system looking north at the xeric habitat. No documented wetlands exist in this planning area. Prior to the disturbance of any of the xeric habitat, coordination should occur with the USFWS.

5.4.5 Planing Area 5

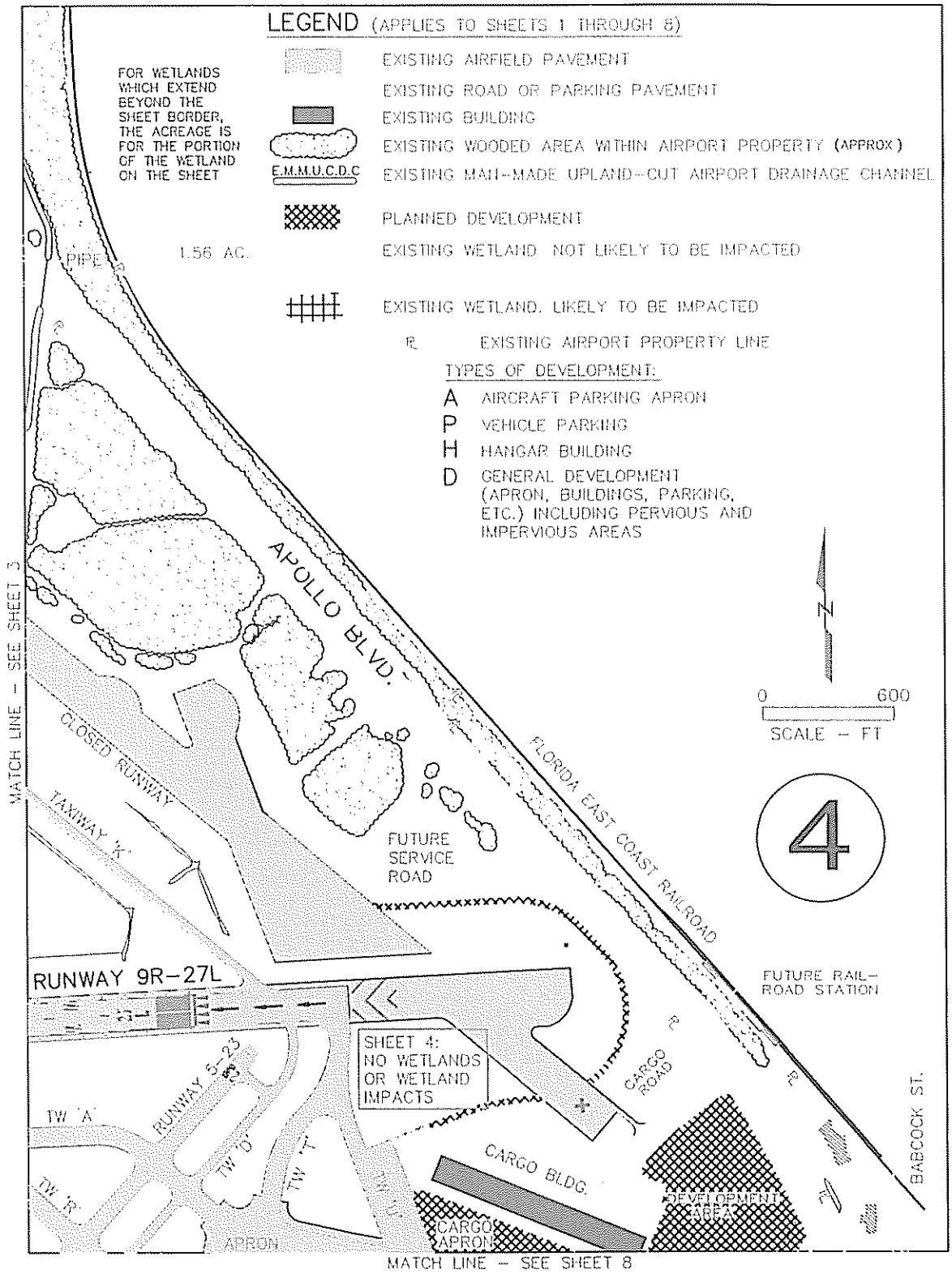
Planning Area 5 is located south of Runway 9R/27L and runs parallel to NASA Blvd, see Figure 5.18. The predominant feature in this area is a newly constructed swale drainage system. Isolated wetland areas exist south of Runway 9R/27L, as well as xeric oak (FLUCFS Type #421)) which have the potential to provide habitat for State of Florida protected species. Disturbance of the xeric habitat requires prior coordination with the USFWS. Figure 5.19 depicts a view of the upland habitat.

5.4.6 Planning Area 6

Planning Area 6 encompasses an area south of Runway 9R/27L, north of NASA Blvd, see Figure 5.20. Isolated wetlands exist in this area, as well as xeric oak (FLUCFCS Type #421) which have the potential to provide habitat for State of Florida protected species. Disturbance of the xeric habitat requires prior coordination with the USFWS. Figure 5.21 depicts the habitat and drainage swale located in this planning area.

5.4.7 Planning Area 7

Planning Area 7 encompasses an area west of the terminal facility and includes various commercial and industrial development, see Figure 5.22. There is no xeric habitat in this planning area. However there are areas of Pine Flatwoods (FLUCFCS Type #411) which will need cutting or maintenance under a scheduled program. Isolated wetlands do exist in this area and prior to development will require coordination with the SJRWMD. There is also a closed landfill in this area which will need to be maintained. Figure 5.23 depicts an view looking east from the perimeter road toward the Control Tower in the background.



Source: Airport Engineering Co , Inc
Storm L Richards and Associates, Inc

Reynolds, Smith and Hills Inc.
Architectural, Engineering, Planning
and Environmental Services
Jacksonville, Florida

Melbourne International Airport
Master Plan Update

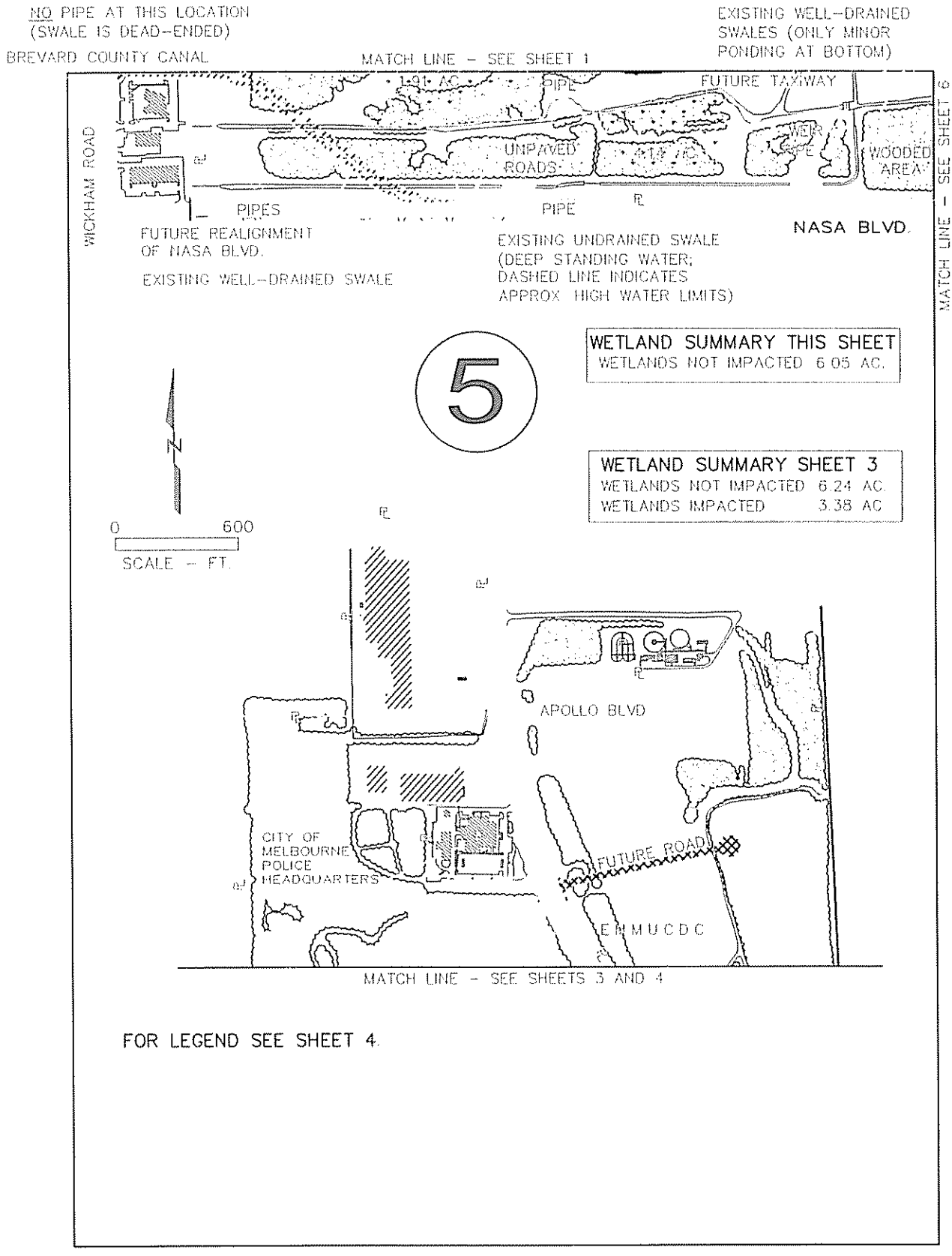
Figure 5-16
Geographic Planning Area 4

Source: RS&H

RS&H
Reynolds, Smith and Hills, Inc.
Architectural, Engineering Planning
and Environmental Services
Jacksonville, Florida

Melbourne International Airport
Master Plan Update

Figure 5-17
Wetland Areas



FOR LEGEND SEE SHEET 4.

Source: Airport Engineering Co., Inc
Storm L. Richards and Associates, Inc.

RS-H
Reynolds, Smith and Hills Inc.
Architectural, Engineering, Planning
and Environmental Services
Jacksonville, Florida

Melbourne International Airport
Master Plan Update

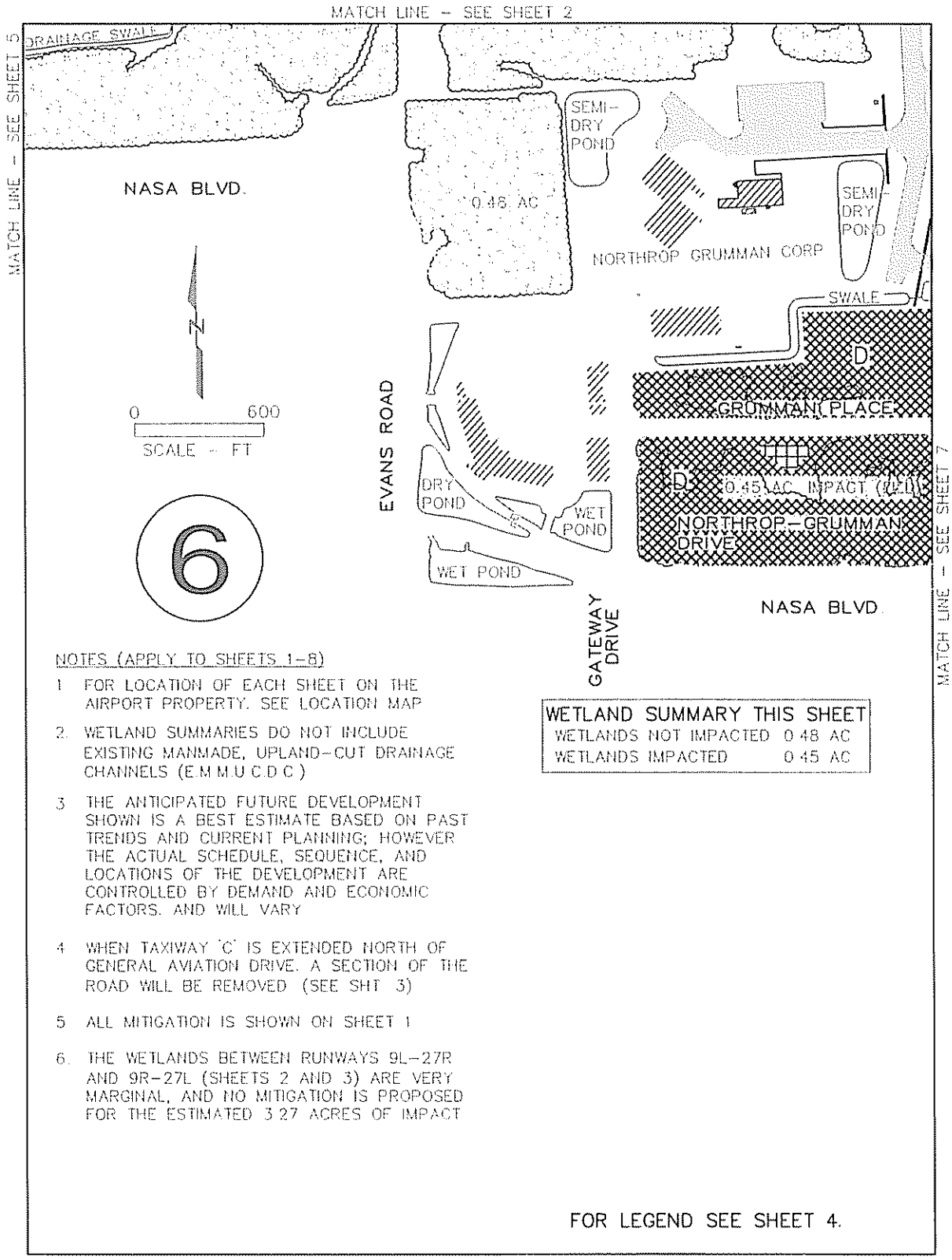
Figure 5-18
Geographic Planning Area 5

Source: RS&H

RS&H
Reynolds, Smith and Hills, Inc.
Architectural, Engineering Planning
and Environmental Services
Jacksonville, Florida

Melbourne International Airport
Master Plan Update

Figure 5-19
Wetland Areas



NOTES (APPLY TO SHEETS 1–8)

1. FOR LOCATION OF EACH SHEET ON THE AIRPORT PROPERTY, SEE LOCATION MAP
2. WETLAND SUMMARIES DO NOT INCLUDE EXISTING MANMADE, UPLAND-CUT DRAINAGE CHANNELS (E,M,M,U,C,D,C)
3. THE ANTICIPATED FUTURE DEVELOPMENT SHOWN IS A BEST ESTIMATE BASED ON PAST TRENDS AND CURRENT PLANNING; HOWEVER THE ACTUAL SCHEDULE, SEQUENCE, AND LOCATIONS OF THE DEVELOPMENT ARE CONTROLLED BY DEMAND AND ECONOMIC FACTORS, AND WILL VARY
4. WHEN TAXIWAY 'C' IS EXTENDED NORTH OF GENERAL AVIATION DRIVE, A SECTION OF THE ROAD WILL BE REMOVED (SEE SHT 3)
5. ALL MITIGATION IS SHOWN ON SHEET 1
6. THE WETLANDS BETWEEN RUNWAYS 9L–27R AND 9R–27L (SHEETS 2 AND 3) ARE VERY MARGINAL, AND NO MITIGATION IS PROPOSED FOR THE ESTIMATED 3.27 ACRES OF IMPACT

WETLAND SUMMARY THIS SHEET	
WETLANDS NOT IMPACTED	0.48 AC
WETLANDS IMPACTED	0.45 AC

FOR LEGEND SEE SHEET 4.

Source: Airport Engineering Co., Inc.
Storm L. Richards and Associates, Inc

RS&H
Reynolds, Smith and Hills Inc.
Architectural, Engineering, Planning and Environmental Services
Jacksonville, Florida

Melbourne International Airport Master Plan Update

Figure 5-20
Geographic Planning Area 6

Source: RS&H

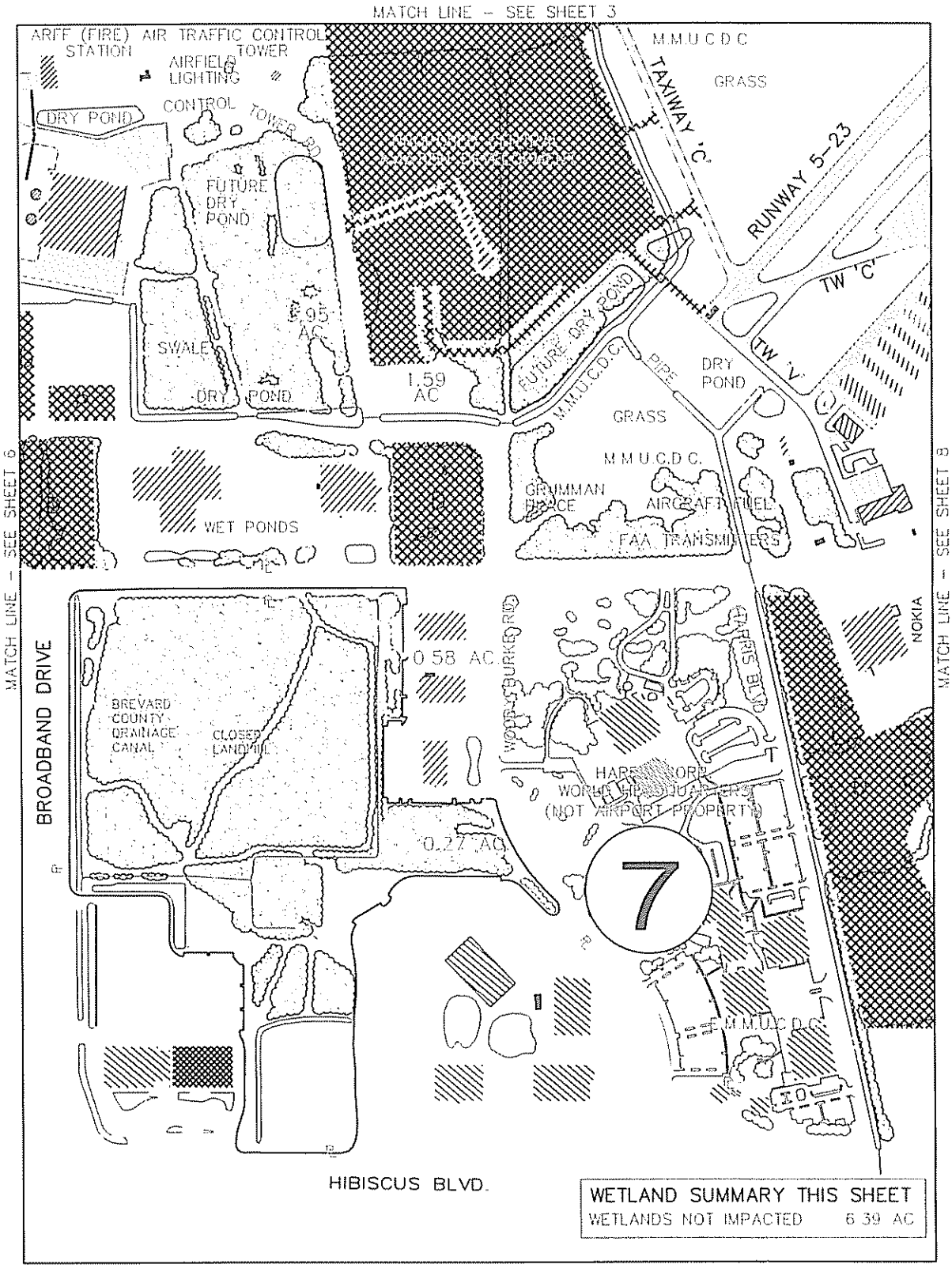
RS&H
Reynolds, Smith and Hills, Inc.
Architectural, Engineering Planning
and Environmental Services
Jacksonville, Florida

Melbourne International Airport
Master Plan Update

Figure 5-21

Wetland Areas

FOR LEGEND SEE SHEET 4.



Source: Airport Engineering Co., Inc
Storm L. Richards and Associates, Inc.

Reynolds, Smith and Hills Inc.
Architectural, Engineering, Planning
and Environmental Services
Jacksonville, Florida

Melbourne International Airport
Master Plan Update

Figure 5-22
Geographic Planning Area 7

Source: RS&H

RS&H
Reynolds, Smith and Hills, Inc.
Architectural, Engineering Planning
and Environmental Services
Jacksonville, Florida

Melbourne International Airport
Master Plan Update

Figure 5-23

Wetland Areas

5.4.8 Planning Area 8

Planning Area 8 encompasses the area of the terminal facility, public parking, a mobile home community and related non-aviation development, see Figure 5.24. There exist very isolated wetlands in this area. Overall, no environmental constraints exist in the planning area for future development.

5.5 ENVIRONMENTAL OVERVIEW SUMMARY

Future airport development may require further analysis and/or coordination in a formal environmental study during preliminary design development. Based on the environmental overview conducted as part of the Master Plan Update effort, no environmental impacts are anticipated with respect to the following categories:

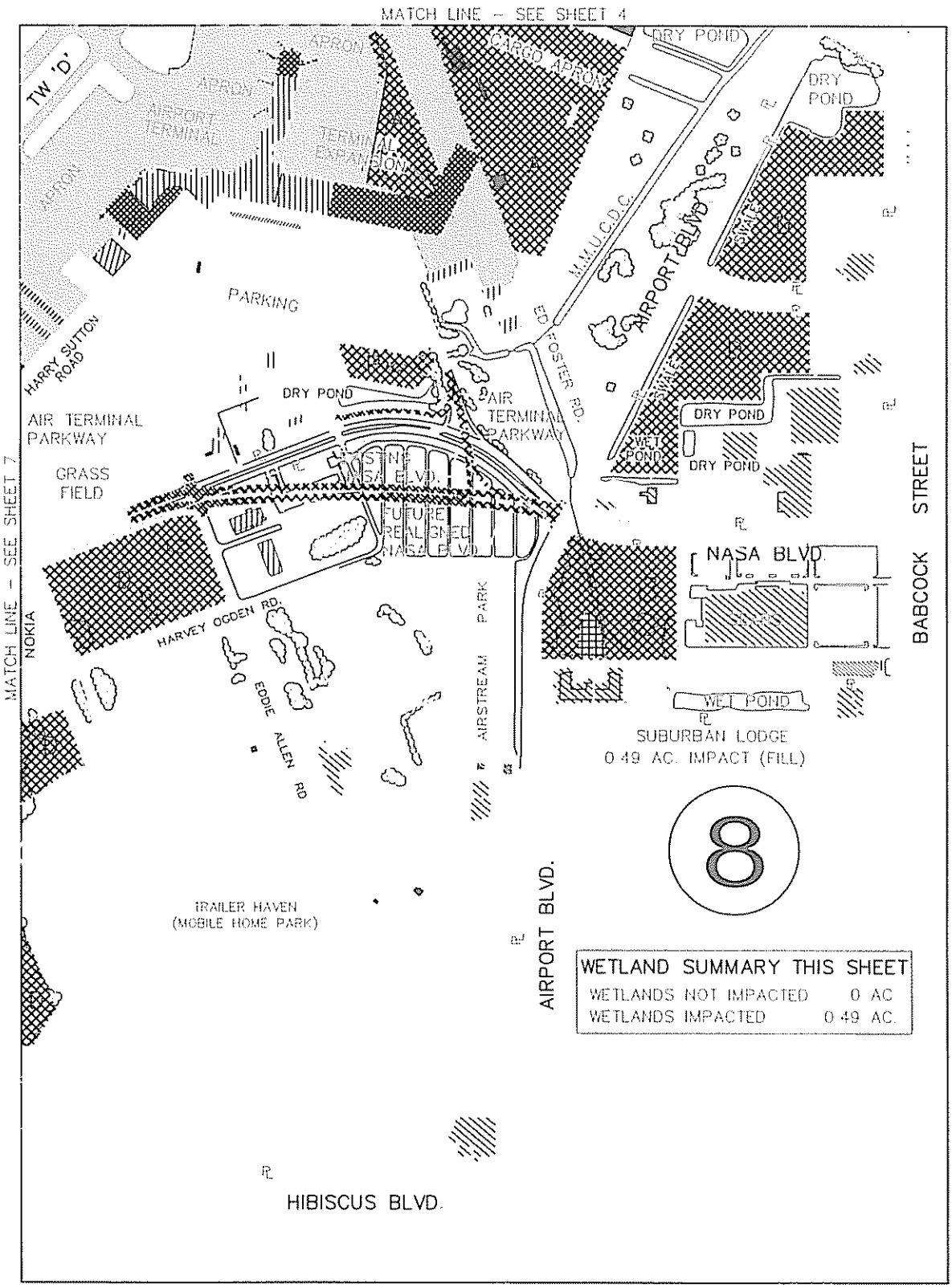
- Section 4(f) lands
- Historic, Archaeological, Architectural and Cultural Resources
- Floodplains
- Coastal Barriers
- Wild and Scenic Rivers
- Prime and Unique Farmlands
- Energy Supply and Natural Resources
- Light Emissions
- Solid Waste Impacts
- Compatible Land Use

Potential environmental impacts are anticipated for the following impact categories and will require further analysis during the appropriate environmental review associated with the development:

- Social Impacts
- Induced Social Impacts
- Air Quality
- Water Quality
- Endangered and Threatened Species
- Coastal Zone Management Program

Likely environmental impacts are anticipated in the following impact categories and will require further analysis during the appropriate environmental review associated with the development:

FOR LEGEND SEE SHEET 4.



Source: Airport Engineering Co., Inc.
Storm L. Richards and Associates, Inc.

Reynolds, Smith and Hills Inc.
Architectural, Engineering, Planning
and Environmental Services
Jacksonville, Florida

Melbourne International Airport
Master Plan Update

Figure 5-24
Geographic Planning Area 8

- Noise
- Biotic Communities
- Wetlands
- Construction

Current environmental requirements would require an EA for the extension of Runway 9R/27L and 9L/27R, as well as development of a replacement crosswind runway for Runway 4/22. Landside projects include the overall improvement or expansion of existing terminal facilities, or development of new facilities for general aviation, corporate aviation and other commercial interests. Generally, landside projects are categorically excluded from formal FAA environmental review. Although an individual project may be categorically excluded from further environmental review, the cumulative effect on the environment of the implementation of multiple projects may dictate that further FAA environmental review, in the form of an EA, may be required. In addition, other environmental studies including Florida Development of Regional Impact (DRI), USACOE and SJRWMD environmental studies may also be required in order to comply with federal, state, regional and local environmental clearance and permitting requirements.