



August 30th, 2005







A Plan for the Use and Management of the

Lower Hillsborough Flood Detention Area

August 30, 2005

Southwest Florida Water Management District Brooksville, Florida



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EXECUTIVE SUMMARY

Ownership and management of the Lower Hillsborough Flood Detention Area (LHFDA) by the Southwest Florida Water Management District (the District) helps the District fulfill all four of its primary responsibilities: flood protection, water supply protection, water quality protection, and natural systems protection. It also makes the lands available for compatible resource-based recreational activities. The District has updated the 1989 management plan to ensure that the management and public use of the LHFDA is consistent with water management and resource protection goals. This updated plan includes 42 specific management actions, compiled in **Appendix 1**, that will provide specific guidance for management and public use of the property.

The District acquired the majority of the 15,964-acre LHFDA in the 1970's to support development of the Four River Basins (FRB) flood control project. Prior to the eventual de-authorization of FRB, some structural components of the project were built on the LHFDA to protect the Cities of Tampa and Temple Terrace from flooding. These included an earthen levee (Levee 112), a water control structure on the Hillsborough River (S-155), and the northernmost segment of the Tampa Bypass Canal (TBC). In addition to the structural components of FRB, the LHFDA protects riverine floodplain wetlands that provide attenuation of flood waters and helps to maintain or enhance water quality in the 13-mile section of the Hillsborough River that flows through the property.

In addition to its importance to regional flood protection, the LHFDA contains the Morris Bridge Wellfield (MBW), which serves as an important regional water supply facility. The Hillsborough River serves as a major water supply source for the City of Tampa downstream of the LHFDA. Water withdrawn from the MBW is pumped to an off-site treatment plant located along the western edge of the property.

Under the original plan, general natural system protection measures were identified for the entire property and specific recommendations were developed for several special protection areas (SPAs) on the LHFDA. Five SPAs were identified in this plan, including flood control facilities; the Morris Bridge Wellfield; a wading bird rookery within the Hillsborough River floodplain; archaeological and cultural sites; and monitoring sites. Special management approaches were designed to protect these areas and prevent incompatible uses.

The LHFDA has been available for resource-based recreational use since the 1970s. Although the District manages recreational use of the Jefferson Road, Washburn, and Oak Ridge Equestrian Areas, the majority of recreational use on LHFDA is managed by Hillsborough County in coordination and under an intergovernmental agreement with the District through the Wilderness Park system, which is comprised of Dead River Park, Flatwoods Park, John B. Sargeant, Sr. Memorial Park (Sargeant Park), Morris Bridge Park, and Trout Creek Park. Due largely to the expanding population around the LHFDA, recreational use pressures have increased since implementation of the 1989 plan. This is reflected in the current classification of the LHFDA as an <u>urban parkland</u>. Existing recreational facilities and/or opportunities on the LHFDA include a wide variety of trail types and uses (i.e. equestrian, hiking, biking), canoe/kayak launch facilities, and camping areas. With 35 miles of existing bike trails and approximately 22 miles of equestrian trails, the LHFDA is a popular destination for trail users. Development of an additional trail that would link the Washburn and Oak Ridge Equestrian Areas is proposed, as are two "ride-in" campsites. Hillsborough County and the District maintain several canoe/kayak launch facilities that provide access to the scenic Hillsborough River State Canoe Trail, and a "paddle-in" camping site is proposed to serve users of this trail. Additional measures to enhance recreational use or maintain a positive user experience are also proposed.

LHFDA also plays an important role in environmental education. The Nature's Classroom program, which is managed by the Hillsborough County School Board, uses a portion of the LHFDA as the site of an environmental education center. Additional facilities are planned to enhance this program.

Land management actions to enhance or maintain natural systems, and the property's potential to support revenue-generating multiple uses, are proposed or evaluated in the management plan. Based on the District's evaluations, a 112-acre Timber Management Zone (TMZ) has been established on the Oak Ridge Equestrian Site.

Security measures for water supply and flood control facilities are identified as increasingly important due to the combination of heavy recreational use and relatively easy access to these facilities. Existing security measures rely primarily on structural methods to secure the facilities associated with water supply and flood control measures. Patrols by District staff, rangers from Hillsborough County, and off-duty police officers under contract with the District contribute non-structural measures to maintain security on the site.

The successful implementation of this plan will require coordination among the various departments of the District, as well as coordination with other public agencies, adjacent property owners, and various private interests. Eleven agencies or private interests with whom the District must coordinate are identified.

INTRODUCTION

The Southwest Florida Water Management District (the District) acquired most of the Lower Hillsborough Flood Detention Area (LHFDA) as part of the flood management project designed by the US Army Corps of Engineers (ACOE) in the 1970's. A management plan was prepared for the LHFDA in 1989. The landscape in which this project area exists has changed drastically since that time, and an update to the plan was warranted. This update also provided an opportunity for input from the public. Stakeholder interviews, GIS analyses, citizen input from a public workshop, field reviews, and communication between District staff and various agencies charged with protecting the resources within or near the LHFDA were considered in this revised plan.

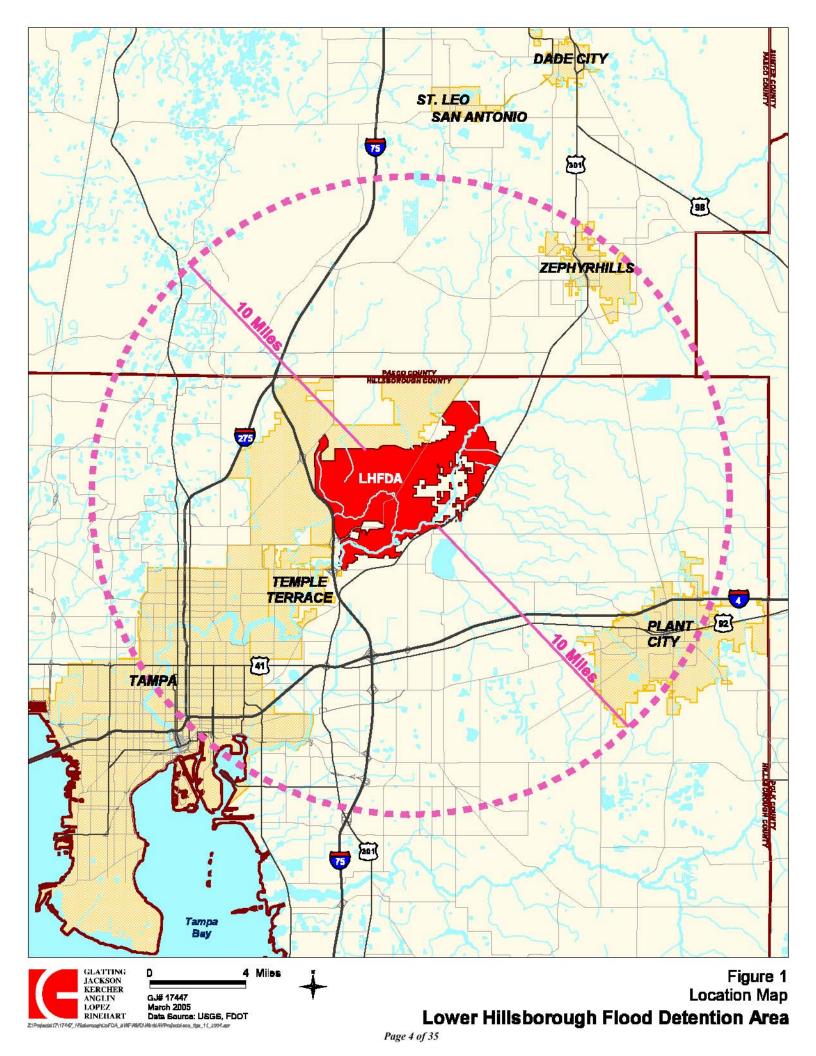
LOCATION

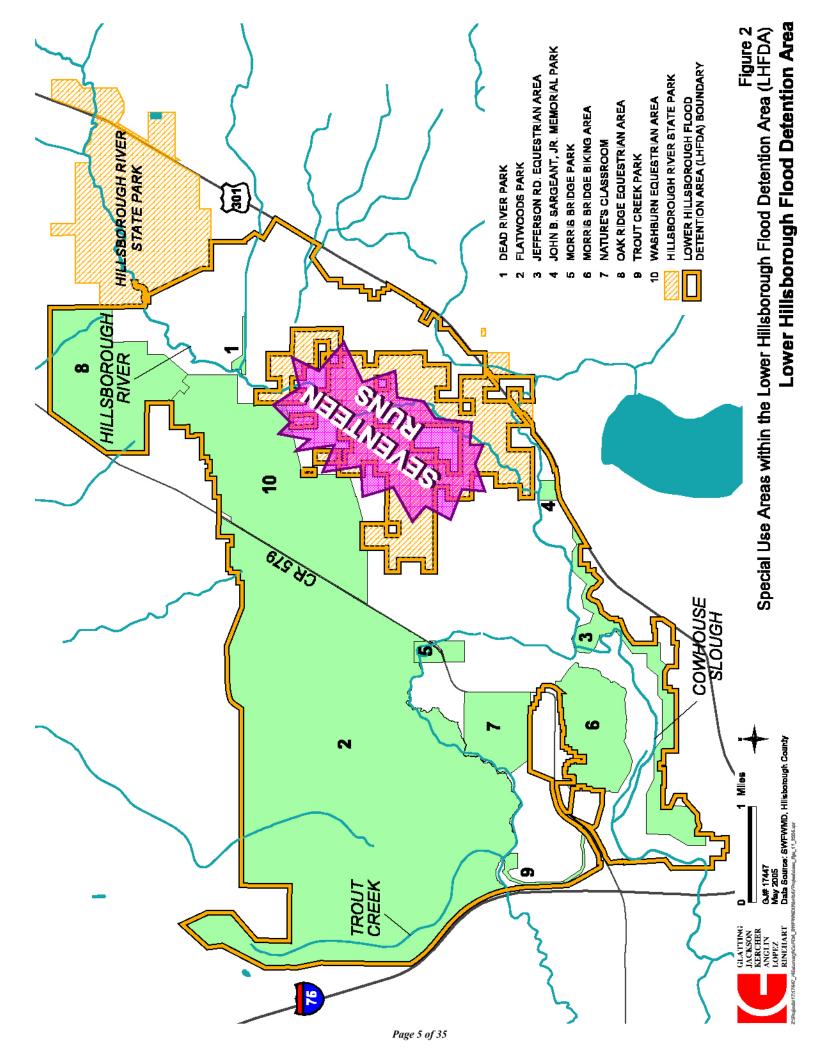
The LHFDA is located in north-central Hillsborough County in a rapidly developing area northeast of Tampa (**Figure 1**). The LHFDA is generally bounded on the west by Interstate 75 (I-75), on the north by suburban residential areas, on the east by agricultural and conservation lands (Hillsborough River State Park), and on the south by State Road 41 (SR 41)/US Highway 301 (US 301) and low density residential. Incorporated municipalities within 10 miles of the project site include the City of Tampa, Zephyrhills, Plant City, and Brandon, Florida (see **Figure 1**).

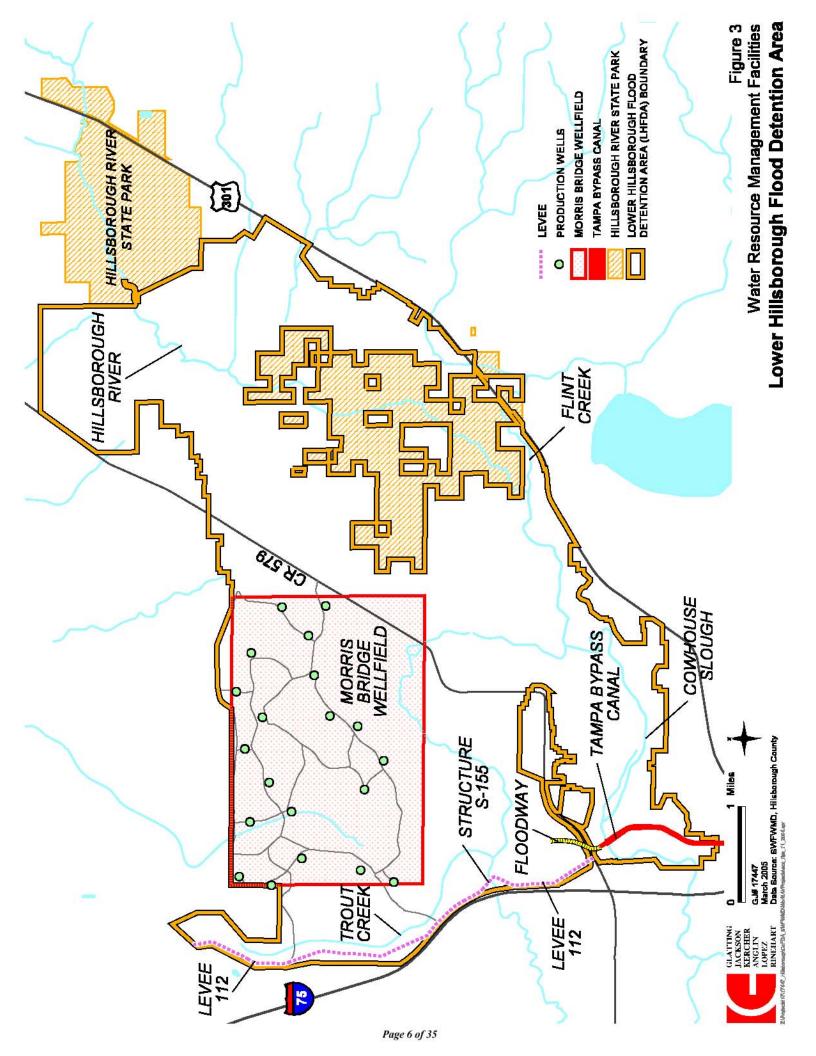
PROPERTY ATTRIBUTES

The LHFDA consists of 15,964 acres of land that are owned by the District (**Figure 2**). Approximately 13 miles of the Hillsborough River occurs within the boundaries of the LHFDA, including a portion of the "Seventeen Runs" section of the river in which the defined channel disappears and water sheetflows through large forested wetlands. The majority of the LHFDA consists of floodplain wetlands associated with the Hillsborough River. Under a multi-agency agreement between the District, Hillsborough County (County), and the ACOE, the County manages five individual park sites (Dead River Park, Flatwoods Park, John B. Sargeant, Sr. Memorial Park [Sargeant Park], Morris Bridge Park, and Trout Creek Park) known collectively as the Wilderness Park and accounting for approximately 7,200 acres of the LHFDA. An approximately 3,000 acre "outparcel" of the Hillsborough River State Park occurs between the Dead River Park and Sargeant Park. Three additional recreational areas, consisting of the Jefferson Road Equestrian Area, the Oak Ridge Equestrian Area, and the Washburn Equestrian Area, are managed by the District for equestrian use. A map depicting these special use areas is included as **Figure 2**.

The lands comprising the LHFDA were initially acquired as part of the Four River Basins, Florida Project (FRB). The FRB was designed by the ACOE to provide a structural approach to control flooding in the region. The District assumed responsibility for land acquisition, and operation and maintenance of the completed works. As originally proposed, the FRB project included structural elements, such as levees, water control structures, and/or permanent "conservation pools." The series of structural elements described in the **Flood Protection** section below were constructed in the LHFDA based on the proposed plan (see **Figure 3**). However, following implementation of the National Environmental Policy Act and a series of reviews to predict







environmental impacts to the LHFDA, a non-structural approach to flood protection that involved protecting existing natural floodplains was adopted for all of the proposed management areas and no additional structural elements were constructed within the LHFDA. The FRB plan included the development of recreational amenities. The District and the ACOE agreed to cost-share the development of these amenities. As part of their recreational use and management agreement with the District, Hillsborough County covers the District's portion of the cost-share agreement.

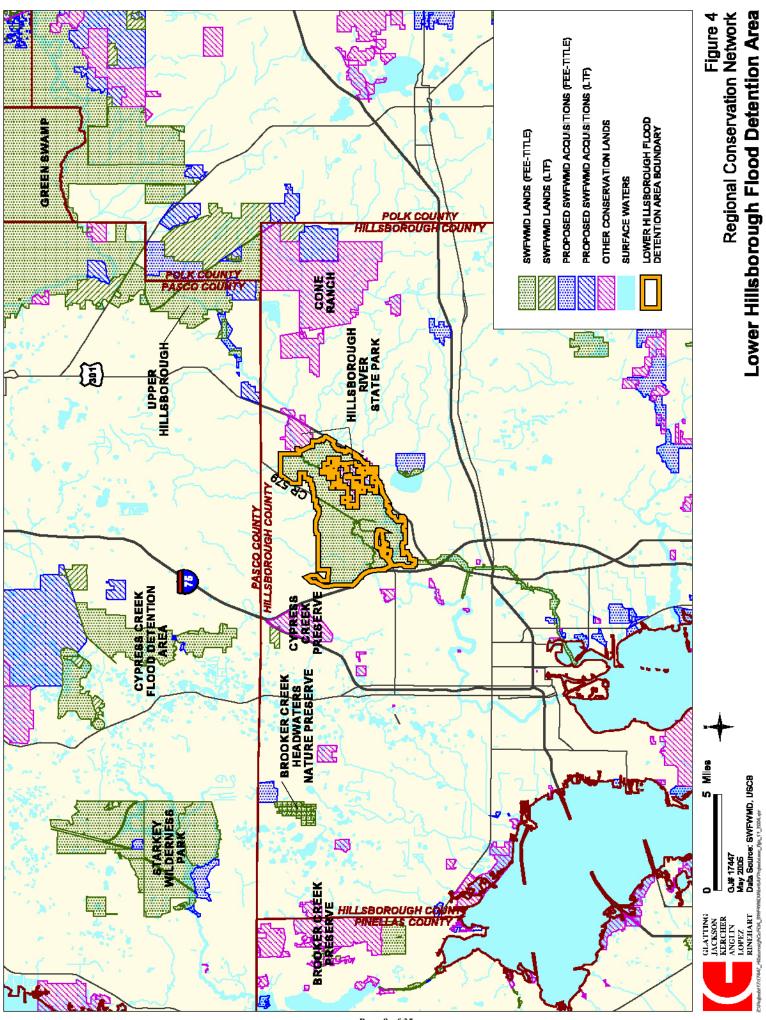
The LHFDA represents the largest inland conservation area near Tampa. In combination with other conservation areas and proposed acquisitions along the Hillsborough River corridor, the LHFDA helps to maintain connectivity with the public conservation lands occurring in the Green Swamp (see **Figure 4**). Since the LHFDA was acquired, much of the land to the north, west, and south has been converted to residential and/or commercial development. The 1989 management plan designated the LHFDA an urban fringe parkland, with between 100,000 and 500,000 people residing within 10 miles. This population has expanded to more than 650,000 people based on US Census data from 2000. Based on current growth rates, it is expected that the area will stay above the 500,000-person threshold for the "urban fringe" designation. The LFHDA is now classified as an <u>urban parkland.</u>

A dense network of roads and residential development occurs around the margins of the LHFDA. Two major roadways pass through or occur immediately adjacent to the LHFDA. Morris Bridge Road passes through the central portion of the LHFDA and serves as the primary means of access into most of the special use areas shown in **Figure 3**, while the second major road corridor, US 301/SR 41, abuts the southern and eastern margins of the LHFDA. A third major regional roadway, Bruce B. Downs Boulevard, is adjacent to the northwest corner of the LHFDA. In addition, a significant network of residential roadways serves the extensive new development occurring around the park. The proximity of these roadways potentially challenges management efforts within the property. These include management of smoke generated by prescribed fire and other urban interface effects, such as invasion by exotic nuisance plant species, feral domestic pets, and/or trespassing or dumping activities.

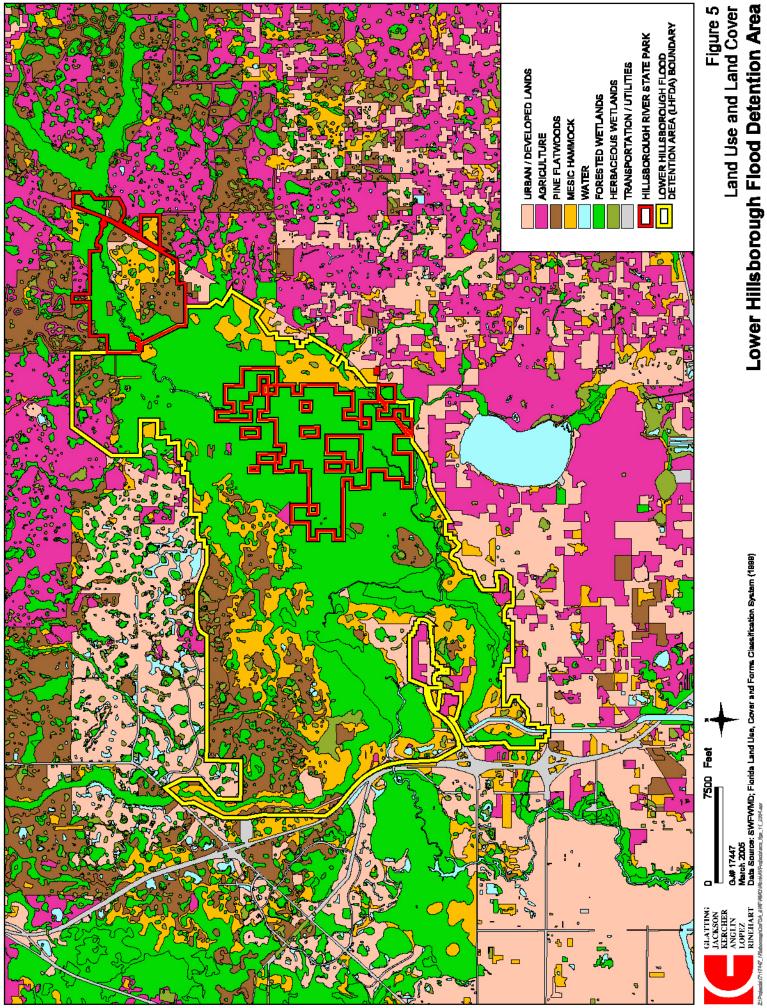
This significant road network system makes the LHFDA readily accessible from the entire Tampa/St. Petersburg Urban Area, which is comprised of a population of more than 2 million people. The existing high population density and anticipated future growth of the area will result in increasing demands for recreational access to the LHFDA.

LAND COVER

The following discussion provides a brief description of the vegetative communities occurring on the LHFDA, which are shown along with general land uses occurring adjacent to the site on **Figure 5**. The map is based on land use and land cover data developed by the District.



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Wetlands

Forested wetlands on the LHFDA include an extensive riverine swamp associated with the floodplain of the Hillsborough River (approximately 7,280 acres or 45% of the property) and smaller areas of cypress swamp (1,670 acres, or 10% of the total). Herbaceous wetlands include a mixture of freshwater marsh and wet prairie and account for 480 acres (3% of the total). Cumulatively, wetlands account for a combined land area of approximately 9,430 acres, or 58% of the LHFDA.

The riverine swamp occurs on frequently flooded soils along the Hillsborough River and Trout Creek. Water levels within the floodplain swamps can change dramatically in association with rainfall and/or the operation of the water control structures in other portions of the site. Dominant trees within the floodplains include bald cypress, black gum, American elm, water ash, red maple, and water hickory.

Cypress swamps generally occur within isolated wetland systems in the flatwoods. These systems are characterized by a canopy of pond cypress or bald cypress, although scattered black gum, dahoon holly, and sweetbay magnolia can also occur. These systems undergo a variety of inundation regimes within and between years. This vegetation association is dependent upon frequent fires that sweep through the adjacent uplands. A variant of this vegetation type, known as mixed hardwoods/conifers, generally occurs within the same flatwoods mosaic as the cypress swamp, but grows in conditions indicative of longer fire return intervals, historical timber operations, and/or different inundation regimes than the cypress dominated areas. Dominant canopy species include red maple, slash pine, sweetgum, sweetbay, red bay, and black gum. This vegetation type occupies less than 1% of the LHFDA.

Freshwater marshes occur throughout the flatwoods mosaic and represent herbaceous dominated wetland systems that typically are flooded throughout most or all of the year. These marshes are dominated by plant species such as pickerelweed, duck potato, sawgrass, maidencane, and water lily. The margins of these wetlands and the forested systems described above often consists of a narrow wet prairie, a wetland type characterized by relatively short and shallow inundation regimes and regular fire to limit canopy growth. A diversity of herbaceous species occur in these areas, including beakrush, St. John's wort, redroot, blue maidencane, and sand cordgrass.

Uplands

Pine flatwoods are the most prevalent natural upland community on the LHFDA. These poorly drained upland areas are typically dominated by an open canopy of longleaf pine or slash pine. The understory is relatively diverse, with dominants consisting of wiregrass, saw palmetto, gallberry, and fetterbush. Pine flatwoods on the site occupy approximately 2,140 acres (13% of the total).

Like other forested plant communities in Florida, pine flatwoods on the site have been subjected to a long history of timber operations that have led to the reduction or loss of the historical canopy structure and coverage. Wildfires that occur after years of fire suppression can eradicate remaining canopy pine trees from a site, creating an open palmetto or wiregrass prairie. Pine flatwoods that lack a normal pine canopy due to timber harvest or wildfire are often referred to as palmetto prairie. Approximately 1,600 acres (10% of the total) of the pine flatwoods on the LHFDA would be considered palmetto prairie due to the absence of a pine canopy. Management efforts by the District will continue to promote the recovery of a pine canopy within the areas of palmetto prairie.

Mesic hammocks occur in areas that do not frequently burn due to soil moisture or position in the landscape. Mesic hammocks are generally dominated by live oak, water oak, laurel oak, loblolly bay, wax myrtle, or other hardwood species. Approximately 3,275 acres (20% of the total) of this vegetation community occur on the property.

Altered Lands

The remainder of the LHFDA consists of various types of altered lands, such as borrow pits, former pastures, or areas improved to support recreational public use. The former pasture occurs primarily in the Oak Ridge Equestrian Area and is dominated by a dense carpet of bahiagrass in the herbaceous layer. This area has recently been established as a Timber Management Zone and has been converted to a pine plantation as described below in the discussion of **Multiple Use Potential**. A large borrow pit occurs in the western portion of the property in an area that was excavated to develop the loop road serving the water supply facilities on the LHFDA. This area has become vegetated with marsh and wet prairie vegetation. Impervious surfaces associated with recreation facilities, water supply facilities, and transportation areas (e.g. the loop road) also represent altered land use types on the LHFDA.

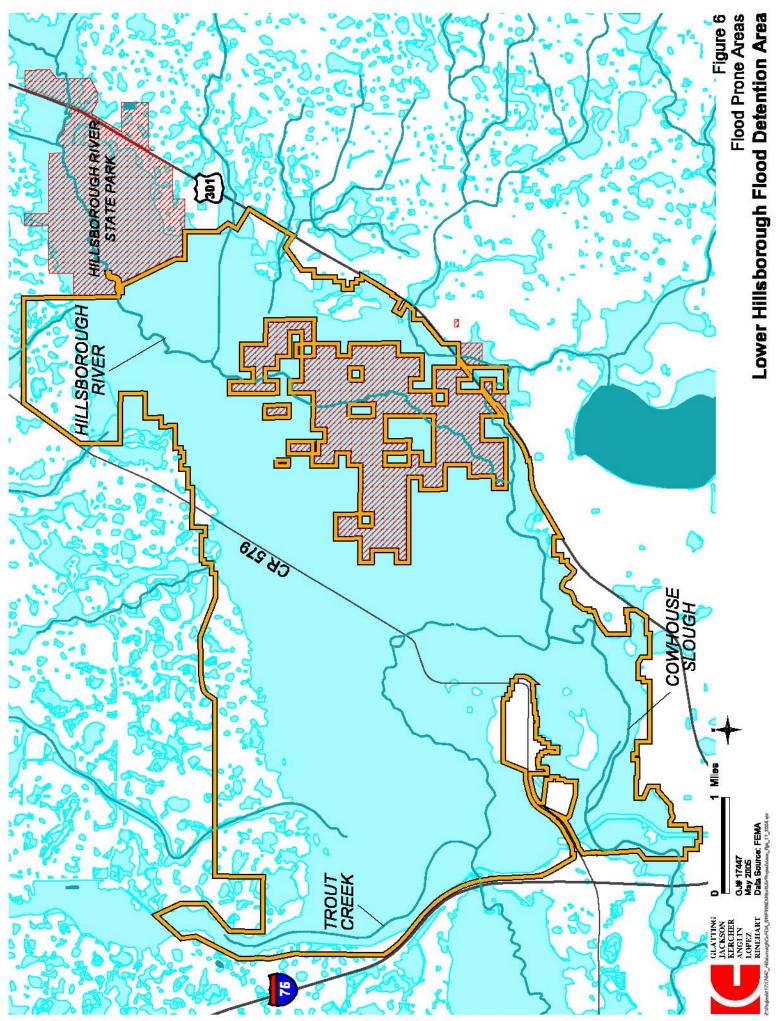
AREAS OF RESPONSIBILITY

The acquisition of land is an important element in the District's efforts to meet its four primary Areas of Responsibility (AORs). These AORs are flood protection, water supply, water quality, and natural systems protection. The following discussion describes the hydrology and natural systems of the LHFDA, its role in regional water management, and the benefits resulting from its protection.

Flood Protection

The vast majority of the LHFDA occurs within the floodplain of the Hillsborough River, while a small portion of the site occurs within the floodplain of Trout Creek (**Figure 6**). The LHFDA was acquired to provide flood control to protect the City of Tampa, City of Temple Terrace and surrounding urbanized areas, a priority that still guides the management of the property. Although this flood control includes significant structural components, the extensive floodplains of the Hillsborough River, Cow House Slough, and Trout Creek provide natural attenuation of floodwaters. In addition, the significant system of forested wetlands and herbaceous marshes in Flatwoods Park store large volumes of rainfall.

To accommodate the FRB project, the District acquired lands around the Hillsborough River up to elevation 40 feet to provide for protection during a 100 year flood. An earthen levee (Levee 112N) was constructed along the western boundary of the LHFDA



from Fletcher Avenue/Morris Bridge Road to Bruce B. Downs Boulevard to allow the LHFDA to be used as a flood control reservoir. A water control structure (S-155) was constructed at the intersection of the levee and the Hillsborough River (SWFWMD 1989). During major flooding events, the District closes this structure to both detain water within the LHFDA (SWFWMD 1989) and divert Hillsborough River flow to Tampa Bay via the Tampa Bypass Canal (TBC), another major structural component of the FRB (see **Figure 3**).

Since inception of the FRB project, the District's responsibilities for regulation and management of water resources have broadened considerably. The District still works closely with the ACOE to implement the flood control mandates of the FRB program. The focus of the flood control program is to protect the nearby Cities of Temple Terrace and Tampa.

Management Actions:

- Ø Prohibit construction activities in the 100 year floodplain, except for operations necessary to maintain the flood control function of the property or minor operations that accommodate natural resource management or resource-based recreational uses.
- Ø Enhance floodplain crossings (e.g. trails, access roads, tram roads) through the construction or modification of culverts, boardwalks, or bridge structures to restore natural hydroperiods and flood storage capacity, where necessary.

Water Supply

The Morris Bridge Wellfield (MBW) is located in the northwest portion of the LHFDA. Tampa Bay Water (TBW) manages the MBW as a potable water supply source. The Hillsborough River also serves as a major water supply source for the City of Tampa downstream of the LHFDA. The City of Tampa constructed a water treatment plant west of the MBW in 1975. A total of 20 production wells tap into the upper Floridan aquifer and have been operational since 1978 (SWFWMD 1989) (see **Figure 3** for location of wells).

In 1978, the District approved annual withdrawal rates of 15 million gallons per day (mgd). In 1998, TBW assumed ownership of the water supply facilities and now operates the wellfield under Consolidated Permit No. 2011771.00. Under the Consolidated Permit, the MBW has a maximum withdrawal limit of 12.5 mgd with an individual wellhead maximum limit of 2.5 mgd. The Consolidated Permit calls for a significant reduction in withdrawal rates (approximately \pm 43%) from the 11 wellfields comprising the TBW managed water supply system, including the MBW, between 2002 and 2007.

A one-lane paved loop road was constructed to provide access to production wells on the MBW. It is also heavily utilized by recreational users of Flatwoods Park. The loop road serving the wellfield was elevated on a berm to provide year-round access and to serve as a dike. Six (6) water retention structures were installed at several locations along the roadway where significant natural drainage ways occurred. An adaptive approach to use

of the structures, which included monitoring water levels and retaining more water in the interior portions of the loop road, was initiated in 1995 by the city of Tampa.

The use of uplands for retaining water was raised as a concern by the District in 1998. As a condition of the Consolidated Permit, a plan detailing proposed alterations to the surface water control structures in the southern portion of the loop road was required to offset adverse environmental impacts from the operation of these structures. This plan was completed in 1999 and included recommendations for both water level monitoring and modifications to the structures and their operating schedule.

Management Actions:

 Ø Continue wellfield monitoring program consistent with Consolidated Permit to monitor effects of groundwater withdrawal on wetlands and the Hillsborough River.

Water Quality Protection and Enhancement

Water quality on the project site is influenced by both development around the site and by activities occurring within the LHFDA. Development alterations include changes in water flow patterns due to construction of impermeable surfaces and channelization. Stormwater detention and treatment facilities subject to District regulations are designed to offset some of these impacts, but non-source nutrient inputs associated with landscaping can have downstream effects on water quality that are not completely offset by stormwater facilities.

Impacts to water quality from resource-based recreation and land management of the site are likely minimal. However, storage of various substances necessary for these management activities (e.g. gasoline, herbicides, etc.) could have some impacts if spills occur. In addition, erosion from inappropriate trail usage may lead to local impacts resulting in degradation of water quality. Water quality monitoring is currently conducted within the Morris Bridge Wellfield by TBW and at several locations along the Hillsborough River by the United States Geological Survey (USGS). The District will continue to coordinate with these groups to address water quality issues for the site (see USGS 2004 for water quality data reports that include the LHFDA).

A 23-mile segment of the Hillsborough River, extending from Fletcher Avenue (SR 582A) just west of the LHFDA upstream to the Withlacoochee River overflow point in Pasco County, was designated an Outstanding Florida Water (OFW) by FDEP in 1995. The OFW designation recognizes the generally high water quality and exceptional recreational and ecological values of the Hillsborough River and affords protection to river water quality through stringent stormwater and wetland protection regulations. Although the OFW designation requires more extensive stormwater treatment for systems draining into the River, it does not necessarily protect against non-point sources affecting water quality. Additional protection for water quality issues is afforded through the Hillsborough County's Wellhead and Surface Water Resource Protection ordinance, which covers the 100-year floodplain of the Hillsborough River. This ordinance includes

measures to ensure compatibility of proposed development or recreational activities with water supply/water quality protection within and adjacent to the LHFDA.

Management Actions:

- Ø Coordinate with adjacent landowners and/or neighborhood associations to maintain stormwater systems that contribute surface water to the LHFDA.
- Ø Continue to coordinate with TBW and the USGS to monitor and maintain water quality on the LHFDA.

Natural Systems Protection

As discussed in previous sections, the majority of the LHFDA supports native vegetation consisting of at least seven different natural community types. These communities provide habitat for a variety of wildlife and plant species, some of which are listed as threatened or endangered by state and/or federal agencies. As the largest conservation landholding in the Tampa area, the site is an important refuge for native wildlife and plant species found within the region. The site helps maintain a continuous corridor for wildlife use along the Hillsborough River corridor extending to the Green Swamp. Long-term management consistent with this plan will maintain the habitat values of the LHFDA for regional wildlife populations.

CONCEPTUAL LAND USE PLAN

LAND USE

Recreation

Planning for the recreational use of the LHFDA began with an analysis of the property's natural and cultural resources and evaluation of existing nature-based recreation activities and facilities. The LHFDA has been open for "resource-based" recreation since the 1970s. This type of recreational activity is consistent with the District policies for general public recreation. A significant portion of the LHFDA is accessible for resource-based recreation and the current patterns of use will continue with limited modifications and improvements. A steering committee comprised of land managers and representatives of various user groups and a public workshop were used to receive public input used to develop this plan.

Recreational uses accommodated on the LHFDA will include:

Boating	Fishing (pier/shoreline)
Hiking	Nature study
Horseback riding	Wildlife observation
Trail bicycling	Camping (primitive, tent)
Trail running	Outdoor nature photography
Canoeing and kayaking	Picnicking

The LHFDA is accessible from a variety of points (**Table 1**). These access points generally provide for limited vehicle access into the property. It is not recommended that additional access points be developed at this time, although existing access points into the Oak Ridge and Washburn Equestrian areas should be enhanced to make it safer for

visitors to enter and exit the sites. Careful consideration and analysis of the property's carrying capacity and user demand should be conducted prior to considering the construction of any new access points.

Special Use Areas	Access Type	Access Location
	Trail Road	
Dead River	Car Parking	SR 301
	Bus Parking	
Flatwoods Park	Trail Road	SR 301
Flatwoods Fark	Car Parking	SR 579
I.D. Sorgoont Sr. Dorle	Trail Road	SR 301
J.B. Sargeant, Sr. Park	Parking	SK 501
	Road	
Morris Bridge	Car Parking	SR 579
	Boat Trailers	
Trout Creek	Trail Road	SR 579
110ut Cleek	Car Parking	SK 579
Jefferson Road	Trail Road	
Jenerson Road	Car Parking	Fowler Avenue
	Horse Trailers	
Oak Ridge;	Trail Road	
Washburn	Car Parking	SR 579
	Horse Trailers	
Hole-in-the-fence Trailhead	Car Parking	SR 579

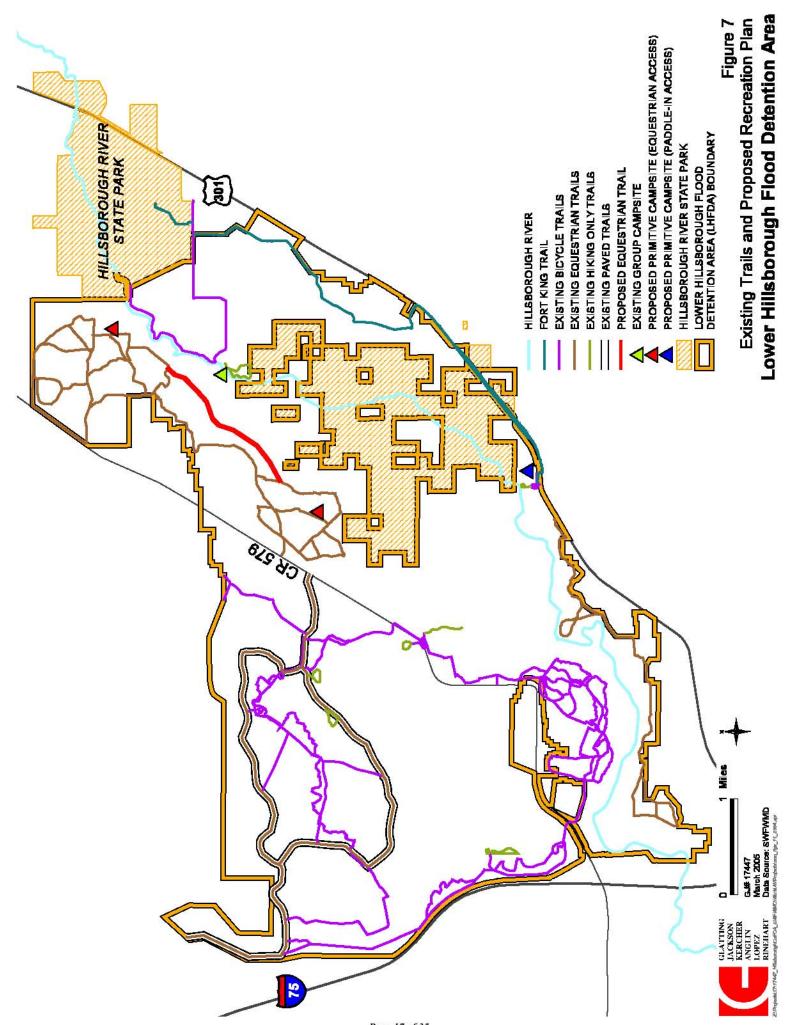
Table 1 – Access Points to LHFDA by Special Use Area

Management Actions:

Ø Coordinate with Hillsborough County to enhance ingress and egress to the Oak Ridge and Washburn Equestrian Area to make it safer for users to access these sites.

The LHFDA offers a wide variety of trail types and uses throughout the property (see **Figure 7**). Different user group associations, such as the Wilderness Trail Association and the South Creek Foxhounds, help maintain the trails in conjunction with the District and the County.

While the separation of users with the highest potential conflicts is generally considered a good design objective (FDEP 2000), it means that a larger number of trails need to be created, monitored and maintained. During initial trail formalization within the LHFDA, the District accommodated requests to separate uses onto different trail systems for equestrian and biking uses. The Morris Bridge Bicycling Area, the Jefferson Road Equestrian Area, and the Oak Ridge and Washburn Equestrian Areas were established to separate these uses. The current trail system provides an appropriate separation between users with the highest conflict potential. All designated trails are available for hiking.



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The development of any new trails will require the demonstration of a clear need for the trail and ways to minimize adverse impacts. Any new trails will be unpaved, unless warranted by appropriate research and surveys, and will be located to minimize impacts to sensitive environmental or cultural features. Boardwalks will be used when necessary to provide crossings through wetlands or across creeks. Portions of existing trails may be closed or re-routed to protect sensitive resources. Where appropriate, trails should be planned and designed to accommodate all-terrain type wheelchairs. New or re-routed trail locations will be coordinated by District staff in consultation with affected user groups.

Equestrian Trails

The Oak Ridge and Jefferson Road Equestrian Areas provide approximately 22 miles of marked trails that are very popular with equestrians. Horse-drawn buggies are allowed along the Oak Ridge trails with a special use permit. Most of the equestrian trails are looped to provide a ride that does not require return trips on previously used trails.

Representatives from local riding clubs repeatedly suggest that longer loop trails be developed to enhance the riding experience. While the current Florida Statewide Comprehensive Outdoor Recreation Plan (2000) does not specify minimum lengths for equestrian trails, rider experience is generally enhanced by the availability of longer trail loops. The District will evaluate the addition of another equestrian trail between the Oak Ridge and Washburn Equestrian Areas to provide for longer rides (see **Figure 7**). This proposal is based primarily on consideration of user experience and not based on a known deficiency of trail miles.

The District will evaluate the construction of small "ride-in" camp sites capable of accommodating 3-5 campers at up to two locations within the Oak Ridge and/or Washburn Equestrian Areas (see **Figure 7**). These would be isolated and primitive sites with minimal facilities such as hitching posts, tent pads, a fire ring and a picnic table. Users would be required to pack-in and pack-out all materials and supplies. This would provide a unique experience in the LHFDA that is not found on other public lands in the Tampa Bay region.

Management Actions:

- Ø Evaluate an additional riding trail between the Oak Ridge and Washburn Equestrian Areas to provide an opportunity for longer trail rides.
- Ø Evaluate a maximum of two primitive campsites in total capable of accommodating 3-5 campers accessible via horseback and subject to special use permits in the Oak Ridge and/or Washburn Equestrian Areas.

Bicycling Trails

The LHFDA is a major destination for trail bicycling enthusiasts. The existing 35 miles of off-road bicycle trails are primarily single-track trails with a well-groomed, natural surface. Riding experiences vary from an easy ride for beginners to a more technically challenging trail for more experienced riders.

A variety of user impacts is evident when analyzing the existing trial system. These range from loss of vegetative cover to erosion and sedimentation. The District will coordinate with Hillsborough County and affected user groups to establish criteria for monitoring and managing impacts along trails. Guidelines should be created that could justify the closure of trails, as necessary, to allow for impacted areas to rejuvenate.

Management Actions:

Ø In coordination with Hillsborough County and local user groups, establish criteria for monitoring and control use of existing trail corridors.

Canoeing and Kayaking

The LHFDA encompasses approximately 13 miles of the scenic Hillsborough River, which comprises a portion of the Hillsborough River State Canoe Trail. A large portion of the Hillsborough River within the LHFDA is suitable for canoeing during a majority of the year. Hillsborough County and the District maintain several facilities along the river for launching canoes and kayaks. The river within the LHFDA is not suitable for large motor boats. Maintenance efforts to remove dead-falls and seasonal changes in the water level of the river affect accessibility for canoes, kayaks, and small motorized boats. The District does not anticipate that additional facilities will be required to accommodate canoeing and kayaking.

User groups have suggested that the trail marking system should be enhanced to better allow users to better orient and locate themselves on the river. An enhanced trail marking system would be especially beneficial during periods of high water levels where the main channel of the river may be difficult to locate within the flood plain. The District will encourage Hillsborough County and Hillsborough River State Park to evaluate potential trail marking enhancements for the Hillsborough River State Canoe Trail within the LHFDA.

Management Actions:

Ø Encourage Hillsborough County and Hillsborough River State Park to evaluate potential trail marking enhancements for the Hillsborough River State Canoe Trail within the LHFDA.

Camping

Hillsborough County maintains one group camp facility at Dead River Park. This existing site can accommodate six to thirty (30) campers and provides picnic facilities and a bathhouse. Permits are required to use this site. The District currently maintains a group camp facility in the Upper Hillsborough Preserve. Both Hillsborough County and the State of Florida offer group facilities on different parklands in the region. The District does not anticipate that additional facilities other than those described below will be required to accommodate group camping facilities on the LHFDA.

Consistent with an agreement between the ACOE and the District, the construction of a cabin area and campground within Flatwoods Park is anticipated beginning in the fall of 2005. The District will construct the infrastructure, including roadways, sidewalks, parking areas, connecting paths, pedestrian bridges, water and sewer systems, bath

houses, and picnic shelters. The County will construct and operate the cabins and primitive camping areas. The District's portion of this non-recurring expense has been budgeted as part of the Water Management Lands Trust Fund. It is anticipated that in the future the ACOE will reimburse the cost incurred by the District for constructing these improvements.

The District will coordinate with Hillsborough County to develop a primitive campsite at Sargeant Park capable of accommodating 3 to 5 paddle-in campers that would be available for use by special permit from the County (see **Figure 7**). Users would be required to pack-in and pack-out all materials and supplies. Establishment of this camping site will help to reduce the incidence of unauthorized camping in the Seventeen Runs and other portions of the LHFDA.

Management Actions:

- Ø Construct the infrastructure of Flatwoods Park campground and cabin area.
- Ø Coordinate with Hillsborough County to develop a primitive campsite at Sargeant Park capable of accommodating 3 to 5 paddle-in campers that would be available for use by special permit from the County.

Managing Recreation Impacts

Some environmental impact is an inevitable consequence of recreation use. Recreation use impacts include impacts on soils, vegetation, wildlife, water quality and cultural resources. Monitoring of recreation use is required to provide an objective qualitative or quantitative record of resource conditions over time. Indicators and standards should be developed as part of a comprehensive framework for managing recreational use on the LHFDA. These standards establish the boundary between acceptable and unacceptable conditions, providing a reference point for evaluating future recreational uses. Impacts to problem areas can be reduced by educating users, re-routing use, providing access to alternative areas, and prohibiting use. The District will coordinate with Hillsborough County to evaluate the potential effectiveness of alternative strategies in comparison to their management costs (i.e. staffing and funding) and visitor costs (i.e. financial burden and reduced quality of recreation experiences).

Opportunities for Environmental Education

Approximately 365 acres of the LHFDA (see **Figure 2**) are leased to the Hillsborough County School Board (HCSB) for the Nature's Classroom program. This program has facilities on only a small portion of the 365 acres. The District manages the remainder of the land through prescribed fires in the upland portions of the site as well as restoration activities such as the replanting of longleaf pines in previously timbered areas. The entire site is used as an outdoor classroom to educate middle-school children in the county (Hillsborough Education Foundation 2003). Funds are being raised to establish an endowment for the program.

Facilities for the program are located along the Hillsborough River. Several existing facilities, including animal enclosures used in the educational program, lie within the floodplain of the Hillsborough River and are proposed for replacement under the HCSB

plan for the site. All proposed facility development changes have been coordinated with the District and will meet OFW standards.

Management Actions:

Ø Continue to coordinate with the Hillsborough County School Board to ensure that any future renovations to the Nature's Classroom facilities will meet OFW standards.

Multiple Use Potential

In 1996, the District began to evaluate different alternatives for generating revenue on District-held lands to ensure that a continuous source of funding to support land management would be available. Multiple use activities, such as grazing leases and timber production, were evaluated for existing altered areas. The results of this analysis for all District-held lands led to the designation of more than 8,000 acres of TMZs where sustainable silviculture is practiced to provide a continuous revenue stream to support land management activities. Additional lands have been planted in pines and designated as TMZ since the initial analysis. Natural stands of pine and other native overstory species are not harvested as a source of revenue, but are managed to maintain or restore environmental function and viability.

One TMZ has been designated on the LHFDA. This 112-acre portion of the Oak Ridge site consisted of improved pasture prior to the planting of slash pine in 2000. Normal thinning harvests will take place within this area once the slash pines reach merchantable sizes. This TMZ will be managed in perpetuity as a pine plantation, although the goal will be to create a multi-age/old growth stand canopy structure within the plantation over time. No additional potential TMZ areas have been identified or planned for the LHFDA. No appropriate sites for grazing leases occur on the LHFDA.

Management Actions:

Ø Manage the Oak Ridge TMZ to create a multi-age stand canopy structure, while providing revenue generation for the District.

Security

Security is a significant issue affecting management of the water supply and flood control facilities on the site due to the intensity of recreational use and relative ease of access to these facilities. Security on the site will be maintained through a combination of means including structural methods (e.g. fences, sirens, cameras), District and County patrols, limitations on access, and volunteer citizen participation. As recreation uses increase on the site, additional structural security devises may be need to prevent public access from significant flood control or water supply facilities.

Security concerns on the property include unauthorized ATV access and illegal camping along the Seventeen Runs portion of the Hillsborough River. If serious breaches of security associated with these activities or other unauthorized activities increase in severity, the District will consider entering into a contractual agreement with professional security services to maintain additional patrols on the property. Other methods, such as additional fencing or camera surveillance, may also be evaluated as necessary to remediate significant security concerns.

Management Actions:

- \varnothing Evaluate the need for additional bollards or fencing to limit vehicular access along the levee.
- Ø Maintain perimeter fencing to control access and limit unauthorized activities on the LHFDA.
- Ø Coordinate with HRSP for patrols in the Seventeen Runs area and in portions of the LHFDA adjacent to the HRSP.
- Ø Maintain an informational kiosk or signage to inform the public of permitted uses, current trail conditions, and to promote safe use of the property.
- Ø Supplement existing security force through contractual agreements with public or private parties, if needed.

REGIONAL LANDSCAPE-LEVEL MANAGEMENT ISSUES

Changes in adjacent land use have affected the functions of natural systems in the LHFDA. These changes have affected the long-term viability of the natural resources, complicated land management, and limited the ability to purchase lands that would add to the total area under protection and management. Though monitoring, control, and remediation of these factors may be mostly outside of the purview of District personnel in charge of resource management of the LHFDA, they are critical to the long-term viability of the natural systems and regional wildlife found in Hillsborough River system.

The LHFDA serves as a significant refuge for regional wildlife. Maintaining connectivity to other conservation areas (such as Withlacoochee State Forest and the Green Swamp Wilderness Preserve) is important for long-term viability of these wildlife populations. Acquisitions by the District under the existing acquisition program in both lands adjacent to the LHFDA and within connections between the LHFDA and other conservation areas will enhance the protection of natural resources on the property. Continued emphasis on maintenance of natural system connectivity will contribute to the protection and management of natural resources on the LHFDA. Maintaining connectivity and viability of the LHFDA as part of a regional network will require partnerships with other agencies to limit conflicts and promote compatible uses in lands adjacent to the LHFDA. Therefore, the District will:

- ∉ Continue to educate adjacent landowners about management actions (particularly fire) that will be implemented by the District to sustain native biological diversity,
- ∉ Work with local governments to ensure compatible use of adjacent private lands that would affect the LHFDA, such as the development of buffers or clustered development to retain green space along the property line.
- ∉ Work with the Florida Department of Transportation (FDOT) to construct appropriate wildlife underpasses during future road improvements for roads that would affect wildlife movement. These would include Morris Bridge Road, US 301, US 98, and I-75. Mitigation for impacts to lands in the LHFDA should be provided in other portions of the Hillsborough

River Basin in a manner that complements the regional protection of the Basin.

SPECIAL PROTECTION AREAS (SPA)

Flood Control Facilities

The original function of the LHFDA was to provide flood control for the Hillsborough River watershed. A primary concern for flood control facilities is maintaining security of the S-155 flood control structure and the levee in conjunction with public use of the property. Continued coordination to locate (or move existing) recreation facilities away from the flood control structures will contribute to the security, but increased surveillance may also be necessary.

Management Actions:

- Ø Maintain security of flood control facilities through upkeep of structural security features (e.g. fences, warning devices, etc.).
- Ø Carefully consider proposals for any new recreational facility development adjacent to existing flood control structures to limit potential security concerns.

Wading Bird Rookery

A wood stork rookery was known to occur north and east of Nature's Classroom on the west side of the Hillsborough River in 1989. This colony was last monitored in the late 1990s. Wood storks are listed by the federal and state government as an endangered species and regulations concerning the protection of this species primarily consist of avoiding impacts to rookeries. Preservation of the extensive floodplain wetland communities (including its natural hydrology) around this relatively remote rookery location will contribute to the protection of habitat for wood storks in this rookery.

Management Actions:

Ø Assure that activities on the LHFDA do not negatively affect the long term habitat suitability for rookery use.

Morris Bridge Wellfield

The protection of the MBW will require prevention of groundwater contamination as well as protecting the structural components of the wellfield. The zone of contribution for the MBW extends beyond the LHFDA and includes several areas that have undergone residential development. The District will continue to coordinate with Hillsborough County to ensure that new developments within the zone of contribution of the wellfield meet the conditions of the County's Wellhead and Surface Water Resource Protection ordinance. Significant sources of potential contamination include the spillage of contaminants on Morris Bridge Road, wastewater facilities, and water quality degradation associated with adjacent residential development.

Management Actions:

- Ø Coordinate with Hillsborough County when land use alterations are proposed within the zone of contribution of the wellfield.
- Ø Maintain wastewater treatment facilities on the site, as possible, to limit potential groundwater contamination.

Archaeological/Cultural Resources

A number of archaeological and cultural sites are known to occur on the LHFDA, especially in the higher elevations between the Hillsborough River and Cow House Slough. Several studies associated with the construction of I-75 and the FRB have located probable sites on the property (SWFWMD 1989). Although some of the sites have been deemed significant, the status and significance of the majority is unknown. All archaeological sites at the LHFDA will be treated as SPAs and will be monitored to prevent looting and/or disturbance. Land management activities, recreational improvements, or activities that result in impacts to these sites will be prohibited, unless the District can protect these sites through other means. The LHFDA will be available for supervised study by professional archaeological researchers. Proposals to conduct such research will be reviewed on a case-by-case basis and will satisfy any requirements or protocols dictated by the Division of Historical Resources of the Florida Department of State (DHR). The District, at its discretion, may solicit proposals to conduct archaeological/cultural reviews when considered necessary to protect important resources.

Management Actions:

- Ø Design new site improvements to avoid disturbance or alteration of known archaeological/cultural resources.
- Ø Mitigate impacts to existing archaeological resources that have been damaged by looting.
- Ø Monitor archaeological sites on an as-needed basis for evidence of looting and prosecute violations vigorously.
- Ø Permit archaeological research on the LHFDA that is consistent with protocols established by the DHR.
- Ø Document and register newly discovered archaeological sites with the DHR.
- Ø Solicit proposals for archaeological/cultural research, if necessary, to protect important resources.

Monitoring Stations

An extensive monitoring program is required on the MBW by the Consolidated Permit for TBW. Monitoring efforts have occurred on the site since the initiation of the water withdrawals in 1978 and include hydrological monitoring and ecological monitoring at a variety of sites. Most wetland monitoring stations are located away from existing recreational and public use areas on the MBW and have not generally been subject to vandalism or unauthorized disturbance. When vandalism has occurred, the affected station has been re-established. **Management Actions:**

- Ø Coordinate the establishment of any new monitoring stations with land managers to limit potential conflicts with land management activities.
- Ø Design access routes to monitoring plots to limit damage to sensitive areas (e.g. wetlands, creeks) from access vehicles.
- Ø Limit public recreation activities and facilities in proximity to monitoring locations.

LAND MANAGEMENT

Land management is a critically important activity conducted by the District to maintain the natural functions of the LHFDA. The practices and resource protection measures employed to manage the natural resources on the LHFDA are discussed below.

Prescribed Fire

Prescribed fire is the most important land management tool available to Florida land managers. Pine flatwoods, cypress wetlands, and herbaceous wetlands totaling 4,290 acres (26% of the site) are adapted to frequent fires that stimulate growth and reproduction in a variety of plants native to these systems. Generally, these systems are dependent upon recurring fire for long-term viability. Historical patterns of fire initiation, primarily consisting of aboriginal and/or lightning-induced fires, are no longer sufficient to maintain many of these fire dependent communities. Instead, fire occurring under prescribed conditions is used to meet the fire needs of these fire-maintained communities. Long-term application of prescribed fire will also reduce the potential for catastrophic fires that could have dramatic effects on adjacent landowners, especially given the extensive urbanization of the land surrounding the LHFDA.

Due to the size and scope of a typical prescription burn plan, a detailed prescribed burn strategy will not be included within this management plan. Specific burn plans for the fire maintained communities on the LHFDA will, wherever possible, maintain compliance with the goals of this management plan. A prescription fire program already exists for the property and includes prescribed fires on an approximately 3-year return interval to mimic historical fire activity. Limited winter burning is a component of the fire prescription, primarily on the urban/wildland interface adjacent to existing residential areas that require more sensitive fire prescriptions.

Due to extensive urban and suburban development, and the extensive road network in which the LHFDA is enmeshed, smoke management associated with the prescribed burning program is a significant issue. Generally, prescription fires are conducted under narrowly defined conditions (e.g. wind direction and speed, fuel moisture, air temperature, etc) and these restrictions limit the potential time frames for burning. The prescribed fire program is also complicated by off-road trails, which act as firebreaks that either stop or slow the spread of prescribed fire.

Heavy recreational use increases the potential for conflicts between the prescribed burning program and visitors to the LHFDA. Informational signage and trail closures for trails affected by prescribed fire will be used to prevent unauthorized recreational use during a burn. Extra caution will be used when conducting prescribed fires on the weekends. Additional advisory notices both in the park and outside of the park (i.e. through radio, television) may be necessary to limit potentially dangerous conditions to the public.

Management Actions:

- Ø Implement existing prescribed fire program with prescription parameters designed to limit the escape of fire from designated burn areas and avoid smoke that pervades smoke-sensitive areas.
- Ø Distribute educational literature that emphasizes the benefits of prescribed fire to recreational users and adjacent landowner.

Wildlife Management

The LHFDA contains a number of plant communities that provide important habitat for listed wildlife species. In addition to the wood stork rookery noted as an SPA, a number of other listed species occur on the site. Listed wading bird species use the herbaceous and forested wetlands on the site for foraging. Gopher tortoises are known to occupy much of the natural uplands on the site, especially drier portions of the pine flatwoods. At least two gopher tortoise commensal species, the gopher frog and eastern indigo snake, are known to occur on the project site. Other listed gopher tortoise commensal species, such as the Florida mouse and the Florida pine snake, may also occur on the site. The burrowing owl has been known to be present in the past, although active burrows are not present currently. If impacts to listed species cannot be avoided as part of a proposed facilities development plan, potential impacts will be minimized with the US Fish and Wildlife Service and/or the Florida Fish and Wildlife Conservation Commission through appropriate permitting scenarios.

Improvements to the recreational facilities on the site will be located away from existing known populations of listed wildlife species or habitats suitable for their expansion. A decision support system is being developed to help guide land management and land use decisions related to siting of any new recreational facilities proposed in the future.

Management Actions:

- Ø Continue to compile occurrence records for all listed wildlife species on the site.
- Ø Coordinate with the USFWS and FFWCC as necessary to minimize potential impacts to listed wildlife.
- Ø Encourage and/or facilitate research opportunities into the ecology and distribution of wildlife.

Exotic Species Control

One of the significant threats to the integrity of the natural areas of Florida is invasion by non-native, exotic species of plants and wildlife. Exotic species affect natural systems by altering conditions within a plant or wildlife community to favor the growth of other exotic species, decrease habitat suitability for native wildlife, or alter ecosystem processes (e.g. fire frequency or intensity). The District has adopted a formal procedure

(Board Procedure 61-9) to address the control of exotic species in response to the severity of this threat.

The ultimate goal of the land management program is the eradication of invasive exotic species occurring on the LHFDA. The District has an established control program that involves qualitative monitoring followed by spot applications of herbicide or other appropriate eradication methodology. At a minimum, exotic invasive species occurring on the LHFDA will be maintained at or below current densities and aerial coverage. New encroachments into natural systems will be controlled as soon as it is feasible. The District will continue to explore alternative options for exotic species control. For instance, the District and the FDEP are jointly funding research to identify biological agents that could effectively control skunk vine, a species that was determined to be an excellent candidate for such research based on a feasibility study funded by the District. Educational materials that describe exotic species will be available to inform recreational users about the occurrence of these species. Additional maintenance events could be conducted by trained volunteers in cooperation with the District to help control large infestations or outbreaks of exotic species on the property.

Plants

At least nine (9) species of invasive, non-indigenous (exotic) plant species are known to occur, or have the potential to occur on the LHFDA. The name, locations, threat potential, and management recommendations for these species are included as follows:

Species	Location	Threat Potential	Recommendations
Cogon grass	Margins of the loop road, bridge embankments	Reduced to maintenance levels	Continue existing control program
Skunk vine	Floodplain of Hillsborough River	Significant threat; highly invasive	Monitor and control aggressively
Water hyacinth	Hillsborough River, especially downstream from Seventeen Runs	Rapid growth rate; Threat to river	Coordinate with HRSP to control in Seventeen Runs
Elephant ear	Floodplain swamps on margins of Hillsborough River	Reduced to maintenance levels	Continue existing control program
Paragrass	Floodplain swamps on margins of Hillsborough River	Significant threat; invasive along river margin	Requires active monitoring and control
Camphor tree	Adjacent to the loop road	Threat to habitats adjacent to the loop road	Requires active monitoring and control
Wild taro	Floodplain swamps	Reduced to maintenance levels	Continue existing control program
Creeping oxeye	Bridge embankments; parking areas	Highly invasive in disturbed sites	Monitor and control aggressively

Species (cont.)	Location	Threat Potential	Recommendations
			Monitor
Old world climbing	Known from	Significant threat;	aggressively; if
fern	vicinity of LHFDA	highly invasive	found control
			aggressively
	Open disturbed	Invasive; Threat to	Requires active
Torpedo grass	marshes; Tampa	marshes and open	monitoring and
	Bypass Canal	wetland areas	control

Animals

Feral hogs have been noted to occur on the property. Spanish explorers are credited with introducing the hog into Florida during the sixteenth century, and the species has flourished in Florida since. Rooting by feral hogs can cause disturbance to natural systems, especially wetlands and lower-lying flatwoods. Rooting by feral hogs can eradicate native species, create conditions favorable for invasion of exotic plants, alter surface drainage, and damage archeological sites. Feral hogs also compete with native wildlife for oak mast and other wildlife foods.

The District currently employs several different methods to control the activities of hogs on the property. The primary method involves trapping by District approved trappers that frequently visit the property to remove hogs. Trapping appears to be an effective and economical means of controlling the hog population on the site. In addition to the trapping efforts occurring on the site, a hog fence has been installed along select portions of the boundary of the LHFDA to limit the movement of hogs from the site to adjacent residential areas. Although hunting can be an effective means of hog control, the District Governing Board has designated the LHFDA as a "no-hunt" zone due to the intensity of recreational use and urbanization of surrounding lands.

Management Actions:

- Ø Continue a hog trapping program on the property.
- Ø Control invasive, exotic plants consistent with Board Procedure 61-9.

MOSQUITO CONTROL PLAN

The Hillsborough River floodplain and isolated wetland systems that occur on the LHFDA have the potential to be significant breeding areas for mosquitoes. Chapter 388 of the Florida Statutes provides authority for local governments to form mosquito control districts to implement mosquito control programs. Although the statute primarily addresses control options for mosquitoes, it acknowledges the possibility for adverse environmental impacts resulting from these control activities. With the relatively rapid urbanization that is occurring around the site, mosquito control is likely to become a more significant issue for the property than when the 1989 management plan was developed.

The statute establishes a process for developing a site-specific arthropod control plan for publicly owned conservation lands (Section 388.4111, F.S.) that recognizes the need to balance environmental protection and public health. To qualify for these specific control

plans, a publicly owned conservation tract must be officially declared an "environmentally sensitive and biologically highly productive" site by the managing land agency to initiate the plan development process. This designation recognizes that control options are necessary to protect the residents adjacent to the site, but must be developed sensitively to maintain adequate levels of resource protection. The District will coordinate with Hillsborough County Mosquito Control District to develop a mosquito control plan that will ensure the protection of natural resources and public health.

Management Actions:

- Ø Officially designate the lands of the LHFDA as "environmentally sensitive and biologically highly productive."
- Ø Coordinate with Hillsborough County Mosquito Control District to develop an arthropod control plan for the LHFDA.

SALE OF SURPLUS LANDS

The legislation governing Florida's conservation land acquisition programs provides for the sale, or "surplussing," of those lands that are no longer considered necessary for conservation purposes. Consistent with Section 373.089, Florida Statutes, Board Policy 610-4 (Sale, Exchange or Conveyance of Interests in Land by the District) provides criteria that can serve as the basis for surplussing of lands. At present, no lands within the LHFDA qualify for surplussing.

PROJECTED COST OF MANAGEMENT

The cost of future land management activities has been projected based on the cost of management-related expenses during three preceding fiscal years. Based on this analysis, the annual average cost of recurring management expenses is estimated to be approximately \$6.47 per acre, or a total of \$103,362 for the entire LHFDA. Recurring expenses are those typically incurred on an annual basis and include such activities as prescribed burning, control of exotic species, maintenance of roads and recreational facilities, and wildlife monitoring. It is difficult to provide long-range projections of non-recurring expenses. These are associated with such items as capital improvements to accommodate recreational use, and other one time or unforeseen expenses. The cost of recurring expenses may also rise in response to inflation or in the event that additional lands are acquired as part of the LHFDA.

ADMINISTRATIVE ISSUES

The development and implementation of the plan requires coordination between various departments of the District as well as coordination with many other public agencies, adjacent property owners, and other private interests. The following information summarizes coordination efforts concerning the project site.

INTERNAL COORDINATION

Coordination among the Land Resources Department, Operations Department, Resource Management Department, and other departments within the District as necessary will be required to effectively manage the LHFDA.

EXTERNAL COORDINATION

The District coordinates with many other public agencies and private interest groups to effectively manage its properties, especially properties like the LHFDA in which a variety of different agencies have overlapping interests. This section identifies those management and land use activities that require coordination between the District and outside parties, including federal, state, and local agencies; adjacent landowners; and other private interests.

U.S. Army Corps of Engineers (ACOE)

The ACOE was responsible for the design of the FRB project, funded most of its construction and prepared operations manuals for the flood control facilities, and continues to play a critical role in the flood protection function of the LHFDA. Formal agreements exist between the District and the ACOE related to the operation of flood control structures on the site, which includes monitoring and a procedure for altering operation schedules or programs, if needed. The ACOE also has regulatory authority over projects that could result in impacts to waters of the United States, including non-isolated wetlands. This authority would require coordination by the District if proposed recreational uses, wetland restoration, or other actions on the site impact ACOE jurisdictional resources.

U.S. Fish and Wildlife Service (USFWS)

The USFWS is the primary federal agency responsible for protecting the nation's wildlife and plant resources through the regulatory authority of the Endangered Species Act (ESA) and other regulatory instruments. The USFWS will be consulted as needed regarding special management needs of any species protected under the provisions of the ESA that are known to occur on the property or that colonize the site in the future.

Florida Fish and Wildlife Conservation Commission

The FFWCC is the state agency responsible for protecting and managing wildlife resources within the State. The District will coordinate with the FFWCC for the management and monitoring of state-listed wildlife and the protection of critical habitat areas, including the wading bird rookery that historically occurred in the southern portion of the site. In addition, the District will work with the FFWCC on issues associated with the implementation of new or expanded facilities to minimize potential impacts to listed species of wildlife.

Florida Department of Environmental Protection

The FDEP administers many of the environmental regulations of the State of Florida, particularly those designed to protect water quality. FDEP also manages the development of recreational facilities and other facilities that occur in State-owned parcels of land. Since the Hillsborough River has been designated an OFW, proposed enhancements that have the potential to impact water quality in the River will require coordination with FDEP. Surface water management systems proposed by the District will be subject to review and permitting authority of the FDEP. In addition to recreational activities on the site, the District will coordinate with FDEP in the management of the outparcels in the

Seventeen Runs as well as any new potential trail connections to the Hillsborough River State Park.

Florida Department of State, Division of Historical Resources (DHR)

The DHR maintains the Florida Master Site File for all known archeological sites. A large number of archeological sites have been noted in the southern portion of the LHFDA. Potential impacts to these sites will be reviewed with the DHR. In addition, the District will welcome any proposals to conduct archeological surveys, or related archeological research, on the LHFDA, as necessary, provided that such proposals satisfy requirements and protocols dictated by the DHR and do not conflict with the management objectives of the District for the site. Newly discovered sites will be documented and submitted to the DHR for inclusion in the Master Site File.

Florida Department of Transportation (FDOT)

Several significant road corridors occur around and immediately adjacent to the boundaries of the LHFDA and one roadway, Morris Bridge Road, extends through the middle of the LHFDA. Improvements to these roadways, including I-75, Bruce B. Downs Blvd., US301, and Morris Bridge Road will be coordinated with the FDOT and, when possible, enhancements to the roadway such as culverts, wildlife underpasses, or other mitigating structural designs, will be evaluated to enhance the movement of wildlife on the site and to connecting parcels.

Hillsborough County

Hillsborough County Parks and Recreation currently manages recreational uses on the area collectively known as the Wilderness Park. The Hillsborough County School Board uses a portion of the LHFDA for the Nature's Classroom program. The District will continue to coordinate with Hillsborough County in the development and management of existing and new recreational facilities. The District will continue to work cooperatively with the Nature's Classroom program to upgrade facilities and to provide support for educational program. The District will coordinate with Hillsborough County for development activities that occur adjacent to the LHFDA to minimize potential incompatible land uses.

Tampa Bay Water (TBW)

TBW currently owns and operates the water supply facilities on the MBW. The District will continue to coordinate with TBW to establish the location of monitoring stations associated with the TBW Consolidated Permit monitoring program. These locations will be coordinated with land managers from the District to limit potential impacts to the stations from management activities (e.g. prescribed fire, mechanical management). Changes to the recreational program for the site will also be coordinated with TBW to focus new recreational activities away from monitoring locations and/or wellhead points and to protect the water supply value of the Hillsborough River. Restoration activities undertaken by TBW on the site, including the enhancement and/or placement of control structures underneath the loop road, will be coordinated with the District through both permitting and implementation stages.

City of Tampa

The City of Tampa is currently developing a parking facility on the west side of Flatwoods Park that will provide an additional 80-100 parking spaces. This facility will provide additional recreational access to the LHFDA and provide additional emergency service access to the site. The District will coordinate with City of Tampa for development activities that occur adjacent to the LHFDA to minimize potential incompatible land uses and to protect the water supply value of the Hillsborough River.

Adjacent Property Owners

As the lands adjacent to the LHFDA continue to undergo development to residential uses and the number of adjoining property owners increases, conflicts with these property owners has the potential to increase. The District will closely monitor the development of surrounding areas, especially those upstream along the Hillsborough River, to ensure that land use conflicts are averted or resolved prior to development taking place. Continued communication will occur with adjacent landowners to make these owners aware of management activities on the site (primarily prescribed fire). To avoid conflicts related to public access to the property, future access will remain limited to officially designated public access points.

Other Private Interests

A number of private interests are involved in the management and use of the LHFDA, including the Florida Trail Association, Inc., the SouthWest Association of Mountain Bike Pedalers (SWAMP), Wilderness Trail Association (WTA), and the Citizens Support Organization organized by equestrian interests. These groups have played significant roles in the development and management of existing equestrian, bike and canoe trails occurring within the site. The District will continue to work cooperatively with these and other stakeholder groups in the development and enhancement of the recreational uses on the LHFDA.

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APPENDIX 1

The following list summarizes the specific tasks that will be undertaken by the District to implement the public use and land management approach proposed by the plan.

- 1) Prohibit construction activities in the 100 year floodplain, except for operations necessary to maintain the flood control function of the property or minor operations that accommodate natural resource management or resource-based recreational uses.
- 2) Enhance floodplain crossings (e.g. trails, access roads, tram roads) through the construction or modification of culverts, boardwalks, or bridge structures to restore natural hydroperiods and flood storage capacity, where necessary.
- 3) Continue wellfield monitoring program consistent with Consolidated Permit to monitor effects of groundwater withdrawal on wetlands and the Hillsborough River.
- 4) Coordinate with adjacent landowners and/or neighborhood associations to maintain stormwater systems that contribute surface water to the LHFDA.
- 5) Continue to coordinate with TBW and the USGS to monitor and maintain water quality on the LHFDA.
- 6) Coordinate with Hillsborough County to enhance ingress and egress to the Oak Ridge and Washburn Equestrian Area to make it safer for users to access these sites.
- 7) Evaluate an additional riding trail between the Oak Ridge and Washburn Equestrian Areas to provide an opportunity for longer trail rides.
- 8) Evaluate a maximum of two primitive campsites in total capable of accommodating 3-5 campers accessible via horseback and subject to special use permits in the Oak Ridge and/or Washburn Equestrian Areas.
- 9) In coordination with Hillsborough County and local user groups, establish criteria for monitoring and control use of existing trail corridors.
- 10) Encourage Hillsborough County and Hillsborough River State Park to evaluate potential trail marking enhancements for the Hillsborough River State Canoe Trail within the LHFDA.
- 11) Construct the infrastructure of Flatwoods Park campground and cabin area.
- 12) Coordinate with Hillsborough County to develop a primitive campsite at Sargeant Park capable of accommodating 3 to 5 paddle-in campers that would be available for use by special permit from the County.
- 13) Continue to coordinate with the Hillsborough County School Board to ensure that any future renovations to the Nature's Classroom facilities will meet OFW standards.
- 14) Manage the Oak Ridge TMZ to create a multi-age stand canopy structure, while providing revenue generation for the District.

- 15) Evaluate the need for additional bollards or fencing to limit vehicular access along the levee.
- 16) Maintain perimeter fencing to control access and limit unauthorized activities on the LHFDA.
- 17) Coordinate with HRSP for patrols in the Seventeen Runs area and in portions of the LHFDA adjacent to the HRSP.
- 18) Maintain an informational kiosk or signage to inform the public of permitted uses, current trail conditions, and to promote safe use of the property.
- 19) Supplement existing security force through contractual agreements with public or private parties, if needed.
- 20) Maintain security of flood control facilities through upkeep of structural security features (e.g. fences, warning devices, etc.).
- 21) Carefully consider proposals for any new recreational facility development adjacent to existing flood control structures to limit potential security concerns.
- 22) Assure that activities on the LHFDA do not negatively affect the long term habitat suitability for rookery use.
- 23) Coordinate with Hillsborough County when land use alterations are proposed within the zone of contribution of the wellfield.
- 24) Maintain wastewater treatment facilities on the site, as possible, to limit potential groundwater contamination.
- 25) Design new site improvements to avoid disturbance or alteration of known archaeological/cultural resources.
- 26) Mitigate impacts to existing archaeological resources that have been damaged by looting.
- 27) Monitor archaeological sites on an as-needed basis for evidence of looting and prosecute violations vigorously.
- 28) Permit archaeological research on the LHFDA that is consistent with protocols established by the DHR.
- 29) Document and register newly discovered archaeological sites with the DHR.
- 30) Solicit proposals for archaeological/cultural research, if necessary, to protect important resources.
- 31) Coordinate the establishment of any new monitoring stations with land managers to limit potential conflicts with land management activities.
- 32) Design access routes to monitoring plots to limit damage to sensitive areas (e.g. wetlands, creeks) from access vehicles.
- 33) Limit public recreation activities and facilities in proximity to monitoring locations.

- 34) Implement existing prescribed fire program with prescription parameters designed to limit the escape of fire from designated burn areas and avoid smoke that pervades smoke-sensitive areas.
- 35) Distribute educational literature that emphasizes the benefits of prescribed fire to recreational users and adjacent landowner.
- 36) Continue to compile occurrence records for all listed wildlife species on the site.
- 37) Coordinate with the USFWS and FFWCC as necessary to minimize potential impacts to listed wildlife.
- 38) Encourage and/or facilitate research opportunities into the ecology and distribution of wildlife.
- 39) Continue a hog trapping program on the property.
- 40) Control invasive, exotic plants consistent with Board Procedure 61-9.
- 41) Officially designate the lands of the LHFDA as "environmentally sensitive and biologically highly productive."
- 42) Coordinate with Hillsborough County Mosquito Control District to develop an arthropod control plan for the LHFDA.