A Plan for the Use & Management

of the Lake Tarpon Outfall Canal

Southwest Florida Water Management District

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Southwest Florida
Water Management District

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INTRODUCTION

The Lake Tarpon Outfall Canal is one of a number of properties owned by the Southwest Florida Water Management District (District). The District acquires lands throughout its jurisdiction for a variety of water management purposes. Included among these are flood control, water quality enhancement, groundwater recharge, restoration and preservation of natural systems, and the protection and development of potable water supplies.

The purpose of this plan is to guide the use and management of the Lake Tarpon Outfall Canal. The property was acquired and subsequently developed as a structural flood control project in order to provide flood protection to the Lake Tarpon area. It encompasses a total land area of 240 acres, of which approximately 121 acres are owned by the District. Approximately 120 acres are privately-owned and are included in the project area by way of an easement executed in 1969. A portion of the District-owned segment of the property has been made available to the City of Oldsmar for the development of a park, although the District has reserved the right to use that area as a receiving site for the deposition of spoil generated by future maintenance dredging of the canal.

The plan begins with a project overview which presents a synopsis of the history, water management functions, land cover and soils of the property. Then, compatible recreational activities and other appropriate land uses are discussed and an overall management philosophy is established. Land management and security concerns are also addressed. Effective management will require extensive, ongoing coordination between the District and a number of outside interests, as well as inter-departmentally within the District. Outside coordination with affected local governments will be especially critical to management of the 120-acre portion of the project area that is not held in fee-simple ownership by the District. The less-than-fee-simple, easement interest held over those lands limits the District's jurisdiction over such issues as wildlife management, recreational usage and public access, and complicates access for canal maintenance purposes. Coordination with the United States Army Corps of Engineers, which retains oversight over flood control operations of the property, will also be especially important. These needs are discussed in the final section of the plan.

The long-term management of this property will emphasize maintenance of the flood control facilities, which include the flood control structure (S-551) and the channel of the canal (C-531). Maintenance of the canal will require that District staff retain clear, unobstructed access to the canal corridor. Much of the land directly adjoining the canal has been developed since initial construction and excavation of the project, and the continuing encroachment of neighboring development threatens to impede the District's access to some segments of the canal bank. The District must persist in its efforts to preserve clear points of access to the canal bank. These efforts will be particularly important within the privately-owned portions of the canal corridor. Firm and consistent enforcement of the provisions of the District's easement will be essential within those areas.

The Planning Process

In accordance with District Procedure 61-3, a standard methodology is employed in the development of land use plans for District-owned properties (Christianson, 1988). The first step of this systematic process is to identify Special Protection Areas that occur within the property. These areas may include flood control facilities, potable water sources, and significant environmental features. Restrictions on the use of the property may be imposed

to ensure the protection of these areas. Next, activity zones are delineated on the basis of accessibility to motorized vehicles. Land use constraints resulting from the size of an area are also considered during this phase of the process. The ultimate objective is to identify environmentally appropriate land uses and to concentrate acceptable uses of similar intensity within appropriate activity zones, thereby preventing incompatible or conflicting uses from occurring within a zone.

Each property is also evaluated to determine its placement within a classification system. The two factors upon which the property classifications are based are the population density of the area surrounding the property, and the extent to which the property has been developed (Figure 1). The classifications have been devised to provide guidance in the formulation of an overall management philosophy. The management philosophy is an expression of the level of development which should be allowed on the property and the types of uses that are appropriate.

Management Philosophy

On the basis of the methodology described above, the Lake Tarpon Outfall Canal has been designated a Water Resource Project Land. This category of District-owned lands is reserved for sites that have been modified extensively in order to provide flood protection. The structural modifications and the flood protection they provide represent the paramount purpose for the District's acquisition and development of the property. Future management will be dedicated primarily to maintenance of that flood control function. In contrast to most District-held properties, the site does not support extensive natural areas and the altered lands associated with the structural features of the property can support uses that might otherwise be considered inappropriate for District lands; however, the suburban location of the property suggests that natural lands are in short supply in the local area. An undeveloped, relatively unaltered tract of 75 acres is included within the property and future management will recognize the significance of such a site within the suburban environment and will be predicated upon preservation of that area.

OVERVIEW

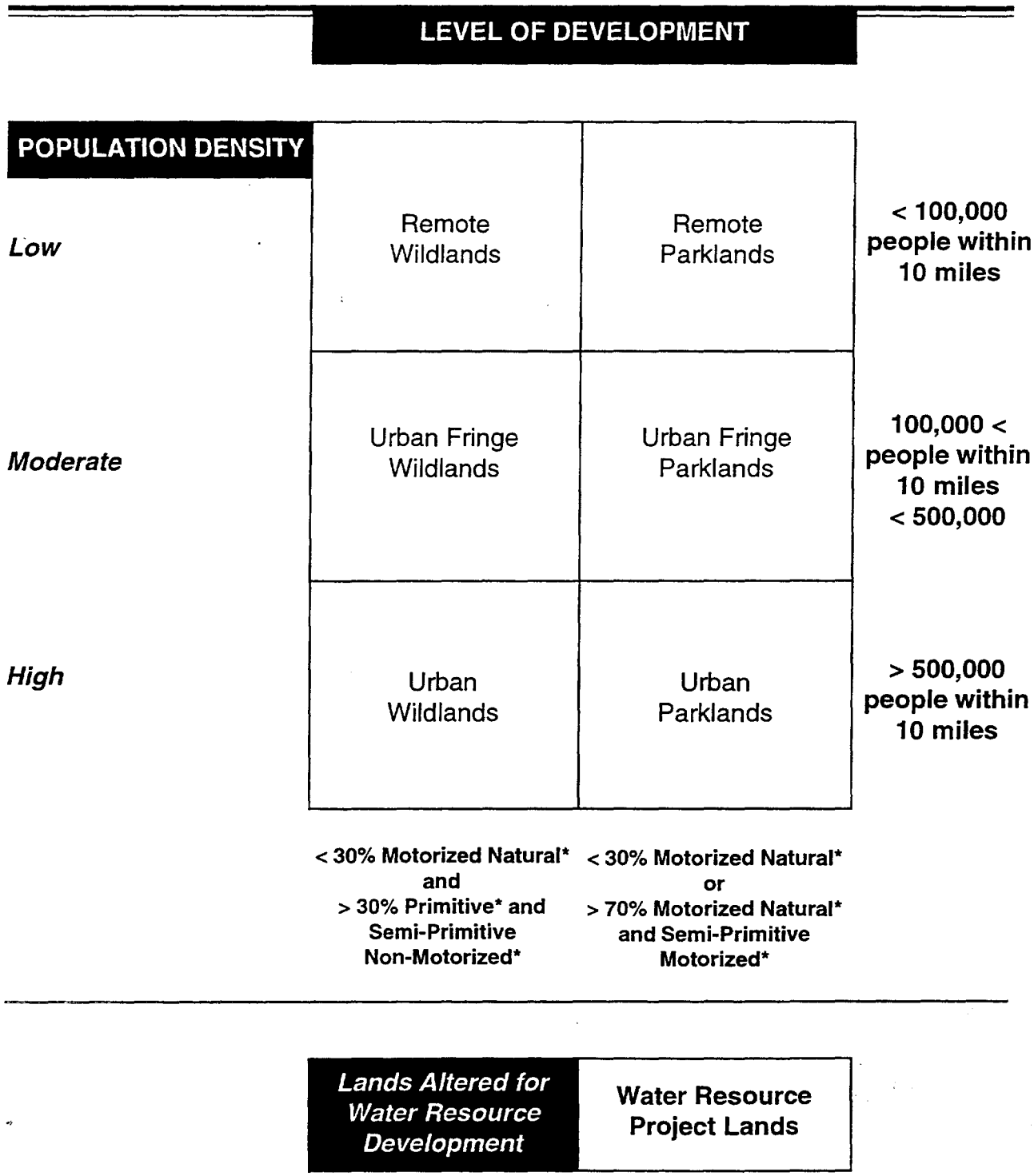
Location

The Lake Tarpon Outfall Canal is located in north-central Pinellas County (Figure 2). It links the southern end of Lake Tarpon with Safety Harbor, which represents the northernmost end of Old Tampa Bay. The southwestern portion of the project area lies within the incorporated limits of the City of Safety Harbor, and the southeastern portion is located within the City of Oldsmar. The remainder lies within the unincorporated area of Pinellas County.

History

The Lake Tarpon Outfall Canal is a component of the Four River Basins, Florida Project (FRB). As originally conceived by the United States Army Corps of Engineers (ACOE), FRB was intended to provide flood protection to an area encompassing approximately 6,000 square miles within a 15-county area of southwest Florida (ACOE, 1961). Severe flooding in 1959 and 1960, in response to Hurricane Donna and several other major storm events, served as the primary motivation for FRB. The design of FRB relied heavily upon structural enhancements, including drainage canals and control structures, to stem flooding in the basins of the Withlacoochee, Hillsborough, Peace and Oklawaha Rivers. Several coastal drainage basins, including the Brooker Creek/Lake Tarpon basin, were also included in the project.

Figure 1. District Lands Classification System.



*The categories Motorized Natural, Semi-Primitive Motorized, Semi-Primitive Non-Motorized, and Primitive are activity zones defined on the basis of access by motor vehicles

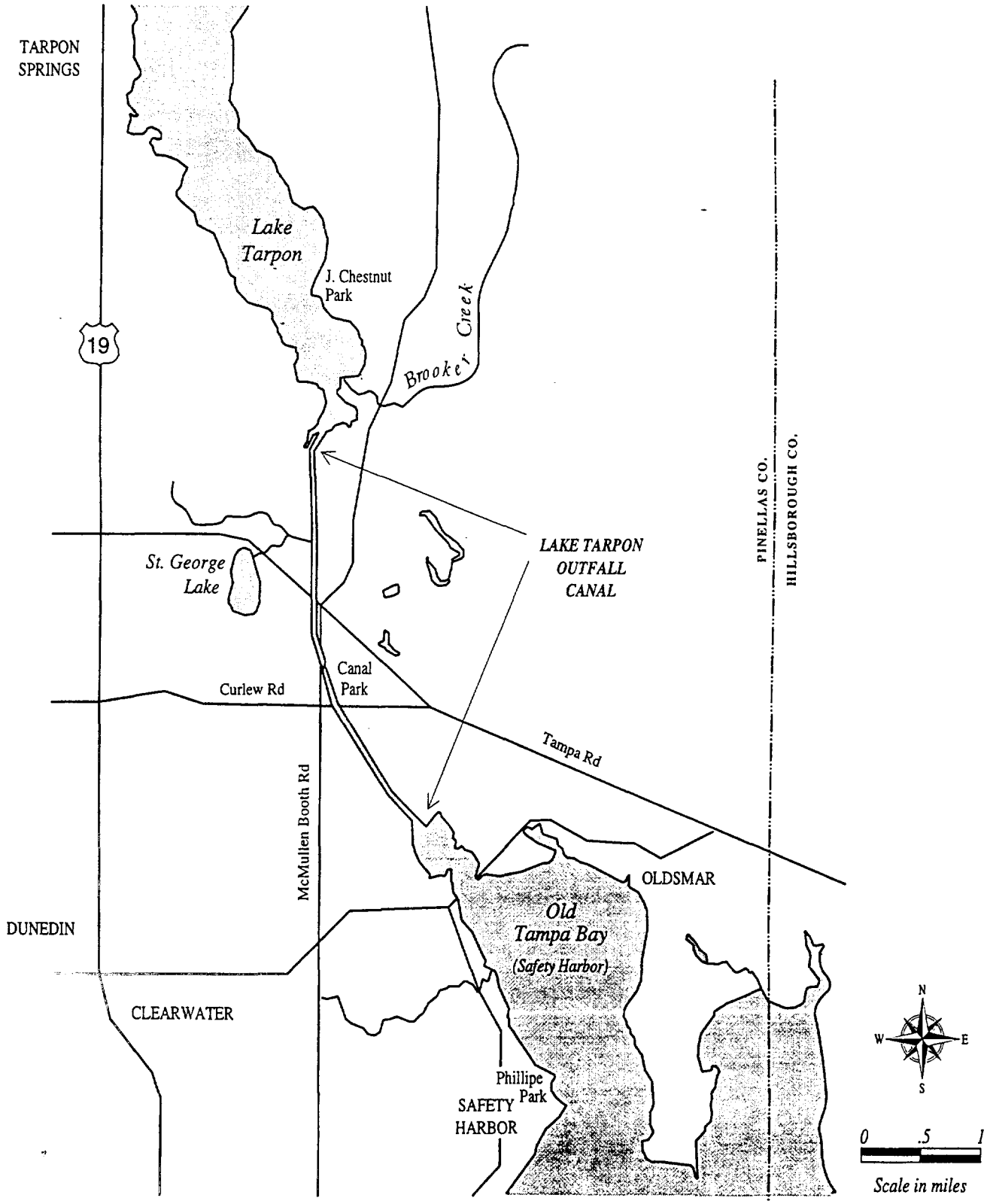


Figure 2. Location Map for the Lake Tarpon Outfall Canal.

The Southwest Florida Water Management District (District) was created to serve as the local sponsor of the federally-funded FRB. During the 1970s, prior to full implementation of FRB, the District began to favor non-structural alternatives for achieving flood protection goals. Plans for constructing many of the facilities proposed by FRB were deferred indefinitely; however, construction of the Lake Tarpon Outfall Canal had already been substantially completed. Excavation of the canal (C-531) had been initiated in April, 1966, and was completed in January, 1969. The canal was constructed to provide a surface outlet for conveying flood waters from Lake Tarpon to Old Tampa Bay. Prior to excavation of the canal, Lake Tarpon was landlocked and lacked a surface outlet for drainage.

Development of the Lake Tarpon Outfall Canal, under auspices of FRB, was originally to be integrated with plans to create a fresh water lake at the northern end of Old Tampa Bay (ACOE, 1961). The Tampa Bay Fresh Water Lake Study envisioned using the Courtney Campbell Causeway as a barrier to salt water inflow to Upper Old Tampa Bay. Fresh water inputs from Lake Tarpon, via the Lake Tarpon Outfall Canal, would have supplemented other sources of fresh water inflow to create the lake. A pair of earthen plugs were constructed in the canal to serve as a temporary barrier to salt water inflow until eventual creation of the lake. In 1969, plans for creation of the lake were abandoned. This resulted in the need for a permanent structure to regulate flows through the canal and to prevent the intrusion of salt water to Lake Tarpon. Structure 551 (S-551) was completed in January, 1972, and the temporary plugs were removed. Since that time, C-531 and S-551 have functioned in concert to regulate water levels in Lake Tarpon and prevent flooding in developed areas surrounding the lake.

The character of the area surrounding the Lake Tarpon Outfall Canal has changed remarkably since creation of the canal. During excavation of the channel, the lands adjoining the canal corridor were very rural in nature and supported agricultural land uses, primarily cattle production. Since that time, the adjoining and nearby lands have been converted almost entirely to commercial and residential uses. The extent of the surrounding development has restricted the District's ability to gain access to the canal bank for maintenance purposes. The inevitable need to dredge the canal in order to preserve its conveyance capacity is also complicated by fringing development and will require that the future development of Canal Park must be planned around the need to reserve a site for deposition of dredged spoil. These issues, and additional historical perspective, are discussed in the following section of the plan.

Water Management Functions

Structural Flood Control

As noted previously, the construction of the Lake Tarpon Outfall Canal was motivated primarily to provide flood protection to the Lake Tarpon area. The watershed contributing to Lake Tarpon is approximately 52 square miles in size and extends eastward from the lake a distance of 10 miles. About half of the watershed lies in northwest Hillsborough County. Brooker Creek, which contributes an average annual discharge of approximately 20 cubic feet per second (cfs), is the only major source of inflow to the lake. The 3.5-mile long Lake Tarpon Outfall Canal is the only avenue by which surface flows escape from Lake Tarpon. As such, the canal and S-551 provide the only means of manipulating or controlling lake water levels. The lack of an outlet prior to the construction of the canal resulted in frequent flooding of lake-side development. Flooding of September, 1960, resulted in a lake level of 7.08

feet National Geodetic Vertical Datum (NGVD), which is the highest level recorded since records have been maintained for the lake (1945), and necessitated construction of the canal.

The canal and structure were designed to protect against flooding generated by a storm with an estimated return frequency of approximately once every 30 years (Johnson, 1972). The canal and structure are capable of safely conveying a volume of water equivalent to 6,000 cubic feet per second (cfs). Current operation of the S-551 structure, as dictated by the ACOE, requires that water levels be maintained between 2.2 feet above sea level (NGVD) and 3.2 feet NGVD. The high end of the range was established on the basis of preventing flooding of lake-side property and avoiding disruption of septic tank systems. The low of 2.2 feet NGVD was based on maintenance of a water level that would be adequate to support boat traffic and other recreational usage of the lake. Studies by the FGFWFC have supported the water level fluctuation schedule as adequate to maintain a healthy recreational fishery.

Management of the Lake Tarpon Outfall Canal will be predicated upon maintaining the flood protection capability of the system. Consistent with this management approach, preservation of the physical integrity of C-531 and S-551 will be considered the primary management goal.

Canal Maintenance

Routine maintenance activities will require that the full length of the canal berm remain accessible to trucks and heavy equipment. The placement of fixed structures or landscaping materials on the berm would obstruct such access and is prohibited under terms of the easement that the District holds over privately-owned portions of the canal. Land ownership patterns for the Lake Tarpon Outfall Canal are delineated in Figure 3. The District must ensure that the rights conveyed by the easement are strictly enforced in the privately-owned sections of the canal. The development that now fringes the perimeter of the canal has restricted the District's ability to gain access to the canal bank for maintenance purposes, and the District will work cooperatively with neighboring property owners and with involved local governments to assure that all segments of the canal bank remain accessible and free of encroachments.

A permanent vegetative cover will be maintained on the berm and bank of the canal to prevent erosion. In addition, the placement of any structures in the channel of the canal will be prohibited. Such structures, particularly in the upstream half of the canal, could hinder the passage of flood flows and generate debris that would damage or obstruct the gates of the control structure. The mooring of boats in the channel of the canal will also be prohibited, as these pose a similar threat to the S-551 structure. Restrictions incorporated into the deed which conveyed ownership of the northwestern bank of the canal to Pinellas County expressly prohibit the construction of piers, docks, boardwalks, moorings and other physical structures on the privately-owned portion of the northeastern canal bank. The District will work jointly with Pinellas County to monitor the canal bank and to enforce these restrictions.

Private property owners at the northeast corner of the canal have also expressed a desire to remove cattails (Typha sp.) and other aquatic vegetation from the toe of the canal. An agreement between the landowners and Pinellas County allows the removal of such vegetation provided that the affected sections of the canal bank are stabilized with fibrous mats of a specified material that will allow the regrowth of grass cover. This alternative was deemed acceptable by the District and much of that section of canal bank has now been stabilized in this manner. If the technique is determined to be

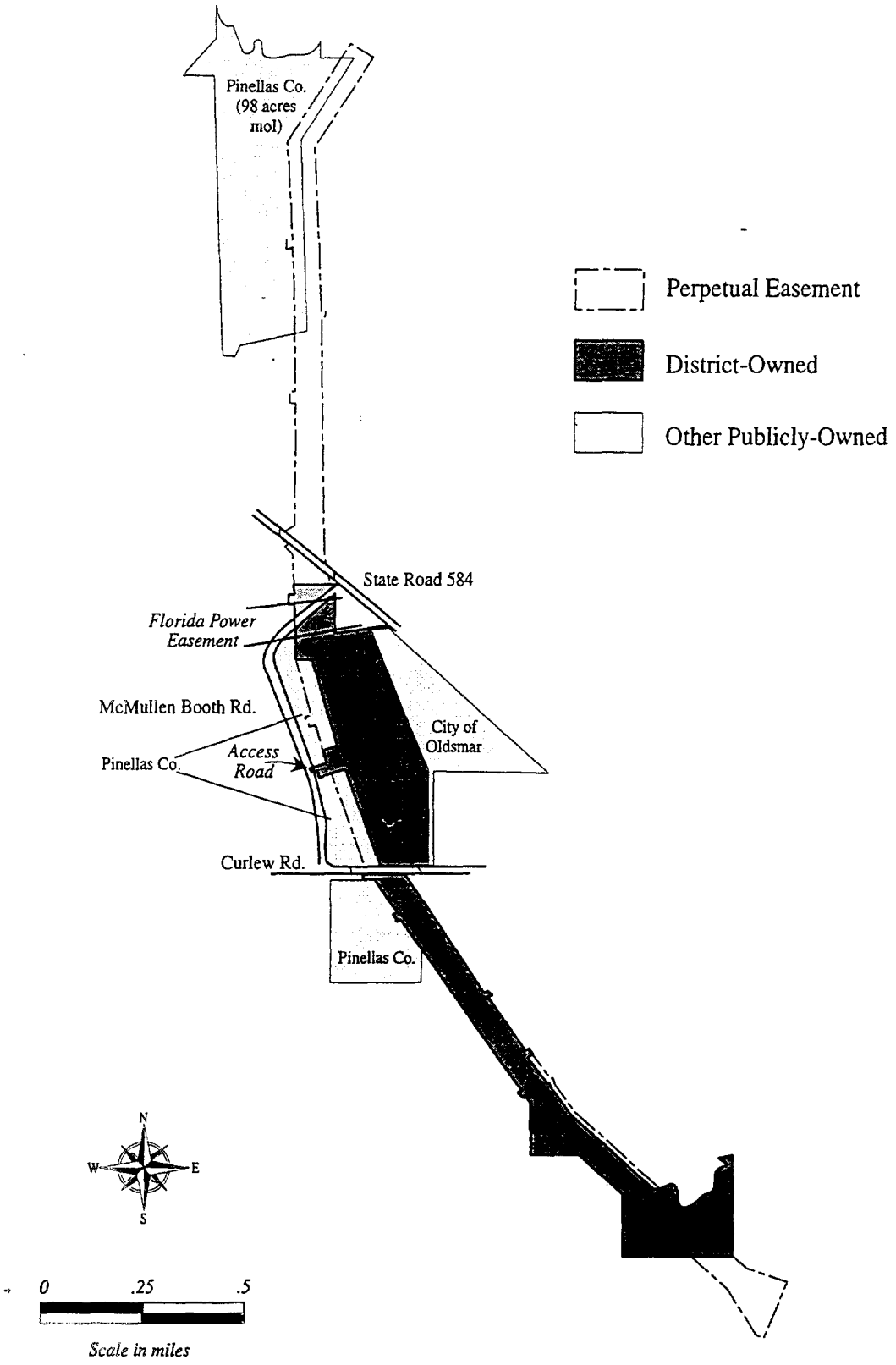


Figure 3. Land Ownership Patterns, Lake Tarpon Outfall Canal.

an effective method for stabilizing the canal bank in areas that will be disturbed, the District will utilize it as needed and may permit its use in other areas.

Regardless of the District's fastidious efforts to prevent bank erosion and resulting siltation of the canal, it is inevitable that the channel will require some degree of maintenance dredging to preserve its conveyance capacity. The developed nature of the lands adjoining the canal place unavoidable constraints on the District's ability to dispose of spoil generated by future dredging. It may not be financially feasible to dispose of future spoil off-site. Although the lands of Canal Park have been made available to the City of Oldsmar for public recreational use, the District has reserved the right to use that area as a staging area for dredging and/or as a spoil deposition site. The city must be notified at least one year in advance of the initiation of such activities. In recognition of the recreational value of these lands, the District will coordinate closely with the city to minimize the permanent disruption of such usage by future dredging activities.

Stormwater generated on much of the land adjoining the canal is discharged to the canal through a network of culverts and represents another canal management concern. Proper installation and maintenance of the culverts is necessary to prevent this use from degrading or destabalizing the canal bank. In addition, much of the development adjoining the canal predates the implementation of regulations that require prescribed treatment and detention of stormwater draining from developed surfaces. As such, much of the stormwater draining to the canal undergoes no pretreatment and may potentially degrade water quality conditions in the canal and downstream portions of Old Tampa Bay.

The District will monitor physical conditions at the existing stormwater discharge sites to ensure that they are properly maintained and do not pose a threat to the stability of the canal bank. In addition, the District will coordinate with the Pinellas County Department of Environmental Management (DEM) to develop a process whereby future requests for permits to discharge to the Lake Tarpon Outfall Canal will be submitted for formal review by the District's Land Resources and Operation Departments. Responsibility for regulating stormwater treatment and discharges in the local area has been delegated to the DEM. The District will ensure that any new discharges receive proper pretreatment and will seek to consolidate discharge sites and integrate discharge systems to the greatest extent possible in order to minimize the number of culverts that must be monitored. Opportunities for upgrading the old stormwater drainage systems will be actively identified and acted upon.

Integration of Lake Management Needs

Lake Tarpon is a very prominent and important natural feature of the Pinellas County landscape. The flood protection function of the Lake Tarpon Outfall Canal cannot easily be divorced from lake management needs and issues. With a surface area of approximately 4 square miles and a volume of approximately 1 billion cubic feet (SWFWMD, 1994), Lake Tarpon is the largest lake in Pinellas County and represents a significant recreational resource for boaters and fishing enthusiasts. These and other recreational uses, in turn, contribute significantly to the local economy.

The State of Florida recognized the significance of Lake Tarpon by designating it an Outstanding Florida Water. In 1988, the District designated Lake Tarpon a priority waterbody of the Surface Water Improvement and Management Program (SWIM). This designation recognized the regional significance of Lake Tarpon and

required that the District develop and implement a plan of action that would protect the lake system. Due to the generally good condition of the lake, the Lake Tarpon SWIM plan emphasizes a course of action intended to maintain or improve current conditions, in contrast to SWIM plans for other waterbodies which are typically designed to restore waterbodies that have been seriously degraded.

The District's efforts to ensure the proper management of Lake Tarpon lend additional importance to the need for a coordinated approach that recognizes the potential linkage between lake conditions and operation and management of the Lake Tarpon Outfall Canal. The following section of this plan discusses the potential for improving water quality conditions in the lake through variations in the operation of S-551. Future management and operation of the Lake Tarpon Outfall Canal will be conducted in a manner that is flexible and amenable to modifications that will help to achieve lake management goals while remaining within the operation schedule dictated by the ACOE.

Water Quality Enhancement

Hydraulic modelling studies conducted by researchers at the University of South Florida's Center for Modeling Hydraulic and Aquatic Systems (CMHAS) have suggested that water quality conditions in Lake Tarpon can be enhanced by modifying the manner in which S-551 is operated (Rahgozar, 1994; Walker, 1993). The predicted improvements in water quality were manifested by a projected decline in the Trophic State Index (TSI) for the lake, presumably in response to the accelerated transport of nutrients from the lake system. The studies recognized constraints on the range of water levels that can be maintained in the lake. As described previously, the ACOE has dictated a regulation schedule that requires water levels to be maintained between a high elevation of 3.2 feet NGVD and a low of 2.2 feet NGVD. The modelling studies were conducted assuming a minimum level of 2.9 feet NGVD, which assumes a more restrictive regulation schedule. The actual low dictated by the regulation schedule would permit more extreme fluctuations that could potentially result in even greater reductions of the predicted TSI.

The District's SWIM Department (SWIM) and the Pinellas County Department of Environmental Management (DEM) have been working cooperatively to plan for the long-term management of Lake Tarpon. At present, DEM is preparing a watershed management plan for the most heavily developed portion of the Lake Tarpon watershed. DEM may contract with the CMHAS for a more rigorous modelling study to serve as a companion study to the basin management plan. The District will encourage such a study and suggest that it be conducted under assumed variables that reflect the full range of water levels permitted by the ACOE. Modifications in the routine operation of the control structure will be implemented on the basis of such studies, provided that the modelling continues to project meaningful improvements in water quality and on the condition that the modifications do not conflict with protocols dictated by the ACOE. Water quality impacts on downstream surface waters will also be considered. Implementation of any modifications to routine operation of the structure should be supported by consensus of SWIM and DEM. Please refer to page 12 for additional discussion regarding the link between operation of the S-551 structure and water quality conditions in Lake Tarpon.

Land Cover

As noted previously, the Lake Tarpon Outfall Canal project accounts for a total land area of 241 acres. Approximately 121 acres of the project area are owned by the District, and the remaining 120 acres are privately-owned but

have been incorporated into the project area per an easement executed on September 18, 1969. The altered lands of the canal and berm account for virtually all of the easement area, and much of the District-owned portion of the project area. A 75-acre parcel of District-owned land was not altered during construction of the canal and remains in a semi-natural condition. These lands, which have been made available to the City of Oldsmar and are managed as part of Canal Park, support approximately 45 acres of pine flatwoods vegetation and 30 acres of wetlands. The wetlands consist of approximately 24 acres of marsh and wet prairie, and 6 acres of mixed hardwood swamp. Portions of the park property, particularly on the northern and southern ends, have been invaded by non-native plants species. Control of these species must be considered a management priority for the park site and is discussed in the land management section of the plan. In addition, the District has reserved the right to use all or portions of the 75 acres as a receiving site for spoil. Development of the park, placement of recreational improvements, and control of non-native plants within that area should be planned accordingly.

Soils

The predominant soils of the Lake Tarpon Outfall Canal property are Myakka fine sands, which underlie most of the Canal Park site, and "spoil bank" soils which comprise the berm of the canal (Soil Conservation Service, 1972). Myakka fine sands are poorly-drained soils that are characteristic of pine flatwoods communities. This is consistent with the pine flatwoods vegetation that blankets most of the Canal Park site. Spoil bank soils consist of a heterogeneous mixture of sands, clay and rock that are produced by dredging or other earthmoving activities.

A small, well-defined pocket of Terra Ceia muck also occurs at Canal Park. These soils are very poorly drained, highly organic in composition, and typically denote depressions. The single occurrence of Terra Ceia muck at Canal Park is distinguished by a narrow band of marsh and wet prairie vegetation.

The northern tract of adjoining Pinellas County lands is underlain primarily by Terra Ceia muck and Astor soils. Like Terra Ceia muck, Astor soils are very poorly drained and are representative of wetland communities. Most of the Pinellas County site supports a forested wetland dominated by cypress. The southern tracts of Pinellas County property are composed primarily of spoil soils.

Adjacent Land Use

The Lake Tarpon Outfall Canal is located on the eastern edge of a densely populated, rapidly urbanizing area. Most of the privately-owned lands lining the canal corridor have already been developed, primarily as residential communities. These range from relatively high density trailer parks and multi-family units to a medium density subdivision of estate homes. The character of adjoining development at the major highway crossings is more commercial in nature, and includes two large retail centers and an adult congregate living center.

The only large tracts of undeveloped lands bordering the canal corridor are publicly-owned. These include: a 98-acre tract that borders the northwesternmost edge of the canal for a distance of nearly 4,000 feet; a 30-acre tract with approximately 1400 feet of canal frontage in the southwest quadrant of the Curlew Road (State Road 586) crossing; an 18.2-acre sliver of land situated between the McMullen Booth Road right-of-way and the canal; and a 46.5-acre tract that fronts on State Road 584 (see Figure 2). The 98-acre tract is

owned by Pinellas County, consists primarily of wetland vegetation, and is to be preserved in a natural state. The 30-acre tract, also owned by Pinellas County, consists of altered lands that will be converted to wetland as mitigation for off-site wetland impacts associated with county development projects. The District donated the 46.5-acre parcel to the City of Oldsmar and it is managed as a portion of Canal Park.

The neighboring tracts of publicly-owned land should not pose a problem to District maintenance of the canal system, and will actually enhance the natural, recreational, and open-space values of the project lands by serving as a buffer. However, the developed lands in private ownership may complicate future management of the canal by hindering the District's access to the canal berm. Adjoining residential developments may be especially problematic. The large number of neighboring property owners in these areas increases the likelihood of future encroachments into the District's access easement. Some adjoining landowners have expressed an interest in placing docks or other fixed structures within the portions of their property that extend into the easement. The District must ensure that all adjoining landowners are fully apprised of restrictions on their use of the easement lands. Please refer to the Administration section of this plan for additional discussion regarding the easement and securing future access to the canal for maintenance purposes.

THE CONCEPTUAL LAND USE PLAN

Special Protection Areas

Certain areas within District-held lands warrant special protection efforts in order to more effectively preserve water management functions and/or to protect outstanding natural values. Any areas that are extremely sensitive to disturbance; that harbor unique or regionally significant natural features; or that play a critical role in maintenance of the water management benefits attributed to the property will merit designation as a Special Protection Area.

Special Protection Areas at the Lake Tarpon Outfall Canal include: the S-551 flood control structure; the natural lands of Canal Park; and those lands within the primary protection zone of a nearby bald eagle nest. Additional Special Protection Areas may be designated in the future on the basis of colonization or regular use by an imperiled species, or in recognition of other significant resource values.

Flood Control Structure (S-551)

The S-551 flood control structure is located at the approximate mid-point of the 3.5-mile Lake Tarpon Outfall Canal (C-531). It consists of four vertical lift gates mounted above a weir situated at an elevation of -7.1 feet NGVD (ACOE, 1987). Each gate measures 22 feet in width and 11 feet in height, and is capable of being automatically or manually controlled to create a submerged aperture. In a fully open position, the gates are capable of conveying water at a rate of approximately 6,000 cubic feet per second (cfs). In a fully closed position, the top of the gates rest at an elevation of 4 feet NGVD. This design allows water to flow freely over the top of the structure when upstream water levels in Lake Tarpon exceed that elevation, thereby providing an emergency overflow in the event that the structure becomes inoperable.

Each lift gate is provided with 4 vertical slot gates that measure 1.5 feet high by approximately 4.5 feet wide. These gates serve as the primary discharge outlets and may be operated to manipulate upstream water levels between a low of 2.0 feet NGVD and a high of 3.5 feet NGVD. The ACOE operation schedule for S-551 dictates

that levels must be maintained between a low of 2.2 feet NGVD and a high of 3.2 feet NGVD. The position and dimensions of the 16 slot gates permits them to regulate water levels within the full range dictated by the ACOE. Operation of the main vertical lift gates occurs only under the most extreme flood conditions, or during unusual circumstances. When a high tide on the downstream, Old Tampa Bay end of S-551 is projected to coincide with flood conditions on the upstream, Lake Tarpon end of the canal, the vertical lift gates can be opened beforehand to quickly reduce upstream water levels in anticipation of the event. Under normal conditions, the slot gates regulate water levels and the vertical lift gates remain closed to act as a barrier to salt water inflow.

The ability of the Lake Tarpon Outfall Canal to effectively fulfill its flood control functions is contingent upon maintaining S-551 in a functional condition. As discussed previously (see page 6), waterborne debris may pose the greatest threat to the mechanical and physical integrity of S-551. Floating debris may damage or obstruct the gates of the structure and interfere with the passage of flood flows. The installation of any instream or shoreline structures along the upstream half of the canal will be strictly prohibited. Such structures will include docks, piers, boardwalks, gazebos and any other physical improvements that could generate floating debris. Although the waters of the canal will remain open for boating, the mooring or storage of boats must also be prohibited to prevent free-floating boats from obstructing the structure.

The heavy machinery of the structure and the large pulses of water released during its operation, may also pose a hazard to public safety. As described in a succeeding section of this plan devoted to security concerns, barriers have been erected to exclude the public from the site of the structure and an auditory alarm system warns of its impending operation. A visual alarm will also be installed. These security measures, and the mechanical integrity of S-551, will continue to be meticulously maintained to insure that the Lake Tarpon Outfall Canal continues to function as designed. The flood protection function of the Lake Tarpon Outfall Canal shall be considered of paramount importance and shall supersede all other uses of the property.

Physical operation of the S-551 structure can be performed either manually or remotely, or it can be programmed to function automatically. The advantages of automatic operation, which include reduced staffing needs and the capability for immediate response to changing water levels, induced the District to rely heavily upon automatic operation. In March, 1990, strong northerly winds caused seiching of the lake surface which resulted in rising water levels at the S-551 structure. The deceptive rise in water level triggered the automated system to begin operation of the S-551 structure. An extreme drawdown of the lake, to an elevation below 1 foot NGVD, was preciptated by the combination of wind seiching and automatic operation. Water quality impacts, which included a temporary rise in conductivity and decline in pH, were linked to the unintended drawdown (Leasure et al., 1994). Henceforth, routine operation of the S-551 structure will remain limited to manual methods to prevent the reoccurrence of such an incident. Automatic or remote operation will be employed during emergency conditions only.

Canal Park

Canal Park rests on lands that were acquired by the District during acquisition of right-of-way for the Lake Tarpon Outfall Canal. It is approximately 122 acres in size, including 46.5 acres which the District donated to the City of Oldsmar. The remaining 75.5 acres were retained by the District but have been incorporated into the park by way of a license agreement

executed in 1987. The license agreement allows the city to manage recreational uses on the site during the 50-year term of the agreement. The term of the arrangement can be extended by mutual agreement of the District and the city.

As noted below, a portion of Canal Park remains in an essentially natural condition. The suburban location of the site imparts a high value to these lands and the natural areas of Canal Park will be treated as a Special Protection Area. This designation will not be interpreted to preclude development for public recreational usage; however, such development will be limited to the minimum necessary to accommodate passive recreational uses. Please refer to the section of the plan devoted to recreational usage for additional discussion regarding Canal Park.

The District retained ownership of the 75.5-acre portion of the Canal Park site based upon a projected need for lands adjoining the canal that could serve as a receiving site for spoil generated during maintenance dredging of the channel. The recreational and natural values of these lands notwithstanding, the District reserves the right to use a portion of that property contiguous with the canal as a future receiving site for spoil. As noted previously, the primary long-term management goal for the Lake Tarpon Outfall Canal property will be perpetuation of its flood protection functions.

Bald Eagle Nesting Site

An active bald eagle nest is located on a site lying a short distance to the west of the canal. The United States Fish and Wildlife Service (USFWS) has drafted guidelines regarding activities that should be avoided around eagle nests. These guidelines suggest that a primary zone radiating up to 750 feet from a nest tree should be protected from physical disturbance or alteration, especially during the nesting season (USFWS, 1987). The primary zone for the nearby eagle nest extends into the District's property and encompasses a section of the western canal bank and a portion of the canal channel. There are several other active nests located along the undeveloped eastern shoreline of Lake Tarpon; however, the protection zones for those nests do not extend into the canal property.

Individual eagles can differ greatly in terms of their sensitivity to human presence and disturbance. Eagles nesting in suburban locations, like the area around the Lake Tarpon Outfall Canal, may be particularly tolerant of human presence. Approximately a dozen residences are located in the southeastern quadrant of the primary zone of the nearby nest and the McMullen Booth Road (S.R. 593) right-of-way borders the western limits of the zone. The rest of the area within the zone is undeveloped and serves to buffer the nest from intensive land uses. The District will ensure that management activities along the applicable section of the canal bank are conducted in a manner that is consistent with the USFWS guidelines. Strict enforcement of a no-wake zone established in the channel of the canal will also be encouraged as a means of limiting the intensity of human intrusion upon the area.

The USFWS recently down-graded the status of the bald eagle (Haliaetus leucocephalus), from endangered to threatened, on the basis of its strong recovery across much of its national range. However, the protection afforded to threatened species under the Endangered Species Act is essentially equivalent to that extended to endangered species. The threatened designation denotes species that may become endangered in the absence of adequate management or protection. The District will remain apprised of any modifications to the USFWS guidelines and of other changes in the status of the bald eagle to ensure that birds nesting locally are suitably protected.

Activity Zones

The delineation of activity zones, on the basis of criteria outlined in Figure 4, is an important step in guiding future land use decisions for District-held properties. The designations assist in identifying appropriate areas for the siting or clustering of compatible land uses, thereby avoiding conflicts among uses and ensuring that the natural resource values of the property are preserved. It is a procedure that was developed by the United States Forest Service and it has been adapted by the District to serve as a guiding principle for evaluating and siting land uses.

The criteria for delineating activity zones reflect the influence that accessibility can have on the overall character of a site. The relative ease with which a site can be approached or entered will, more than any other factor, determine the degree to which the site has been, or will be, altered or influenced by human presence. It will also determine the range of recreational uses that can be accommodated on a site by characterizing the extent to which the property can be developed or physically improved without excessive or unacceptable impacts upon the natural environs.

The highly altered, structural character of the Lake Tarpon Outfall Canal led to its designation as a Water Resource Project Land during development of the management philosophy for this property (see page 2). The suburban location of the Lake Tarpon Outfall Canal, in concert with its status as a highly altered Water Resource Project Land, result in designation of the entire property as a motorized natural zone. Motorized natural zones are characterized as corridors that border throughways that are open to use by motorized vehicles, including watercraft; however, the Lake Tarpon Outfall Canal does not constitute a typical motorized natural zone. The only portion of the property that retains a natural character is Canal Park.

The suburban location of the property dictates that a high premium should be afforded to lands that remain in a natural state. The natural, undeveloped portions of Canal Park represent a resource that should be preserved to the greatest extent possible. As an island of green within a sea of development, Canal Park can serve as a sanctuary to which local residents can escape and find a modicum of solitude and green space. The patch of flatwoods and wetlands, with the attendant open waters of the canal and nearby Old Tampa Bay, may also serve as a resting area for migratory birds and provide refuge to other wildlife.

Recreational Uses

It is the policy of the District (Board Policy 610-3) that appropriate, public recreational usage of District-held lands be permitted, provided that the usage is compatible with water resource management and protection needs. Generally, the development and maintenance of approved recreational facilities must be at the expense of outside entities. Board policy directs that the developed facilities must be open to the public. Recreational activities that are not dependent on the natural resource values of a site will not normally be allowed.

The atypical, highly altered character of this District-held property, together with its suburban location, result in a management philosophy that does not preclude uses which might otherwise be considered too intensive for District lands. As noted in the preceding discussion of activity zones, the suburban location of the property also suggests that a premium be placed on the preservation of natural areas. The existing and planned public uses discussed in following sections of the plan reflect such a management approach.

Figure 6. Criteria for Designation of Activity Zones

ACTIVITY ZONE	CRITERIA FOR DESIGNATION	
	REMOTENESS	SIZE
Primitive		
Area is characterized by essentially unmodified natural environment of fairly large size. The area is managed to be essentially free from evidence of human-induced restrictions and controls. Motorized use within the area is not permitted.	At least 2 miles from all roads, railroads, or trails with motorized use.	At least 5,000 acres
Semi-Primitive Non-Motorized		
Area is characterized by a predominantly natural or natural appearing environment of moderate-to-large size. The area is managed in such a way that minimum on-site controls and restrictions may be present, but are subtle. Motorized use is not permitted.	At least 1/4 mile from Class II and Class I roads but less than 2 miles from some roads.	At least 2,500 acres
Semi-Primitive Motorized		
Area is characterized by a predominantly natural or natural-appearing environment of moderate-to-large size. The area is managed in such a way that on-site controls and restrictions may be present, but are subtle. Motorized use is permitted.	Within 1/4 mile of Class II roads but more than 1/4 mile from any Class I road.	At least 2,500 acres
Motorized Natural		
Area is characterized by a predominantly natural-appearing environment with moderate evidence of the sights and sounds of man. Resource modification and utilization practices are evident, but harmonize with the natural environment. Conventional motorized use is provided for in construction standards and design facilities.	Within 1/4 mile of Class I roads.	No size criterion

Canal Park

A 122-acre tract of land, including 75 acres of the Lake Tarpon Outfall Canal property, have been set aside for future development of Canal Park (Figure 5). In 1987, the District donated the balance of the park site (46.5 acres) to the City of Oldsmar, which will be responsible for development and management of the park. The city has already constructed playing fields and other user-based recreational facilities on the site. The remainder of Canal Park will be reserved for passive resource-based recreational uses which will complement the existing facilities and provide the city with a site that provides a full range of recreational opportunities in one compact location. The District has reserved the right to use all or a portion of the 75-acre area as a receiving site for spoil generated during future maintenance dredging of the canal. A 1-year notice must be provided to the city in the event of its projected use for this purpose.

Permitted recreational uses of the property will include hiking, picnicking, fishing and nature study. Use of the canal berm to link Canal Park with the city's Harbor Palms Nature Park (see following discussion of proposed fishing pier) will also be permitted. Any intensive development that will be required to accommodate recreational usage, including parking areas, will be restricted to the city-owned portion of the site. The park will be designed and developed in a manner that recognizes the need for resource-based recreational opportunities in densely-populated Pinellas County. As a site that is readily accessible to a large segment of Pinellas County's population, the property will fill an important niche, particularly for residents of the City of Oldsmar.

Proposed Fishing Pier

The City of Oldsmar owns a parcel that adjoins the southeast corner of the Lake Tarpon Outfall Canal at its confluence with Old Tampa Bay. The city is developing the parcel, known as Harbor Palms Nature Park, for recreational uses. They have proposed that a floating fishing pier, which would extend across submerged lands of the canal, be constructed at the park (Figure 5). A pier at this location would offer an appropriate resource-based use of the Lake Tarpon Outfall Canal that capitalizes on its waterfront location. The District's SWIM Department, in cooperation with the city, has planted native vegetation along the park's waterfront and in on-site stormwater treatment basins to enhance local water quality and restore an altered marsh. The habitat enhancement benefits of that project will also improve the recreational value of the park and help to ameliorate environmental impacts associated with the park development. The District will coordinate with the city to permit the proposed construction of the pier, contingent upon funding being provided by the city or other outside entity.

Other Uses

Utility Easements and Other Rights-of-Way

A variety of utility lines traverse the Lake Tarpon Outfall Canal. These include a Florida Power Corporation transmission line; a major water pipeline that serves much of Pinellas County's potable water needs; and two sewage mains. As illustrated in Figure 2, several major public roadways also cross the canal.

Board Policy 610-3 states that utility lines and other rights-of-way that are not directly associated with District functions or approved recreational development will not be allowed on District property except as a last resort in cases of overwhelming public interest. However, the suburban location and linear configuration of the Lake Tarpon Outfall Canal have predisposed it to crossings by utility lines and roadways. In

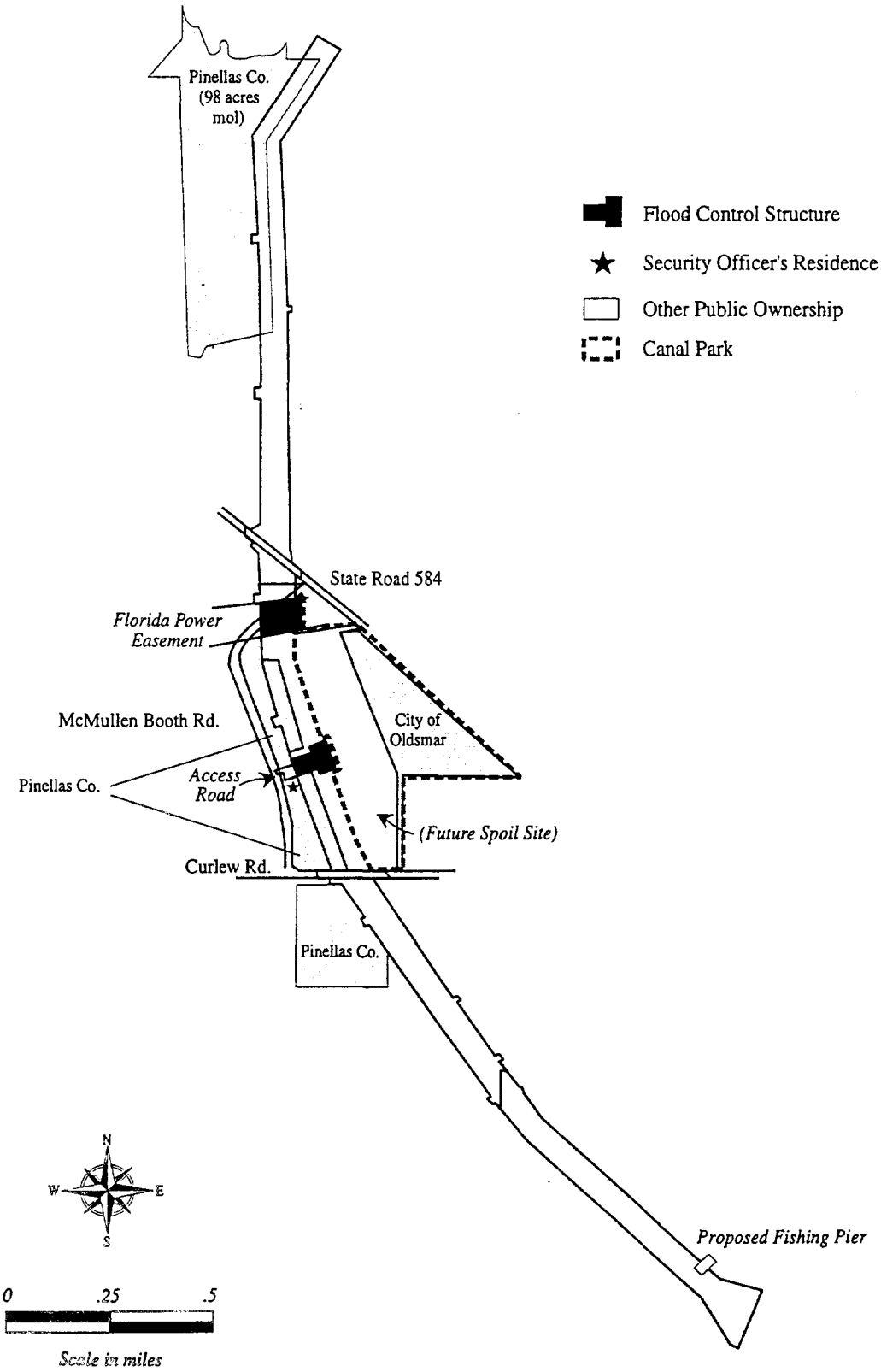


Figure 5. Conceptual Land Use Plan

addition, the highly altered character of the property tends to reduce the degree of intrusion and impact that rights-of-way have upon the project area. As a Water Resource Project Land, the Lake Tarpon Outfall Canal is distinguished as a property that may be able to accommodate such uses without compromising its ability to fulfill the District's objectives of water management and protection of natural systems, provided that the rights-of-way are controlled properly and are in the public interest.

The District will encourage those local governments and private utilities that may be planning future utility crossings of the canal to concentrate new lines along existing utility corridors whenever possible. All future utility easements, including any that run parallel to the canal corridor, must be designed to promote compact development which concentrates new lines among existing lines and minimizes impacts to District-owned property. They must also be designed to avoid disruption of the canal's flood protection operations and must be constructed in a manner that will prevent contamination of canal waters.

Other rights-of-way, including roadways and stormwater drainage outlets (see discussion on page 9), may also impinge on the District's ability to maintain the canal by impeding access and/or compromising the integrity of the canal bank. The District will coordinate with the Florida Department of Transportation, the Pinellas County Department of Environmental Management, and other appropriate outside agencies to ensure that future roadways and drainage outlets are constructed and sited appropriately.

Satellite Campus of St. Petersburg Junior College

The City of Oldsmar has leased a 4.3-acre potion of the Canal Park site to the Board of Trustees of the St. Petersburg Junior College (SPJC) for temporary use as a satellite campus of SPJC. The property encompassed within the leased area is a portion of the 46.5 acres that the District donated to the city for development of recreational facilities. The deed which conveyed ownership of the property to the city directs that ownership will revert to the District in the event that the site is not developed as a park. A temporary waiver of the deed restriction was issued by the District to permit the current use. The term of the lease expires on February 28, 1998, after which the temporary use must be terminated.

Perpetual use as a college campus would not be consistent with the District's land use policies and would not be compatible with the passive recreational uses planned for the remaining undeveloped portions of the park area. The District and the city will work cooperatively to advance timely development of the park upon expiration or termination of the lease agreement.

RESOURCE PROTECTION

Land Management

The District engages in a variety of land management activities designed to protect or enhance the natural resource values of its properties and to ensure public safety. The following is a discussion of some of the land management practices and resource protection measures to be employed at the Lake Tarpon Outfall Canal.

Fire Management

There are several "pyric", fire-maintained plant communities occurring on the grounds of Canal Park. These native plant communities, which include pine flatwoods and wet prairie, account for the majority of the park area. They are dependent upon recurring fire for their long-term maintenance and viability. The Canal Park site

has not experienced fire since the District acquired the lands in the 1960s. This prolonged absence of fire has resulted in detrimental changes to the physical structure and species composition of the communities. Natural fuels, which include above-ground vegetation and leaf litter, have accumulated to hazardous levels and the density of growth in the pine flatwoods has rendered most of the area inaccessible to both wildlife and recreators.

Given the degree to which the Florida landscape has been altered and developed, and in recognition of the need to protect private property from wildfire, the natural mechanism of lightning-induced fires cannot be expected to fulfill the fire needs of these communities. The current condition of the vegetation at Canal Park reflects an acute need for the application of controlled or "prescribed" fire. The District's Land Management Section is very experienced in the use of prescribed fire and will implement a prescribed burning program at the site. Staff of the City of Oldsmar, which is responsible for managing recreational use of the park and for attending to general maintenance needs, will be invited to participate in the planning and implementation of the program. The prescribed burning program should be planned with the ultimate goal of conveying responsibility for fire management to the City of Oldmar, with supervisory oversight provided by the District. Extensive holdings of fire-maintained lands will make it difficult for the District's Land Management Section to make a long-term commitment of its limited resources to fire management at this site.

Generally, prescribed fires should seek to mimic the natural incidence of fire in terms of frequency and seasonality. Fire frequencies for pine flatwoods and wet prairie have been estimated at once every 2-5 years (Florida Natural Areas Inventory and Florida Department of Natural Resources, 1990). Ideally, prescribed fires should be conducted during the growing season, which extends from early spring to late summer. However, the urban location of Canal Park will place severe, unavoidable constraints on the District's ability to employ prescribed fire. Prescription parameters will be dictated more by these practical constraints than by the natural ideal.

Winter fires are cooler and more easily controlled than growing season fires, and may be especially effective as "fuel reduction" burns at sites that have become grossly overgrown. Wind direction, which is a critical factor in heavily developed areas where smoke may pose an extreme hazard or nuisance, is also more predictable during the winter. These factors suggest that initial prescribed fires at Canal Park should be conducted during the winter. Division of the site into a number of small, individual fire management "units" may also reduce safety concerns, simplify control and reduce the volume of smoke generated by individual fires. Fires must also be timed to avoid periods of high public use at the park or SPJC campus. Roller chopping or other mechanical methods of reducing vegetative cover may also be required to supplement the burning program. Prescribed fires at Canal Park will be planned and conducted with all possible precautions and safeguards.

Habitat Enhancement

The inter-tidal shelf of that portion of the canal channel lying downstream of S-551 is largely unvegetated. The habitat value of this area could be enhanced considerably by vegetating sections of the inter-tidal shoreline with native marsh plants. Such vegetation would provide shelter for juvenile fish and other aquatic wildlife, and would serve as foraging areas for wading birds and waterfowl. It also would help to stabilize the canal bank and prevent or reduce erosion. The District's SWIM Department recently installed sprigs of saltmarsh cordgrass (Spartina

alterniflora) on a one-acre segment of the eastern shoreline a short distance downstream of S-551. Initial results indicate that the planting project was successful and that the cordgrass will persist in this area.

District policy, and mandates outlined in the Florida Statutes (Section 373.59), require that District lands must be managed "in such a way as to restore and protect their natural state and condition". Consistent with this policy, the District actively engages in projects designed to restore or enhance habitat values of altered lands under it ownership. Priorities for habitat restoration are established on the basis of a suite of criteria that includes projected benefits to wildlife (District Procedure 61-10).

Habitat enhancement opportunities at the Lake Tarpon Outfall Canal must necessarily be considered a low priority given the great extent of the District's landholdings, the concomitant extent of restoration needs associated with those lands, and the practical limitations on staff time and other resources that can be dedicated to restoration and habitat enhancement activities. However, a combination of factors make the Canal an ideal site for volunteer efforts and suggest that the District should actively promote and foster volunteer or community-based habitat enhancement projects. These include: the suburban location of the Canal; the relative ease of the aforementioned cordgrass installation; and the high likelihood that surplus plant materials may periodically become available in the local area. The recreational value of a fishing pier proposed for the mouth of the Canal (see page 18) and the stability of the canal bank would also benefit from such projects. The District's Land Resources Department, with assistance from the SWIM Department, will devise and implement a process by which volunteer groups may conduct habitat enhancement projects in the inter-tidal areas of the Lake Tarpon Outfall Canal.

Sites that have been invaded by non-native plant species also present opportunities for habitat enhancement activities. These are discussed in the section of the plan devoted to exotic species.

Manatee Protection

The Florida manatee (Trichechus manatus latirostris) has been designated an endangered species by both the USFWS and the FGFWFC (FGFWFC, 1994). It is also protected under the provisions of the United States Marine Mammal Protection Act. The protection afforded by these measures prohibits the taking or molestation of manatees. It has also prompted affected local governments to implement a variety of programs directed at manatee protection. Pinellas County established a Manatee Watch Line in 1992 to receive information regarding sightings of Florida manatees in local waters. There have been at least 22 separate reports of sightings in the Lake Tarpon Outfall Canal since inception of the program. The number of animals reported in individual sightings has ranged from a low of one animal to a high of seven individuals. Many of the sightings have reported the presence of calves. In addition, state biologists have recorded the movement of radio-collared manatees into the canal (Beth Wright, Florida Department of Environmental Protection, pers. comm.). This information clearly reflects a pattern of regular usage of the canal waters by manatees.

In 1983, the Pinellas County Board of County Commissioners approved an ordinance (Pinellas County Ordinance Number 83-20) that formally designated the canal a "no-wake zone". This designation was extended to both the upstream and downstream halves of the canal in response to concerns regarding boater safety and erosion of the canal bank. The calm waters of the canal had historically been a favored site for water skiing. The volume of high speed boating associated with this use, in combination with the enclosed nature of the canal, created conditions

that were unsafe for the public and increased the rate of shoreline erosion. Collisions with motorized boats are the primary cause of human-induced mortality among manatees (O'Shea and Ludlow, 1992; USFWS, 1989) and strict enforcement of the no-wake rule in the downstream half of the canal will produce the dual benefit of reducing the potential for such collisions. This portion of the canal also lies within the bald eagle protection zone discussed previously and enforcement of the no-wake provisions will further limit the intensity of human intrusion upon the eagle nesting area.

The canal bank is currently posted with signage that alerts boaters of the no-wake rule and of the possible presence of manatees. The District will ensure that these signs are adequately maintained and will report violations of the rule to the appropriate Pinellas County authorities. Every effort will be made to assist Pinellas County in their enforcement of the no-wake provision, with particular attention devoted to the downstream, tidal portion that is accessible to manatees.

Water control structures rank second only to boat collisions as a source of human-induced manatee mortality (USFWS, 1989). The most recent information indicates that deaths associated with the operation of water control structures reached a record high in 1994, with at least 16 manatee deaths attributed to this source during the calendar year (Bob Turner, USFWS, pers. comm.). In 1992, staff members of the District's Operations Department reported upstream movement of a manatee through the open gates of S-551. Other reports shortly afterward noted the presence of a manatee in Lake Tarpon. There have been no subsequent reports of a manatee in Lake Tarpon and the fate of that individual remains unknown. The circumstances that allowed passage of the animal are repeated on a very infrequent and irregular basis because most water movement through the structure occurs via small slot gates that would not allow passage by a manatee. The larger vertical lift gates that could physically accommodate passage by a manatee are operated only when large quantities of water must be drained from Lake Tarpon in response to major storm events.

Regardless of the low likelihood that a manatee could be killed during the infrequent operation of the S-551 vertical lift gates, there is reason to place a priority on preventing manatee movement through the structure. Lake Tarpon is not within the natural, historic range of the Florida manatee. The lake was physically isolated from the Tampa Bay system and from any natural movement of manatees until construction of the Lake Tarpon Outfall Canal. The high level of boat traffic on the lake, and the inability of a manatee in the lake to freely exit in search of food or to escape to a warm water refuge during cold weather, represent unnatural hazards. These hazards probably pose a greater peril to manatees than the steel lift gates of S-551.

Modification of the procedures by which the District operates S-551, e.g. allowing only manual operation, may provide a method for preventing the movement of manatees into Lake Tarpon; however, a physical barrier on the downstream side of S-551 would provide greater assurance of preventing such movement and would not preclude remote or automatic operation of the structure. It could also prevent debris from obstructing the structure or interfering with its operation during extreme high tides or tidal surges. The District will evaluate various alternatives for modifying S-551 to prevent the upstream movement of manatees. The South Florida Water Management District, which has extensive experience with this issue, will be consulted for recommendations. Biologists from the USFWS and the Florida Marine Research Institute will also be solicited for assistance. Approval of the ACOE will be secured prior to the implementation of a preferred alternative.

Exotic Species Control

Much of the Lake Tarpon Outfall Canal project area has been invaded to some extent by non-native, exotic species. These include Brazilian pepper (Schinus terebinthifolius) and Woman's Tongue tree (Albizia lebbeck) in Canal Park and hydrilla (Hydrilla verticillata) in the open waters of the canal. Exotic species often degrade the natural communities in which they occur by displacing native species and disrupting natural processes. An absence of predators and other natural control mechanisms frequently allows exotic species to proliferate and form large mono-specific stands.

Controlling the growth of aquatic weeds in the canal will be especially important. Hydrilla and water hyacinth (Eichornia crassipes) are capable of attaining densities that would restrict the flow of water through the canal and compromise its ability to provide flood protection to the Lake Tarpon area. An ongoing program to control the growth of these weeds, which has been in place since initial construction of the project, has been successful and will continue.

Aquatic weeds have also been a problem in Lake Tarpon. In 1992, the lake experienced an episode of explosive hydrilla growth. Approximately 400 acres of the lake bottom were blanketed with hydrilla. An aggressive control program that relied on the use of herbicides was implemented and quickly reduced hydrilla to manageable levels. Fishery management objectives call for limiting hydrilla to a total coverage of less than 6 percent of the lake bottom (SWFWMD, 1994). The District's SWIM Department has proposed that an integrated management approach be implemented for the long-term control of hydrilla. The integrated approach, which would require the introduction of biocontrols into portions of the watershed, would reduce the need for chemical control and assist in controlling hydrilla growth in the canal. The timely implementation of this program will be promoted as beneficial to long-term management of the Lake Tarpon Outfall Canal.

The southwest and northwest corners of Canal Park have been invaded severely by terrestrial exotic plant species. Park managers will be directed to make the removal and control of these species a management priority. The prescribed burning program discussed in a preceding section of this plan should be coordinated with efforts to rehabilitate sites of major invasion. Prescribed fire may stimulate the growth of desirable native species following the removal of exotics, while discouraging or eliminating growth of exotic species that are not adapted to conditions of recurring fire. In addition, roller chopping and other physical disturbances of the soil may create conditions that promote invasion by exotic plant species. Soil disturbance will be avoided whenever possible. Areas where disturbance cannot be avoided will be monitored and kept free of exotics. Efforts to control terrestrial exotic plants on the Canal Park lands should be conducted in a manner that recognizes the need to reserve portions of the property for spoil deposition; the program should emphasize exotic removal at sites that are not projected to be disturbed by future spoil deposition.

Security

Security concerns for the project area focus primarily on the S-551 flood control structure and the channel of the canal. Recreational uses and other activities not directly related to the flood control operations of the project, if conducted in close proximity to S-551, could pose a threat to individual safety and to the structural integrity and future operation of the system. Fences and appropriate signage have been erected to prevent unauthorized persons from approaching the structure and to warn of possible

danger. In addition, an auditory alarm system has been installed to warn of impending operation of the structure. A security officer resides at the site of S-551 and provides additional insurance against unauthorized entry or vandalism.

The City of Oldsmar is responsible for general maintenance and security at Canal Park. The 75-acre portion of the park which the District made available to the city must be maintained in an environmentally acceptable manner under terms of the license agreement executed on August 18, 1987. Dumping, vehicular access and permitted recreational uses are among the issues covered by the license agreement. That agreement assures adequate security for this portion of the property.

ADMINISTRATION

External Coordination

The District must coordinate with many outside public agencies and private interest groups to effectively manage its properties. This section of the plan identifies those management activities and concerns that cross, or potentially cross, the limits of jurisdictional authority or interest. Coordination with affected local governments to maintain the District's access to the canal right-of-way and to enforce the conditions of the easement which incorporated privately-owned lands into the project area will be especially critical.

United States Army Corps of Engineers (ACOE)

The ACOE was responsible for the design and construction of the Four River Basins Project (FRB), of which the Lake Tarpon Outfall Canal is a major component. It also funded most of its construction and prepared the manual that directs the District's operation of the flood control structure. As the local sponsor of the FRB, the District accepts responsibility for the operation and maintenance of all works associated with the project, including the Lake Tarpon Outfall Canal (C-531) and its flood control structure (S-551). The ACOE has continuing review authority over all projects proposed for lands of the Lake Tarpon Outfall Canal, including recreational projects and flood protection protocols. The District will coordinate closely with the ACOE in all applicable facets of management and operation of the property, and will ensure that any modifications to existing water management schedules and control elevations will remain within the limits dictated by the ACOE.

The proposed construction of a physical barrier on the downstream side of S-551, in order to prevent passage of Florida manatees during operation of the vertical lift gates, will require ACOE review and approval. A fishing pier proposed for the downstream end of the canal will require similar coordination with the ACOE.

United States Fish and Wildlife Service (USFWS)

The USFWS is responsible for protecting the nation's threatened and endangered wildlife resources. That responsibility includes administration of the Endangered Species Act (ESA). The USFWS will be consulted regarding special management needs of any species that is protected under provisions of the ESA and is known or expected to occur within the boundaries of the Lake Tarpon Outfall Canal. These include the Florida manatee, which is known to inhabit the waters of the canal, and the bald eagle, which is known to nest on lands proximate to the canal. The possible construction of a barrier to prevent movement of manatees through the vertical lift gates of S-551 will require special consultation with USFWS.

Florida Game and Fresh Water Fish Commission (FGFWFC)

The FGFWFC is the agency with primary responsibility for the protection and management of the state's wildlife resources, including fisheries. The Lake Tarpon fishery is a significant state resource and the FGFWFC is actively involved in the study and management of that resource. Management of water levels in the lake will play a critical role in long-term management of the fishery. The District will remain amenable to cooperating with the FGFWFC to regulate Lake Tarpon water levels in an environmentally acceptable manner that will maintain or enhance the fishery, provided that the regulation of levels remains within the limits established by the ACOE.

Local Governments

The Lake Tarpon Outfall Canal is located within the jurisdiction of 3 local governments. The northern half of the canal lies within the unincorporated area of Pinellas County. Canal Park and the entire southeastern half of the property lie within the limits of the City of Oldsmar, and the southwestern portion of the canal is located within the limits of the City of Safety Harbor. Each of these local governments exercises land use authority over all lands within their area of jurisdiction. As such, the District must work cooperatively with each local government to exclude land uses that would be incompatible with the canal's continued use as a flood control facility.

Pinellas County

The District will continue to require unhindered access to the canal for maintenance purposes. Restrictions on access threaten to reduce the District's ability to maintain the level of local flood protection offered by the canal. Nearly the entire northern half of the project area is privately-owned and was made available for use in the project by way of an easement executed in September, 1969. Since original conveyance of the easement, the ownership of the lands has changed and the formerly rural area has experienced an explosive rate of population growth and development. Much of the canal corridor is now lined by private development, including several residential subdivisions and a large-scale retail center. These developments act as physical barriers that restrict the District's access. Continued access to the northern half of the canal, which lies within the jurisdiction of Pinellas County, will be especially problematic.

Three large blocks of adjoining land have been acquired by Pinellas County and county ownership of those tracts will prevent encroachment by development along those reaches of the canal (Figure 3). One of the tracts, which consists of forested wetlands and is to be preserved in its natural state, encompasses the northwestern shoreline of the canal. The District will ask the Real Estate Management Division of the Pinellas County General Services Department for official assurance that the District will be granted continued access to the section of canal bank within their property. The District will also ask that the county apprise citizens seeking to develop lands adjoining the canal of potential easement restrictions and otherwise assist the District in maintaining access and enforcing provisions of the easement.

The Pinellas County Department of Environmental Management (DEM) is playing an active role in management of Lake Tarpon. DEM is currently supervising development of a watershed management plan that encompasses most of the developed areas along the western shoreline of the lake and is engaged in research that will guide future lake management decisions. As the lake's only outlet, the Lake Tarpon Outfall Canal exerts considerable influence on

the lake system. The ability of the S-551 structure to regulate and manipulate lake levels is of particular importance to the long-term management of the lake. The District will work closely with the DEM to ensure a cooperative and consistent approach to management of the Lake Tarpon/Lake Tarpon Outfall Canal system. Responsibility for regulating stormwater treatment and discharge has been delegated to DEM, and the District will work with DEM to implement a process that will consolidate and integrate stormwater discharges to the canal and protect or improve water quality conditions (see page 8 for more detailed discussion).

Enforcement of the no-wake zone provisions established for the canal will also require the assistance of Pinellas County. The zone was established by county ordinance and responsibility for enforcement of the ordinance is shared by the Pinellas County Sheriff's Office and the Florida Marine Patrol.

City of Oldsmar

The District and the City of Oldsmar have entered into an agreement that will allow the future development of Canal Park. The city has also proposed the construction of a fishing pier near the downstream mouth of the canal. Successful development of these projects will require extensive coordination between the District and the city.

City of Safety Harbor

Portions of the project area lying within the City of Safety Harbor are not owned in fee title by the District. However, the city's Future Land Use Map designates most of the lands adjoining the canal as a Preservation area. Adjoining city lands that are available for private development have largely been developed and future access to the canal corridor appears to be unhindered. However, the District will be prepared to work cooperatively with the city to ensure that incompatible land uses are not permitted on adjoining lands. The District will also be amenable to working jointly with the city to permit appropriate public uses on District-owned segments of the canal corridor.

Internal Coordination

District staff from the Land Resources Department, Planning Department, Operations Department, Surface Water Improvement and Management (SWIM) Department, and the Office of the General Counsel have played key roles in the development of this land use plan. The effective implementation of the plan will require continued cooperation of these and other departments of the District.

The Land Resources Department accepts primary responsibility for the management of District-held properties and will play the major role in implementation of the plan. Close coordination with the Operations Department will be essential. The Operations Department is responsible for the maintenance and operation of the structural modifications on the property, including maintenance of S-551 and control of aquatic weeds. Preservation of the flood control function of the property must continue to be regarded as the management goal of paramount importance. The SWIM Department will also play a key role in implementation of the habitat enhancement aspects of the plan, and in future efforts to integrate the management of Lake Tarpon and operation of the canal system. Legal constraints on access to, and use of, the privately-owned portions of the project area will require continuing involvement of the Office of the General Counsel.

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