Land Management Plan for Double Branch Bay
2019-2029



Prepared for:

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LAND MANAGEMENT PLAN COMPLIANCE CHECKLIST

→ Required for State-owned conservation lands over 160 acres ←

Instructions for managers:
Complete each item and fill in the applicable correlating page numbers and/or appendix where the item can be found within the land management plan (LMP). If an item does not apply to the subject property, please describe that fact on a correlating page number of the LMP. Do not mark an "N/A" for any items below.

For more information, please visit the stewardship portion of the Division of State Lands' website at: http://www.dep.state.fl.us/lands/stewardship.htm.

Section A: Acquisition Information Items

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
1.	The common name of the property.	18-2.018 & 18-2.021	Sect 1.1, p.6
2.	The land acquisition program, if any, under which the property was acquired.	18-2.018 & 18-2.021	Sect 1.2, p.6
3.	Degree of title interest held by the Board, including reservations and encumbrances such as leases.	18-2.021	Sect 1.2, p.6
4.	The legal description and acreage of the property.	18-2.018 & 18-2.021	LMP Information Summary, App. A
5.	A map showing the approximate location and boundaries of the property, and the location of any structures or improvements to the property.	18-2.018 & 18-2.021	Figure 1, p.7
6.	An assessment as to whether the property, or any portion, should be declared surplus. *Provide information regarding assessment and analysis in the plan, and provide corresponding map.*	18-2.021	Sect 7.3, p.82-83
7.	Identification of other parcels of land within or immediately adjacent to the property that should be purchased because they are essential to management of the property. *Please clearly indicate parcels on a map.*	18-2.021	Sect 7.3, p.82, Figure 11, p.84
8.	Identification of adjacent land uses that conflict with the planned use of the property, if any.	18-2.021	Sect 2.0, p. 9-10, Sect 5.2.1, p.61
9.	A statement of the purpose for which the lands were acquired, the projected use or uses as defined in 253.034 and the statutory authority for such use or uses.	259.032(10)	Sect 1.2, p.6
10.	Proximity of property to other significant State, local or federal land or water resources.	18-2.021	Figure 1, 6, and 7, p.7, 43, 56

Section B: Use Items

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
11.	The designated single use or multiple use management for the property, including use by other managing entities.	18-2.018 & 18-2.021	Sect 1.2, p.6
12.	A description of past and existing uses, including any unauthorized uses of the property.	18-2.018 & 18-2.021	Sect 1.2, p.6
13.	A description of alternative or multiple uses of the property considered by the lessee and a statement detailing why such uses were not adopted.	18-2.018	Sect. 1.2, p. 6
14.	A description of the management responsibilities of each entity involved in the property's management and how such responsibilities will be coordinated.	18-2.018	Sect 1.3, p.6, 8
15.	Include a provision that requires that the managing agency consult with the Division of Historical Resources, Department of State before taking actions that may adversely affect archeological or historical resources.	18-2.021	Sect 3.3, p.52-53
16.	Analysis/description of other managing agencies and private land managers, if any, which could facilitate the restoration or management of the land.	18-2.021	Sect 5.3.2, p.65 Tables 6-1, 6-2, p.74-75
17.	A determination of the public uses and public access that would be consistent with the purposes for which the lands were acquired.	259.032(10)	Sect 1.2, p.6

18.	A finding regarding whether each planned use complies with the 1981 State Lands Management Plan, particularly whether such uses represent "balanced public utilization," specific agency statutory authority and any other legislative or executive directives that constrain the use of such property.	18-2.021	Sect. 1.2, p. 6, Sect. 4.0 pp. 54 - 60
19.	Letter of compliance from the local government stating that the LMP is in compliance with the Local Government Comprehensive Plan.	BOT requirement	App. G
20.	An assessment of the impact of planned uses on the renewable and non-renewable resources of the property, including soil and water resources, and a detailed description of the specific actions that will be taken to protect, enhance and conserve these resources and to compensate/mitigate damage caused by such uses, including a description of how the manager plans to control and prevent soil erosion and soil or water contamination.	18-2.018 & 18-2.021	Sect 2.1.3, p.14; Sect 2.3.2, p.42
21.	*For managed areas larger than 1,000 acres, an analysis of the multiple-use potential of the property which shall include the potential of the property to generate revenues to enhance the management of the property provided that no lease, easement, or license for such revenue-generating use shall be entered into if the granting of such lease, easement or license would adversely affect the tax exemption of the interest on any revenue bonds issued to fund the acquisition of the affected lands from gross income for federal income tax purposes, pursuant to Internal Revenue Service regulations.	18-2.021 & 253.036	Sect. 1.2, p. 6
22.	If the lead managing agency determines that timber resource management is not in conflict with the primary management objectives of the managed area, a component or section, prepared by a qualified professional forester, that assesses the feasibility of managing timber resources pursuant to section 253.036, F.S.	18-021	Sect. 1.2, p. 6 Sect 2.2.1, p.18
23.	A statement regarding incompatible use in reference to Ch. 253.034(10).	253.034(10)	Sect. 2.3, p. 38-41

*The following taken from 253.034(10) is not a land management plan requirement; however, it should be considered when developing a land management plan: The following additional uses of conservation lands acquired pursuant to the Florida Forever program and other state-funded conservation land purchase programs shall be authorized, upon a finding by the Board of Trustees, if they meet the criteria specified in paragraphs (a)-(e): water resource development projects, water supply development projects, storm-water management projects, linear facilities and sustainable agriculture and forestry. Such additional uses are authorized where: (a) Not inconsistent with the management plan for such lands; (b) Compatible with the natural ecosystem and resource values of such lands; (c) The proposed use is appropriately located on such lands and where due consideration is given to the use of other available lands; (d) The using entity reasonably compensates the titleholder for such use based upon an appropriate measure of value; and (e) The use is consistent with the public interest.

Section C: Public Involvement Items

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
24.	A statement concerning the extent of public involvement and local government participation in the development of the plan, if any.	18-2.021	LMP Summary, App. I
25.	The management prospectus required pursuant to paragraph (9)(d) shall be available to the public for a period of 30 days prior to the public hearing.	259.032(10)	App. H
26.	LMPs and LMP updates for parcels over 160 acres shall be developed with input from an advisory group who must conduct at least one public hearing within the county in which the parcel or project is located. *Include the advisory group members and their affiliations, as well as the date and location of the advisory group meeting.*	259.032(10)	App. H
27.	Summary of comments and concerns expressed by the advisory group for parcels over 160 acres	18-2.021	App. H
28.	During plan development, at least one public hearing shall be held in each affected county. Notice of such public hearing shall be posted on the parcel or project designated for management, advertised in a paper of general circulation, and announced at a scheduled meeting of the local governing body before the actual public hearing. *Include a copy of each County's advertisements and announcements (meeting minutes will suffice to indicate an announcement) in the management plan.*	253.034(5) & 259.032(10)	App. H
29.	The manager shall consider the findings and recommendations of the land management review team in finalizing the required 10-year update of its management plan. *Include manager's replies to the team's findings and recommendations.*	259.036	App. B

30.	Summary of comments and concerns expressed by the management review team, if required by Section 259.036, F.S.	18-2.021	App. B
31.	If manager is not in agreement with the management review team's findings and recommendations in finalizing the required 10-year update of its management plan, the managing agency should explain why they disagree with the findings or recommendations.	259.036	App. B

Section D: Natural Resources

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
32.	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding soil types. *Use brief descriptions and include USDA maps when available.*	18-2.021	Sect. 2.1, p.11-14; Figure 2, p.12
33.	Insert FNAI based natural community maps when available.	ARC consensus	Figures 3 and 4, p.16-17
34.	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding outstanding native landscapes containing relatively unaltered flora, fauna, and geological conditions.	18-2.021	Exec. Summary, Sect. 2.2.1, p.18-38
35.	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding unique natural features and/or resources including but not limited to virgin timber stands, scenic vistas, natural rivers and streams, coral reefs, natural springs, caverns, and large sinkholes.	18-2.018 & 18-2.021	Exec. Summary, Sect. 2.3.1, p.41
36.	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding beaches and dunes.	18-2.021	Sect. 2.0, pp 9-11
37.	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding mineral resources, such as oil, gas and phosphate, etc.	18-2.018 & 18-2.021	Sect. 2.1.1, p.11
38.	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding fish and wildlife, both game and non-game, and their habitat.	18-2.018 & 18-2.021	Sect. 2.4, p.44-45
39.	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding State and Federally listed endangered or threatened species and their habitat.	18-2.021	Sect. 2.5.1, p.46-51
40.	The identification or resources on the property that are listed in the Natural Areas Inventory. *Include letter from FNAI or consultant where appropriate.*	18-2.021	App. D
41.	Specific description of how the managing agency plans to identify, locate, protect, and preserve or otherwise use fragile, nonrenewable natural and cultural resources.	259.032(10)	Sect. 3.3, p.52-53
42.	Habitat Restoration and Improvement	259.032(10) & 253.034(5) ↓	
42-A.	Describe management needs, problems and a desired outcome and the key management activities necessary to achieve the enhancement, protection and preservation of restored habitats and enhance the natural, historical and archeological resources and their values for which the lands were acquired.		Sect. 6, p.69-76 Sect. 3.3, p.52-53
42-B.	Provide a detailed description of both short (2-year planning period) and long-term (10-year planning period) management goals, and a priority schedule based on the purposes for which the lands were acquired and include a timeline for completion.		Sect. 6, p.69-81
42-C.	The associated measurable objectives to achieve the goals.		Sect. 6, p.69-81
42-D.	The related activities that are to be performed to meet the land management objectives and their associated measures. *Include fire management plans - they can be in plan body or an appendix.*		Sect. 5.3, p.64-66
42-E.	A detailed expense and manpower budget in order to provide a management tool that facilitates development of performance measures, including recommendations for cost-effective methods of accomplishing those activities.		Sect. 8, p.85; Table 6-3, p.76
43.	***Quantitative data description of the land regarding an inventory of forest and other natural resources and associated acreage. *See footnote.*	253.034(5)	Table 2-2, p.15

44.	Sustainable Forest Management, including implementation of prescribed fire management	18-2.021, 253.034(5) & 259.032(10) ↓	
44-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).		Sect. 5.3, p.64-67
44-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		Sect. 5.3, p.64-67
44-C.	Measurable objectives (see requirement for #42-C).		Sect. 5.3, p.64-67
44-D.	Related activities (see requirement for #42-D).		Sect. 5.3, p.64-67
44-E.	Budgets (see requirement for #42-E).		Sect. 8, p.85; Table 6-3, p.76
45.	Imperiled species, habitat maintenance, enhancement, restoration, or population restoration	259.032(10) & 253.034(5) ↓	
45-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).		Sect. 2.5.1, p.45-50; App. D
45-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		Tables 6-1 and 6-2, p.74-75
45-C.	Measurable objectives (see requirement for #42-C).		Sect. 6, p.69-81
45-D.	Related activities (see requirement for #42-D).		Sect. 6, p.69-81
45-E.	Budgets (see requirement for #42-E).		Sect. 8, p.85; Table 6-3, p.76
46.	***Quantitative data description of the land regarding an inventory of exotic and invasive plants and associated acreage. *See footnote.*	253.034(5)	Sect. 5.2.1, p.61-63
47.	Place the Arthropod Control Plan in an appendix. If one does not exist, provide a statement as to what arrangement exists between the local mosquito control district and the management unit.	BOT requirement via lease language	App. I
48.	Exotic and invasive species maintenance and control	259.032(10) & 253.034(5) ↓	
48-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).		Sect. 5.2, p.60-64; App. E
48-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		Sect.5.2, p.60-64; App. E
48-C.	Measurable objectives (see requirement for #42-C).		Sect. 5.2, p.60-64; App. E
48-D.	Related activities (see requirement for #42-D).		Sect. 5.2, p.60-64; App. E
48-E.	Budgets (see requirement for #42-E).		Sect. 8, p.85; Table 6-3, p.76

Section E: Water Resources

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
49.	A statement as to whether the property is within and/or adjacent to an aquatic preserve or a designated area of critical state concern or an area under study for such designation. *If yes, provide a list of the appropriate managing agencies that have been notified of the proposed plan.*	18-2.018 & 18-2.021	Sect. 2.3.1, p.41; Figure 6, p.43
50.	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding water resources, including water classification for each water body and the identification of any such water body that is designated as an Outstanding Florida Water under Rule 62-302.700, F.A.C.	18-2.021	Sect. 2.3.1, p.41; Figure 6, p.43
51.	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding swamps, marshes, and other wetlands.	18-2.021	Sect. 2.2.1, p.18-38; Figure 3, p.16
52.	***Quantitative description of the land regarding an inventory of hydrological features and associated acreage. *See footnote.*	253.034(5)	Table 2-2, p.15
53.	Hydrological Preservation and Restoration	259.032(10) & 253.034(5) ↓	
53-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).		Sect. 2.3.2, p.42
53-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		Sect. 2.3.2, p.42
53-C.	Measurable objectives (see requirement for #42-C).		Sect. 2.3.2, p.42
53-D.	Related activities (see requirement for #42-D).		Sect. 2.3.2, p.42

53-E.	Budgets (see requirement for #42-E).		Sect. 8, p.85; Table 6-1

Section F: Historical, Archeological and Cultural Resources

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
54.	**Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding archeological and historical resources. *Include maps of all cultural resources except Native American sites, unless such sites are major points of interest that are open to public visitation.*	18-2.018, 18-2.021 & per DHR's request	Sect. 3.2, p.52
55.	***Quantitative data description of the land regarding an inventory of significant land, cultural or historical features and associated acreage.	253.034(5)	Sect. 3.2, p.52
56.	A description of actions the agency plans to take to locate and identify unknown resources such as surveys of unknown archeological and historical resources.	18-2.021	Sect. 3.3, p.52-53
57.	Cultural and Historical Resources	259.032(10) & 253.034(5) ↓	
57-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).		Sect. 3.3, p.52-53
57-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		Sect. 3.3, p.52-53
57-C.	Measurable objectives (see requirement for #42-C).		Sect. 3.3, p.52-53
57-D.	Related activities (see requirement for #42-D).		Sect. 3.3, p.52-53
57-E.	Budgets (see requirement for #42-E).		Sect. 8, p.85

**While maps of Native American sites should not be included in the body of the management plan, the DSL urges each managing agency to provide such information to the Division of Historical Resources for inclusion in their proprietary database. This information should be available for access to new managers to assist them in developing, implementing and coordinating their management activities.

Section G: Facilities (Infrastructure, Access, Recreation)

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
58.	***Quantitative data description of the land regarding an inventory of infrastructure and associated acreage. *See footnote.*	253.034(5)	Sect. 8, p.85; Tables 6-1, 6-2, and 6-3, p.74-76
59.	Capital Facilities and Infrastructure	259.032(10) & 253.034(5) ↓	
59-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).		Sect. 8, p.85; Tables 6-1, 6-2, and 6-3, p.74-76
59-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		Sect. 8, p.85; Tables 6-1, 6-2, and 6-3, p.74-76
59-C.	Measurable objectives (see requirement for #42-C).		Sect. 8, p.85; Tables 6-1, 6-2, and 6-3, p.74-76
59-D.	Related activities (see requirement for #42-D).		Sect. 8, p.85; Tables 6-1, 6-2, and 6-3, p.74-76
59-E.	Budgets (see requirement for #42-E).		Sect. 8, p.85; Tables 6-1, 6-2, and 6-3, p.74-76
60.	*** Quantitative data description of the land regarding an inventory of recreational facilities and associated acreage.	253.034(5)	Sect. 4.2, p.57
61.	Public Access and Recreational Opportunities	259.032(10) & 253.034(5) ↓	
61-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).		Sect. 4.2, p.57; Figure 8, p.59
61-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		Sect. 4.2, p.57; Figure 8, p.59
61-C.	Measurable objectives (see requirement for #42-C).		Sect. 4.2, p.57; Figure 8, p.59
61-D.	Related activities (see requirement for #42-D).		Sect. 4.2, p.57; Figure 8, p.59
61-E.	Budgets (see requirement for #42-E).		Sect. 8, p.85; Tables 6-1, 6-2, and 6-3, p.74-76

Section H: Other/ Managing Agency Tools

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
62.	Place this LMP Compliance Checklist at the front of the plan.	ARC and managing agency consensus	p.1-6

63.	Place the Executive Summary at the front of the LMP. Include a physical description of the land.	ARC and 253.034(5)	Exec. Summary
64.	If this LMP is a 10-year update, note the accomplishments since the drafting of the last LMP set forth in an organized (categories or bullets) format.	ARC consensus	Exec. Summary
65.	Key management activities necessary to achieve the desired outcomes regarding other appropriate resource management.	259.032(10)	Sect. 8, p.85; Tables 6-1, 6-2, and 6-3, p.74-76
66.	Summary budget for the scheduled land management activities of the LMP including any potential fees anticipated from public or private entities for projects to offset adverse impacts to imperiled species or such habitat, which fees shall be used to restore, manage, enhance, repopulate, or acquire imperiled species habitat for lands that have or are anticipated to have imperiled species or such habitat onsite. The summary budget shall be prepared in such a manner that it facilitates computing an aggregate of land management costs for all state-managed lands using the categories described in s. 259.037(3) which are resource management, administration, support, capital improvements, recreation visitor services, and law enforcement activities.	253.034(5)	Sect. 8, p.85; Tables 6-1, 6-2, and 6-3, p.74-76
67.	Cost estimate for conducting other management activities which would enhance the natural resource value or public recreation value for which the lands were acquired, include recommendations for cost-effective methods in accomplishing those activities.	259.032(10)	Sect. 8, p.85; Tables 6-1, 6-2, and 6-3, p.74-76
68.	A statement of gross income generated, net income and expenses.	18-2.018	Sect. 8, p.85

*** = The referenced inventories shall be of such detail that objective measures and benchmarks can be established for each tract of land and monitored during the lifetime of the plan. All quantitative data collected shall be aggregated, standardized, collected, and presented in an electronic format to allow for uniform management reporting and analysis. The information collected by the DEP pursuant to s. 253.0325(2) shall be available to the land manager and his or her assignee.

Double Branch Bay Land Management Plan
Information Summary

Lead Agency:	Hillsborough County Conservation and Environmental Lands Management Department
Common Name:	Double Branch Bay Preserve (formerly Bower Tract)
Location:	Hillsborough County, Florida
Acreage Total:	1,584.91 (1,583.18) acres
Acreage Breakdown:	**Land Cover Classification** Mesic Flatwoods 123.36 acres Shrub and Brushland 7.11 acres Other Hardwoods 3.17 acres Freshwater Forested Wetlands 3.99 acres Tidally Influenced Stream 92.4 acres Canal 2.90 acres Estuarine 422.56 acres Tidal Flats 24.88 acres Salt Marsh 130.42 acres Mangrove Swamp 769.03 acres Tidal flats 19.03 acres Urban Open Land 1.68 acres
Use:	Conservation, Limited Passive Recreation, Preservation
Management Responsibilities:	Hillsborough County Conservation and Environmental Lands Management Department
Designated Land Use:	Coastal Conservation
Subleases:	None
Contracts:	None
Encumbrances:	None
Type of Acquisition:	CARL, Fee Simple
Unique Features:	Preserved upland and coastal wetland
Archaeological/Historical:	Several known and numerous expected sites.
Management Needs:	Prescribed burning, exotic plant control, site security, improved access for land management.
Acquisition Needs/Acreage	There are four adjacent properties totaling 33 acres that could be purchased to enhance the Double Branch Bay.
Surplus Lands/Acreage:	None.
Public Involvement:	For initial plan: November 1999 For 2007 Management Plan: October 2006 For current plan: October 25, 2018 (public meeting); March 13, 2019 (advisory group meeting)

Executive Summary

Double Branch Bay Preserve forms a valuable connection between two other Hillsborough County-owned bayfront properties along Old Tampa Bay, Upper Tampa Bay Park and Rocky Creek Coastal Preserve. These three properties provide 4.9 miles of mangrove-lined shoreline, with the Preserve providing the majority. A shallow shelf of subtidal habitat along Old Tampa Bay contains 37 acres of seagrass in the Preserve. The Preserve's back waters provide estuarine bays, tidal creeks, red mangrove overwash islands, and oyster beds supporting a rich nursery area for fish and foraging area for wading and shorebirds. This is set against the back drop of pine habitat. Although the upland communities of the Preserve comprise a small area, the mostly mesic flatwoods are among the last stands of natural pinelands abutting coastal wetlands in this part of the bay. Only 40 years ago, range cattle on the Preserve foraged on saw palmetto and mangrove. Long before the early European settlers, native peoples used the natural resources of the area for food and tools, and the streams for freshwater.

Upland and wetland communities on the 1,585-acre Preserve include mesic flatwoods, shrub and brushland (mesic flatwoods undergoing restoration), tidally influenced streams, estuarine habitats including oyster beds and submerged seagrasses, tidal flats, salts marshes and extensive mangrove swamps. These natural communities support a diverse array of native plant and animal species and are relatively undisturbed by historical land use actions. The federally-listed plant, Tampa mock vervain (*Glandularia tampensis*) has been observed historically, but not recently. Imperiled animals species documented on the Preserve include the gopher tortoise and several species of wading birds. Other transient species such as imperiled sea turtles and manatees are likely found in and near the waters of the Preserve utilizing estuarine food resources found in the area.

The water resources of the Preserve include Double Branch Creek to the west, Channel A bisecting the site in the center, and Rocky Creek/Dick Creek along the east. Double Branch Bay is located mostly within Northwest Five Watershed, a 140-square mile portion of northwest Hillsborough County. The Preserve is located between the sub-watersheds of Rocky/Brushy Creek and Double Branch Creek. For the most part, water quality within the watershed is considered good or fair and the trend has been stable. But the Rocky/Brushy Creek system, which includes the waters of the Preserve, is considered an impaired water body due to high levels of nutrients and dissolved oxygen (DO). The DO and nutrients responsible for the impairment of the Preserve's waters are common in stormwater runoff from residential and commercial areas.

Recreational use will continue to increase with the addition of designated hiking trails linking the Preserve to trails and amenities at Upper Tampa Bay Park. A canoe landing spot with easy access to the Upper Tampa Bay Park paddling trail will provide paddlers with an opportunity to explore the Preserve on foot along marked hiking trails. And finally, Double Branch Bay Preserve will offer a looped paddling trail from the Upper Tampa Bay Park paddling trail to explore the back-bay area of the Preserve. The shallow waters of Old Tampa Bay allow

paddlers access to the Pinellas Blueway trail to the west, and other Hillsborough County shoreline access points to the east and south.

Significant management accomplishments since the 2007 Land Management Plan include:

- *Fire line creation and maintenance including gathering GPS fire line location data*
- *Roller chopping of Shrub and Brushland community*
- *Contracts for prescribed fire with the Florida Forest Service (FFS)*
- *Prescribed fire in MU 1*
- *Exotic/nuisance species surveys and herbicide applications including post by contractors*
- *Eradication of earpod (Enterolobium cyclocarpum) trees requiring a turbidity plan and Best Management Practices due to location near the water*
- *Archeological survey by the University of South Florida*
- *Various biological surveys including Christmas bird count, Wildlife survey by Wildlands Conservation Inc. (2010), Survey and documentation of Tampa mock vervain, and detailed plant survey including specimen vouchering*
- *Old dock pilings removed from Rocky Creek*
- *Fence and gate modifications to allow better access and entrance sign and walk-in gate installation*

This management plan addresses the items on the plan content checklist provided by the Florida Department of Environmental Protection, Office of Environmental Services, Division of State Lands, and is organized accordingly. The following page provides a summary of the information included in the Double Branch Bay Preserve Land Management Plan.

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List of Acronyms

CFR	Code of Federal Regulations
CARL	Conservation and Recreation Lands
CLC	Cooperative Land Cover
DO	Dissolved Oxygen
DHR	Division of Historical Resources
the Preserve	Double Branch Bay Preserve
FDEP	Florida Department of Environmental Protection
FLEPPC	Florida Exotic Pest Plant Council
FWC	Florida Fish and Wildlife Conservation Commission
FFWRI	Florida Fish and Wildlife Research Institute
FFS	Florida Forest Service
FNAI	Florida Natural Area Inventory
FAS	Forest Area Supervisor
ELAPP	J.K. Platt Environmental Lands Acquisition and Protection Program
MU	Management Unit
MVM	Mechanical Vegetation Management
NWCG	National Wildfire Coordinating Group
NRCS	Natural Resource Conservation Service
OBVM	Objective Based Vegetation Management
OFW	Outstanding Florida Water
SWFWMD	Southwest Florida Water Management District
S.R.	State Road
SAV	Submerged Aquatic Vegetation

Contents (continued)

SP	Supplemental Planting
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
WCPR	Wildlife Conservation, Prioritization, and Recovery

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1.0 General Information

1.1 Location of Double Branch Bay Preserve

Double Branch Bay Preserve (the Preserve) formerly known as The Bower Tract, is located along the northern shoreline of Old Tampa Bay in western Hillsborough County, Florida just south of Hillsborough Avenue (State Road [S.R.] 580). The 1,584.91-acre site is located in Sections 29, 30, 31, 32, and 33, Township 29 South, Range 17 East. Figure 1 shows the location of the Preserve in Hillsborough County (County) and depicts the boundary and surrounding landscape including a number of nature based parks and preserves in the vicinity. Appendix A provides the legal description of the Preserve. The operation and maintenance of Channel A was transferred to the County from SWFWMD in 1992 (Appendix A).

1.2 History and Objectives

The Preserve was purchased by the State of Florida in 1985 under the Conservation and Recreation Lands (CARL) program. It was acquired under a Fee Simple purchase by the State and is leased to Hillsborough County. The lease was signed November 13, 1985 for a 50-year term and allows the County to use the land for environmental protection and compatible public outdoor recreation (Appendix A). Prior to acquisition by the State, the property was used as rangeland for cattle, tapping of pine trees by the naval stores industry, timber harvesting, and likely hunting.

With preservation of coastal upland and estuarine habitats being primary goals for acquisition, certain activities such as, but not limited to, hunting, extraction of minerals, access by dirt bikes or other off-road vehicles are considered invasive and potentially damaging and therefore prohibited within the Preserve and not proposed as future uses of the Preserve.

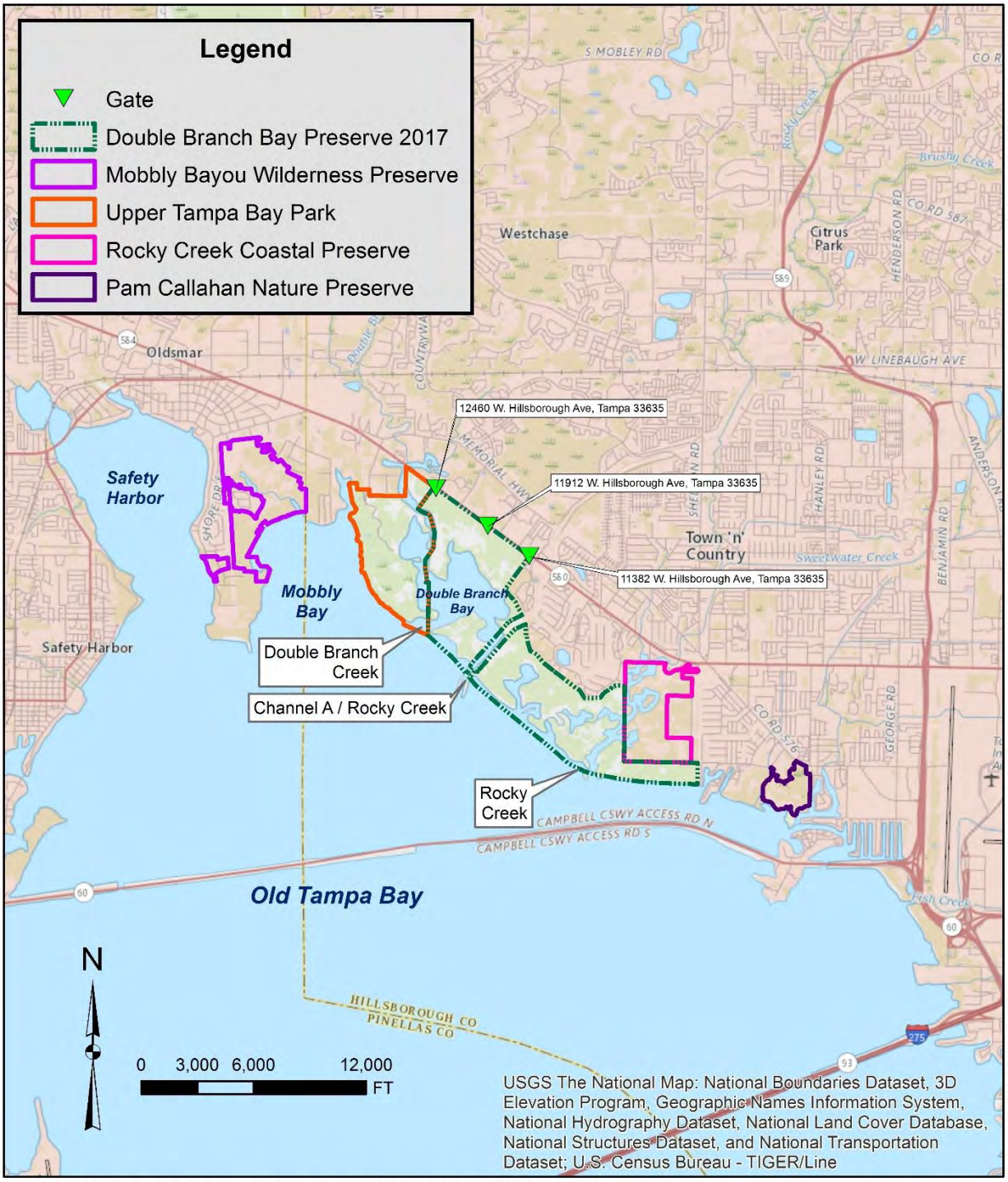
The approximately 123 acres of flatwoods within the Preserve constitute one of the last surviving examples of coastal uplands in the Tampa Bay area and, although timber harvesting may have taken place on the Preserve and surrounding lands in the past, such activity would be contrary to the goals of protecting this habitat. Additionally, the acreage supporting harvestable trees is likely too small to be commercially worthwhile.

Authorized uses of the Preserve include environmental protection and compatible outdoor recreation. Specific benefits obtained from the preservation and management of the Preserve includes conservation of natural and cultural resources, restoration and protection of estuarine and riparian habitat along Tampa Bay, and improvement of water quality. Significant conservation value is derived by its coastal habitats and natural shoreline being adjacent to uplands. The Preserve is also geographically significant because of its proximity to a number of other conservation lands, parks, and preserves located along Old Tampa Bay. The Preserve lies adjacent to and between Tampa Bay Park and Rocky Creek Coastal Preserve. Mobbly Bayou Wilderness Preserve lies 1.2 miles to the west in Pinellas County and Pam Callahan Nature Preserve lies approximately 0.75 miles to the east of the Preserve (Figure 1).

Unauthorized uses of the past include camping, arson, and motor boat use in shallows creating propeller scars in submerged aquatic vegetation.

1.3 Previous Management Plans

The first management plan for the Preserve property was approved by the CARL Program in 1986. An update to the original plan was prepared and adopted in March 2007, and management ensued under a 10-year updated management plan through 2017. Hillsborough County is responsible for the management of the property guided by the approved management plan. The public meeting for this plan was held on October 25, 2018 and the Advisory Group meeting was held on March 13, 2019 (Appendix H).



Additional Sources: Hillsborough County, Florida, 2016, 2017; Water & Air Research, Inc., 2017.

Figure 1.
Location of Double Branch Bay Preserve, Mobbly Bayou Wilderness Preserve, Upper Tampa Bay Park, Rocky Creek Coastal Preserve, and Pam Callahan Nature Preserve Hillsborough and Pinellas Counties, Florida

A land management review team evaluated conditions at the Preserve and the management plans in 1998, 2006, 2011, and 2015. Issues raised by the management review team and the managing agency's responses are in Appendix B for the 2011 and 2015 reviews. The 2011 and 2015 management review teams identified the following issues needing attention in the management plan update:

- Identify mollusk reef and marine unconsolidated substrate communities (2011)
- Increase protection of listed plant species such as Tampa mock vervain (*Glandularia tampensis*) and erect pricklypear (*Opuntia stricta*) (2011 and 2015)
- Increase documentation of burn history and plant community management objectives (2011)
- Increase monitoring of non-native, invasive, and problem plants and animals (2011)
- Address potential plant pathogens such as lethal yellowing and laurel wilt (2011)
- Discuss timber inventory and harvesting (2015)
- Identify surplus land determinations and identify surplus land (2015)

Other management plans consulted in the development of this plan include Upper Tampa Bay Park (Parsons, 2006), Rocky Creek Coastal Preserve (Parsons, 2005) and Bower Tract (Parsons, 2007).

2.0 Natural Resources

The Preserve was acquired to protect the area's valuable natural and cultural resources, and surrounding landscape in the Old Tampa Bay. The site is unique in providing recreational use and environmental education opportunities of freshwater, estuarine, and upland habitats in a rapidly urbanizing area. It also provides a buffer between urbanization and important resources of the Tampa Bay estuary. Viewed in context with other nearby lands, the Preserve is an essential component in the protection of environmental resources in Old Tampa Bay.

The Preserve was acquired to conserve and protect natural and cultural resources and provide outdoor recreation opportunities, namely compatible passive uses such as canoeing and hiking. To achieve the conservation goal, viable plant and animal populations must be perpetually maintained amid a network of natural habitats. The extent to which the Preserve contributes to this long-term goal defines its potential conservation value. The upland communities at the Preserve are relatively intact; however, they are small in size (approximately 130 acres or 8 percent of the total acreage) and isolated from other large intact natural communities in public or private ownership. Though small and isolated, the mesic flatwoods, along with similar habitat in the adjacent Upper Tampa Bay Park, represent some of the last remaining natural uplands adjacent to Old Tampa Bay. In addition, the extensive estuarine and marine ecosystems provide valuable and wide-ranging benefits to Tampa Bay by providing wildlife and fisheries habitat, recreational opportunities, and storm surge attenuation. The purpose of this 10-year management plan update is to provide management information and guidelines that will help

land managers realize the potential conservation and recreation value of the Preserve. To maximize conservation values, the Preserve must be managed using ecological criteria that are measurable and achievable. Some ecological criteria include; use by special status plant and animal species, reduction of exotic invasive plants and animals, intactness of natural communities, species diversity, and level of effort required to manage the communities.

Updates to plant and animal lists, exotic species management needs, and application of prescribed fire will be on going. If relevant ecological criteria are to be reevaluated, the Conservation and Land Management staff (the Department) should, at a minimum, continue to consider:

- whether the Preserve by itself, or in conjunction with adjacent and regional lands supports or can support viable populations of plant and animal species (especially those considered imperiled),
- whether the Preserve contains significant tracts of relatively intact natural habitats,
- the feasibility of appropriately managing particular habitats within the Preserve (e.g., prescribed fire under difficult urban interface conditions), and
- the potential for sea-level rise impacts on mangrove, estuarine, salt marsh and salt flat communities, landward migration of these communities, and impacts to adjacent upland communities.

The use of ecological criteria to evaluate the Preserve requires accurate information about existing natural communities within the Preserve and surrounding lands. Further, to develop effective prescribed fire and exotic invasive species management programs and identify restoration opportunities, it is important to evaluate the current ecological condition of natural communities, their relationship to historical conditions, and potential future impacts such as sea-level rise. For example, during the updating of this plan current GIS-based natural community mapping data were evaluated for accuracy. Discrepancies observed during field assessments are discussed in Section 2.2 Natural Communities and resolution of these discrepancies is identified as an important short-term management goal.

The continued field assessment, and collection and evaluation of ecological data will assist in defining short- and long-term management requirements and strategies, and restoration needs. Collected data will help determine whether the management tasks maintain desirable conditions (maintenance condition) or whether restoration will be required to return the subject area to maintenance condition. By definition, a natural community in maintenance condition requires no restoration, is in or very near its desirable condition (as defined by the Florida Natural Area Inventories [FNAI] Reference Natural Communities Geodatabase, FNAI, 2009) and only requires management such as prescribed fire or minimal exotic invasive species management.

Except for portions of the Upper Tampa Bay Park and Rocky Creek Coastal Preserve, most adjacent land uses consist of high-density urban and transportation corridors, providing little or no conservation value to the Preserve. The Hillsborough County Comprehensive Growth Management Plan (2016) documents the locations of current and permissible future land uses.

Review of this document and its prediction of land use changes over time will be consulted; however, most if not all lands adjacent to and near the Preserve have been developed and are likely to remain so. Although the adjacent urban areas have some relatively natural uplands and wetlands, these are very small, contain exotic invasive species, and are not managed to enhance or maximize conservation value. From the perspective of upland habitat conservation, neighboring land uses diminish the conservation value of the Preserve, as these are unsuitable habitat for native species, a significant barrier to wildlife and seed dispersal, primary sources of exotic invasive species infestations, and constrain prescribed fire management. Adjacent land uses affect management practices intended to maintain and restore pyrophytic communities, especially the use of prescribed fire.

Old Tampa Bay has experienced considerable change and it now hosts one of the 10 largest ports in the nation. Over the past 100 years, Tampa Bay has lost over 44 percent of its coastal wetlands acreage; this includes both mangroves and salt marshes (Florida Department of Environmental Protection [FDEP]). Therefore, the importance of conservation lands and preserves such as Double Branch Bay that protect coastal resources is of considerable importance in maintaining the health of the largest open-water estuary in Florida.

The Preserve was acquired to protect the area's valuable natural and cultural resources and surrounding landscape in Old Tampa Bay. The site is unique in providing recreational use and environmental education opportunities of freshwater, estuarine, and upland habitats in a rapidly urbanizing area. It also provides a buffer between urbanization and important resources of the Tampa Bay estuary. Viewed in context with other nearby lands, the Preserve is an essential component in the protection of environmental resources in Old Tampa Bay.

The Preserve provides exceptional conservation value to the Tampa Bay area by protecting some of the region's most important marine and estuarine habitats including salt marsh, mangroves, tidal flats, seagrass beds, oyster resources, and open water. Although the Preserve contains no beaches or dunes, over 90 percent of the acreage of the Preserve is marine or estuarine habitat. These rich and diverse communities attract fish, shorebirds, wading birds, and imperiled species such as the manatee and sea turtles. The preserve's proximity to a limited area of upland habitat within its border is critical in providing lands capable of maintaining coastal habitats as they migrate inland from sea level rise.

In summary, the preferred result of the Preserve's 10-year management plan is to maximize the conservation and recreation values relative to the achievable goals. For this to occur, achievable and measurable site-specific ecological criteria must be identified to determine the best management practices for the Preserve. For management tasks to be successful, an accurate evaluation of current onsite ecological conditions is essential. The relationship between the Preserve and nearby natural communities adjacent to developed land uses is also extremely important. Ecological criteria are crucial in determining short- and long-term management needs. However, the evaluation of cultural limitations on proposed prescribed fire management is an important issue in determining the feasibility of its use.

2.1 Soils

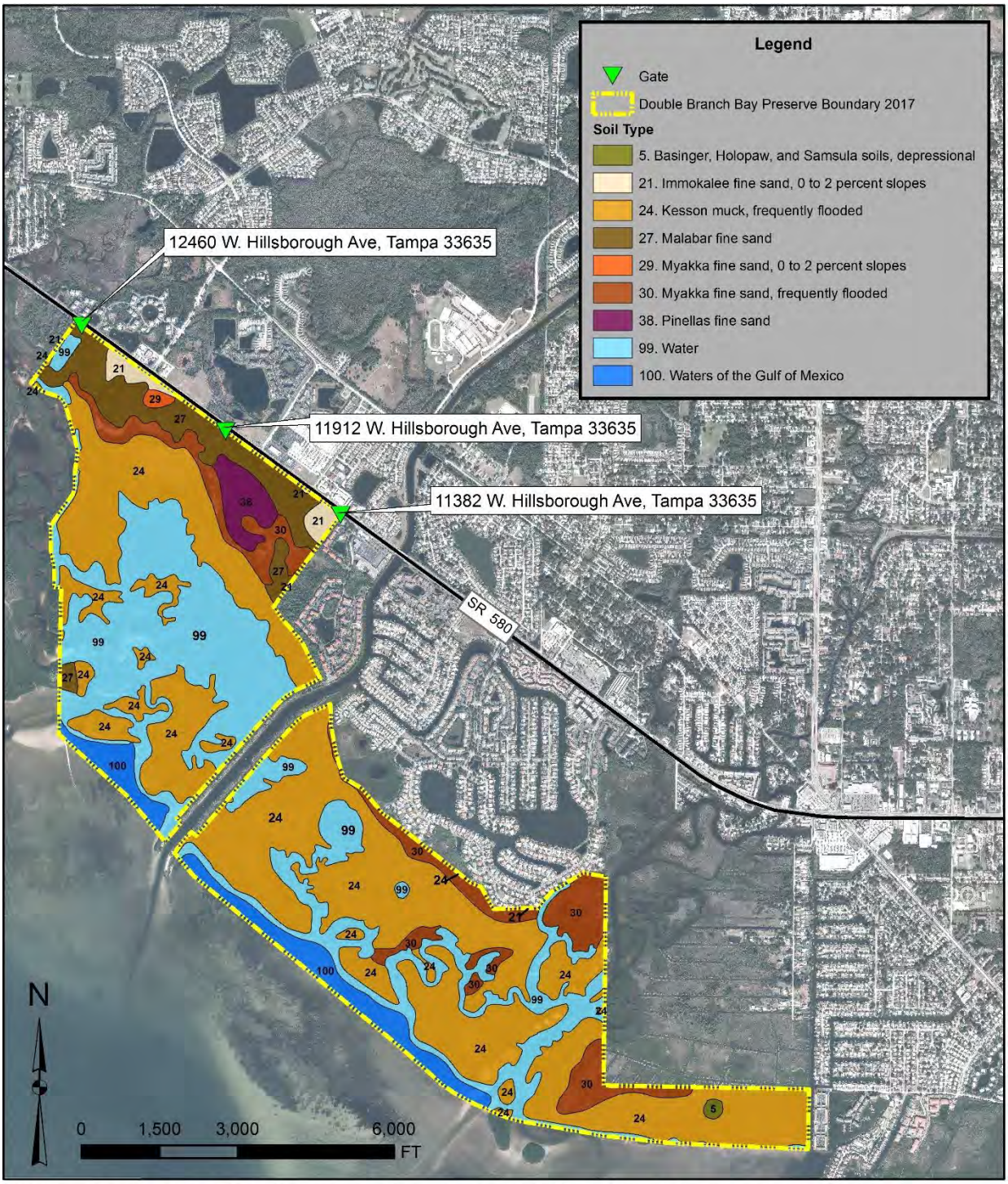
2.1.1 Soils Distribution

The U.S. Department of Agriculture's (USDA) Natural Resource Conservation Service (NRCS) Soil Survey of Hillsborough County identifies eight different soils within the Preserve (NRCS, 2017). The soils within the Preserve are relatively intact with little historical excavating, grading, or filling except along channelized waterways and a rectangle borrow pit that has succeeded to a salt marsh in the northwest portion of the Preserve. Table 2-1 includes the soils and surface acreage each covers within the Preserve. The distribution of the soils is depicted in Figure 2.

There are no known mineral resources (oil, gas, phosphate) on the property and there are no extractive activities proposed for the property. Since the State holds the title to the Preserve, it is not known whether the deed includes mineral rights. The lease to Hillsborough County implies the property may contain utility easements, but it does not address mineral rights.

Table 2-1. Double Branch Bay Preserve Soils Distribution

Soil Type	Map No.	Acreage
Basinger, Holopaw, and Samsula Soils	5	2.58
Immokalee fine sand	21	18.27
Kesson muck, frequently flooded	24	764.55
Malabar fine sand	27	96.43
Myakka fine sand, 0 – 2 percent slopes	29	3.60
Myakka fine sand, frequently flooded	30	136.80
Pinellas fine sand	38	27.57
Waters of the Gulf of Mexico	100	533.37
Total Acreage		1,583.18



Additional Sources: NRCS, 2017; Hillsborough County, Florida, 2016, 2017; Water & Air Research, Inc., 2017.

Figure 2.
Soils Map of Double Branch Bay Preserve
Hillsborough County, Florida

2.1.2 Soils Description

Basinger, Holopaw and Samsula Soils (5). This soil type makes up only 0.16 percent of the Preserve and typically supports wetland species, such as cypress (*Taxodium* spp.). This soil complex is usually found in depressions within flatwoods and in cypress strands. The only occurrence is in the southeastern portion of the site, where it supports a tidally influenced estuarine pond surrounded by mangrove swamp and mosquito canals.

Immokalee Fine Sand (21). This is a nearly-level poorly-drained soil typically located in flatwoods. The soil normally supports typical flatwoods vegetation such as a canopy of longleaf and slash pine (*Pinus palustris, P. elliottii*) with lopsided Indian grass (*Sorghastrum secundum*), gallberry (*Ilex glabra*), saw palmetto (*Serenoa repens*), pineland three-awn (*Aristida stricta*) and wax myrtle (*Morella cerifica*) in the understory. On the Preserve, this soil type comprises 1.17 percent of the area and supports saw palmetto and slash pine dominated mesic flatwoods and a shrub and brushland community.

Kesson Muck - Frequently Flooded (24). This level, poorly-drained soil is found in tidal swamps and marshes. Shallow flooding occurs during normal tides and deep flooding during storm events. The natural vegetation consists of mangroves with an understory of salt wort (*Batis maritima*) and saltgrass (*Distichlis spicata*). This soil type constitutes 48.27 percent of the surface soils in the Preserve and supports mangrove swamps. East of Rocky Creek, this soil type has been impacted by the excavation of mosquito canals and the deposition of the spoil.

Malabar Fine Sand (27). The Malabar fine sand soils are typically found in depressions within pine flatwoods. Native vegetation includes cabbage palm, longleaf pine, slash pine, saw palmetto, and wax myrtle. Malabar fine sand comprises 6.09 percent of the total surface soils in the Preserve, and mostly is in the mesic flatwoods on the western portion of the Preserve immediately south of Hillsborough Avenue.

Myakka Fine Sand (29). Approximately 0.23 percent of the surface soil within the Preserve is Myakka fine sand and it is found in the mesic flatwoods on one small area near the northern boundary. This soil type is nearly level and poorly drained and typically occurs on broad plains in pine flatwoods. The area is discernible by a large expanse of saw palmetto and a subcanopy of cabbage palms and hardwood species.

Myakka Fine Sand - Frequently Flooded (30). This soil type is nearly level, poorly drained and is flooded during high normal tides. There are usually numerous small ponds and tidal channels within this soil classification. Typical vegetation includes mangroves, black needle rush (*Juncus roemarianus*), salt marsh cordgrass (*Spartina alterniflora*), and saltgrass. This soil makes up 8.64 percent of the total surface at the Preserve, is landward of the Keeson muck soils, and supports salt marsh, mangrove, and tidal flat communities.

Pinellas Fine Sand (38). This nearly level, poorly-drained soil is in the mesic flatwoods. The natural vegetation in these areas includes slash and long leaf pines, cabbage palm, saw palmetto, wax myrtle, and various grasses. On the Preserve, this soil type is in the northern

portion, within the mesic flatwoods south of Hillsborough Avenue. This soil comprises 1.74 percent of the Preserve.

2.1.3 Soils Management Measures

No additional management is needed to preserve existing soil conditions at the Preserve. To protect the integrity of existing native soils, however, the importation of non-native soils (e.g., road maintenance and culvert installation) should be minimized. Potential issues with imported substrates include the spread of exotic invasive species' seeds or propagules and potential to change the chemistry of native soils. The goals and objectives of other components of this management plan protect the integrity of the native soils by preserving the natural communities and preventing erosion and subsidence. To the greatest extent practicable, all management tasks using vehicles should limit travel to established trails and fire lanes to prevent soil compaction and rutting.

Currently, there are no proposed facilities or management tasks in the 10-year plan that would impact the native soils other than the maintenance of fire lines. Fire lines created during wildfires should be restored to natural elevations. Potential management tasks that are not included in this plan and that may require earthwork will be conducted in a manner to protect soil integrity and elevations such as using erosion protection and restoring natural soil elevations when unavoidable soil impacts do occur.

Ongoing studies in Tampa Bay (Tampa Bay Estuary Program, 2017) indicate that sea-level rise is occurring in the region and likely at the Preserve, causing the landward migration of mangrove, salt marsh, and salt flat communities. Soil chemistry and possibly natural communities may change as a result of increased inundation (Florida Oceans and Coastal Council, 2010). Along with increased salt water intrusion landward, effects on soils by non-native contaminants carried in salt water, such as nanoplastics, may be expected. Although very little data are available on impact of nanoplastics to native soils, ingestion by marine biota has been documented but effects on natural food chains in a marine environment have not been quantified (Andrady, 2011).

2.2 Natural Communities

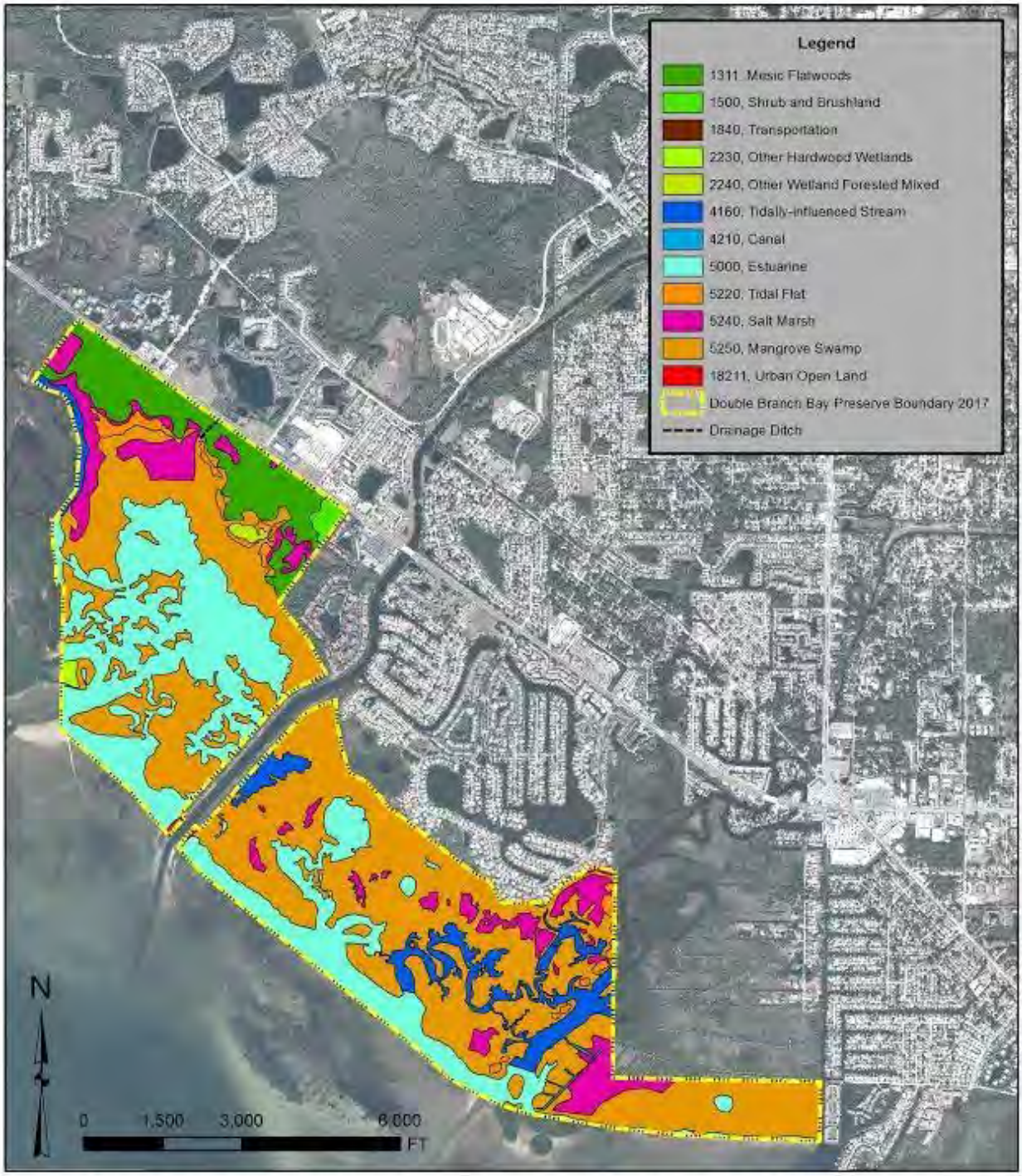
The natural communities described in this section and shown in Figure 3 are based on the Florida Fish and Wildlife Conservation Commissions (FWC) Cooperative Land Cover (CLC) Map (FWC, 2016). The CLC is a project to develop an improved statewide land cover map from existing sources, expert review of aerial photography and field verification. The project is a goal of Florida's State Wildlife Action Plan (FWC, 2012) to represent Florida's diverse habitats in a spatially explicit manner. The mapping uses a comprehensive land cover classification system incorporating natural community designations and classifications currently used by FWC, FNAI, and Florida's water management districts. The CLC classification scheme can be cross-walked among the most common currently used classifications. As currently mapped, there are 12 ecological communities listed for the Preserve (Table 2-2, Figure 3), including submerged aquatic vegetation (SAV) and oyster habitats (Figure 4).

The CLC mapping reference data has not been field verified; there are some discrepancies in the mapping of the natural communities, see Section 5.4 for details.

Table 2-2. Double Branch Bay Preserve Land Cover Classification

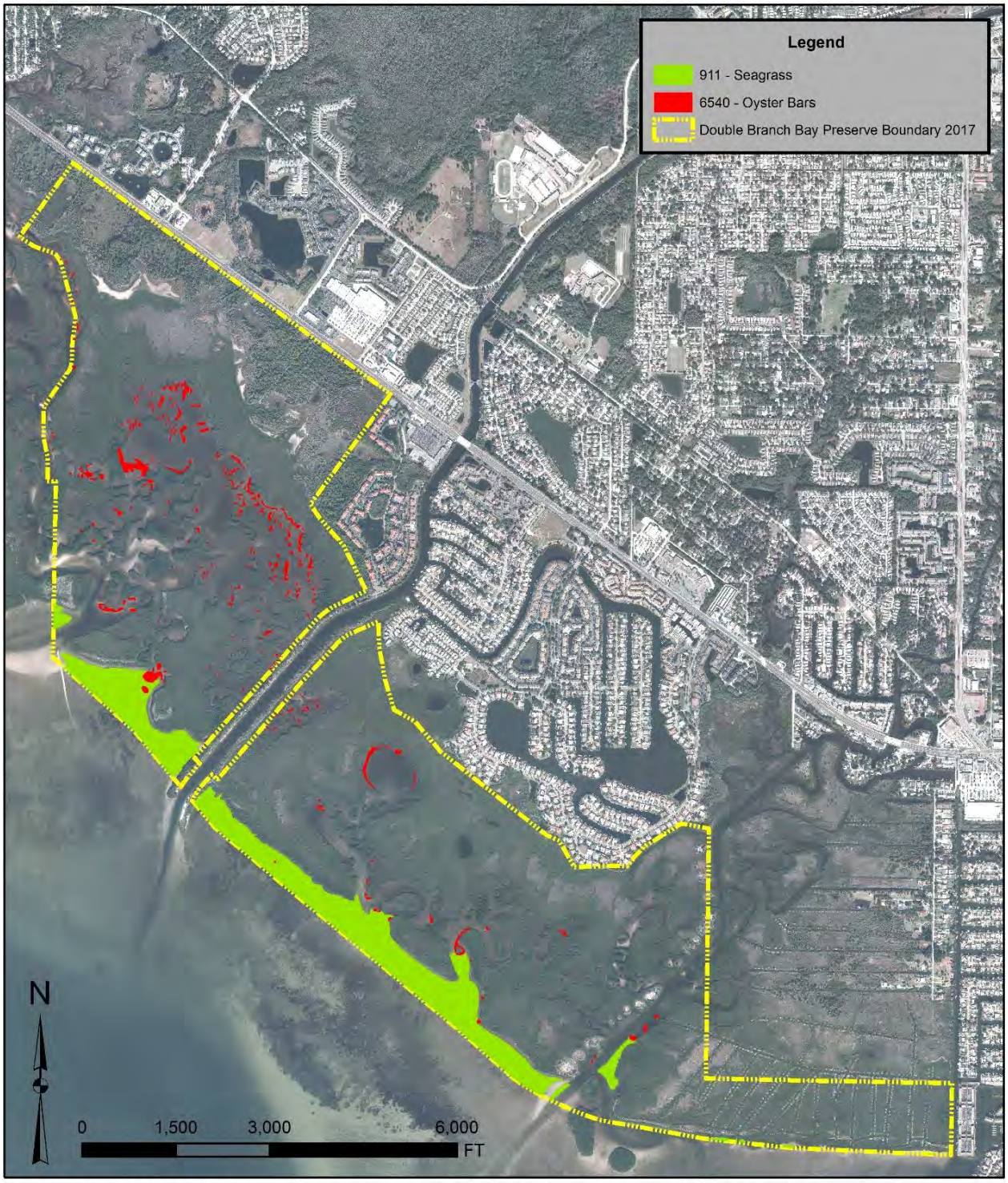
Land Cover Classification	Cover Number	Acres	%
Mesic flatwoods	1311	123.36	7.79
Shrub and brushland	1500	7.11	0.45
Other hardwood wetlands	2230	3.17	0.20
Other wetland forested mixed	2240	3.99	0.25
Tidally--influenced stream	4160	92.40	5.84
Canal	4210	2.90	0.18
Estuarine	5000	422.56	26.69
Tidal flats (likely a salt flat)	5220 and 5241	24.88	1.57
Salt marsh	5240	130.42	8.24
Mangrove swamp	5250	769.03	48.57
Urban open land	18211	1.68	0.11
Total Acres		**1,583.18**	
Estuarine subsets	LCC Number (FLUCCS)**	Acres	
Oyster bars	*6540*	*18.07*	
Seagrass	*911*	*37.35*	

Notes:
Acreage for oyster bars and seagrass is included within FWC and FNAI's estuarine cover type because they are derived from a separate geodatabase, (Southwest Florida Water Management District [SWFWMD], 2016) but listed separately.
* FWC and FNAI, 2016
**Florida Land Use, Cover and Forms Classification System.



Sources: Florida Fish and Wildlife Conservation Commission, 2017; Hillsborough County, Florida, 2016, 2017; Water & Air Research, Inc., 2017.

Figure 3.
Fish and Wildlife Conservation Land Cover of the Double Branch Bay Preserve
Hillsborough County, Florida



Sources: SWFWMD, 2016; Hillsborough County, Florida, 2016, 2017; Water & Air Research, Inc., 2017.

Figure 4.
Seagrass and Oyster Map of the Double Branch Bay Preserve
Hillsborough County, Florida

2.2.1 Vegetation Community and Land Cover Descriptions and Management Needs

This section describes the natural communities at the Preserve. Figure 3 and Table 2-2 shows the estimated extent of the communities and their location within the tract. Figure 4 and Table 2-2 shows the mapped extent of seagrasses and oyster bar habitats (SWFWMD, 2017; Hillsborough County, Florida, 2016). The mapping was completed with limited field verification and the locations of plant communities, therefore descriptions of vegetation cover are approximate. The management unit map (MU) is in Section 5 (see Figure 9).

Mesic Flatwoods 1311 (Photographs 2-1, 2-2, 2-3)

> *Flatland with sand substrate; mesic; statewide except extreme southern peninsula and Keys; frequent fire (2 to 4 years); open pine canopy with a layer of low shrubs and herbs; longleaf pine and/or slash pine, saw palmetto, gallberry, dwarf live oak, wiregrass (FNAI).*

The mesic flatwoods community comprises just 8 percent of the Preserve and is in the northern portion of the tract, south of and adjacent to Hillsborough Avenue. Although the mesic flatwoods community is a small portion of the Preserve, it represents one of the few remaining intact natural upland communities adjacent to Tampa Bay. Timber resource management is limited to the 123-acre mesic flatwoods and there are no plans to inventory or harvest timber.

The community has had a varying history of wildfire and prescribed fire (Table 2-3).

Table 2-3. Recent Prescribed Fire and Wildfire History at the Preserve.

Date	MU	Comments
04/13/2006	MU 1	Prescribed fire. Bower Tract - Hillsborough Avenue near Silvermill Drive and Camden Bay apartments.
10/06/2006	MU 4	Prescribed fire.
05/27/2008	MU 7	Wildfire.
10/2012	MU 7	Prescribed fire.
01/2015	MU 1	Prescribed fire.
2016	MU 3 and MU 5	Wildfire.

Prior to wildfires and drought, slash pine (*Pinus elliottii*) was the primary tree canopy species, depending on location. In some areas, it still is predominant. Hardwood trees are present as a subdominant or dominant canopy component (depending on location) and include sand live oak (*Quercus geminata*), water oak (*Q. nigra*), and laurel oak (*Q. laurifolia*). Cabbage palms (*Sabal palmetto*) are also present in the subcanopy and are dominant in some areas. Wetter areas within the mesic flatwoods contain dahoon (*Ilex cassine)*. The previous management plan (Parsons, 2007) identified a cabbage palm flatwoods natural community (in MU 1) which is now

included in the mesic flatwoods community mapping. The dominance of pines, oaks, and cabbage palms vary depending on location, historical wildfire (causing greater pine and oak mortality), fire suppression and roller chopping. Topography and depth-to-water table likely influence composition of the tree canopy, but fire, or the lack thereof, appears to be the dominant influence on species composition. The understory is more dense in the open eastern portion of the mesic flatwood community, with saw palmetto (*Serenoa repens*) providing the majority of the cover. The western portion of the mesic flatwood community has a more diverse understory mixture of wax myrtle (*Morella cerifera*), swamp fern (*Telmatoblechnum serrulatum*) and salt bush (*Baccharis halimifolia)* and less frequent saw palmetto. The 2016 wildfire killed most of the large mature pines in MUs 3 and 5. A desirable effect of the 2016 wildfire was the stimulation of herbaceous species, the top killing of many oaks, and a reduction in the dense shrub layer, although many hardwood trees and shrubs have re-sprouted.

Management Measures for Mesic Flatwoods

Management consists of prescribed fire and exotic nuisance species eradication. In public ownership, the Preserve has had four prescribed fires and two wildfires (see Table 2-3). The Department is committed to conducting periodic prescribed burns in the future and has prescribed fire services currently under contract. Fire lanes were improved in 2002, 2005, 2010, and 2014 and are maintained as needed. The County has established a program of public notification and outreach to inform local residents of upcoming prescribed burns (see Prescribed Burn Policy in Appendix F).

Exotic invasive plants are found in the mesic flatwoods including pockets of Brazilian pepper (*Schinus terebinthifolius)*, lead tree (*Leucaena leucocephala*), and other exotic species. The Department conducts exotic invasive vegetation eradication measures in the mesic flatwoods on a regular basis and will be re-treating the area periodically. Contractors were hired to control exotic invasive species in 2006, 2010, 2011, 2012 and the SWFWMD funded eradication efforts from 2014 to 2018.



Photograph 2-1: Mesic flatwoods, MU 3 in 2017
after the 2016 wildfire showing swamp fern (*Telmatoblechnum serrulatum*).



Photograph 2-2: Dense unburned mesic flatwoods in MU 6.



Photograph 2-3: Mesic flatwoods in MU 7.

Shrub and Brushland 1500 (Photograph 2-4)

This association includes a variety of situations where natural upland community types have been recently disturbed through clear-cutting commercial pinelands, land clearing, or fire, and are recovering through natural successional processes. This type could be characterized as an early condition of old-field succession, and various shrubs, tree saplings, and lesser amounts of grasses and herbs dominate the community. Common species include wax myrtle, saltbush, sumac, elderberry, saw palmetto, blackberry, gallberry, fetterbush, staggerbush, broomsedge, dogfennel, together with oak, pine and other tree seedlings or saplings (FWC).

The small upland community classified as shrub and brushland is a disturbed mesic flatwoods community in MU 1 that lacks a pine overstory. This community is adjacent to the northeastern boundary of the Preserve and Hillsborough Avenue and is 0.5 percent of the site. Mechanical vegetation management (MVM), in the form of roller chopping, was used in this area during Fall 2007, as determined by a review of historical aerial photography.



Photograph 2-4: Shrub and brushland just east of Camden Bay Apartments

Management Measures for Shrub and Brushland

This community was historically a mesic flatwoods community disturbed by wildfire and logging. Management measures to mitigate the effects of prior disturbance include conducting prescribed fire to encourage a pine-dominated canopy and continuing control of exotic invasive species. MVM is also proposed within the 10-year planning period. Dominant vegetation includes saw palmetto, wax myrtle and broomsedges (*Andropogon* spp.) with dahoon holly, oaks (*Quercus* spp.), muscadine (*Vitus rotundifolia*), goldenrod (*Solidago* sp.), cabbage palm, pine (*Pinus* spp.), and swamp fern.

Other Hardwood Wetlands 2230

> *Dominated by a mix of hydrophytic hardwood trees; cypress or tupelo may be occasional or infrequent in the canopy; short hydroperiod (FNAI).*

This is a small (0.20 percent of the Preserve) forested area of Other Hardwood Wetlands located on the western boundary adjacent to Upper Tampa Bay Park.

Management Measures for Other Hardwood Wetlands

The continued removal of exotic invasive species is important to maintain biological integrity of this community.

Other Wetland Forested Mixed 2240

Other Wetland Forested Mixed Includes mixed wetlands forest communities in which neither hardwoods or conifers achieve a 66 percent dominance of the crown canopy composition (FLUCCS).

This area (0.25 percent of the Preserve) is an extension of the mesic flatwoods with an understory more typical of the adjacent salt marsh. Slash pine, cabbage palm, and sand cordgrass (S*partina bakerii)* are common. Various young mangrove trees occur as well as other halophytic herbs and shrubs.

Management Measures for Other Wetland Forested Mixed

The management of this combination of mesic flatwoods and saltmarsh communities should include prescribed fire to prevent encroachment of non-pyrophytic species and the continued removal of exotic invasive species.

Tidally-influenced Stream 4160 (Photograph 2-5)

Tidally-influenced Stream is the section of river that is influenced by tide. Delineation of the tidally-influenced section is uncertain both at the downstream and upstream limits and may be thought of as a transitional zone over which many of the controlling ecological and physical variables fluctuate, such as salinity, tidal rise and fall and freshwater flow conditions (FWC, 2014).

Double Branch Creek, Rocky Creek, Dick Creek, and some embayments along the east side of Channel A are classified as tidally-influenced streams that undergo daily tidal fluctuations. Typically, there are mixed diurnal and semidiurnal tides for Tampa Bay area.

All such areas are fringed with a dominance of mostly red mangrove (*Rhizophora mangle*) and occasionally support oyster beds and seagrasses in some of the shallower areas (Figure 4). The tidally-influenced stream makes up 5.8 percent of the Preserve.

Management Measures for Tidally-influenced Stream

These streams are accessible by watercraft and the oyster beds and seagrasses are susceptible to physical damage. Boaters should be provided information via signage warning of impacts due to propeller damage and physical disturbance.



Photograph 2-5: Tidally-influenced stream, Rocky Creek looking south.

Canal 4210 (Photograph 2-6)

Aquatic community of an artificial waterway or modified stream channel constructed for inland navigation, drainage or irrigation of adjacent lands. Water levels either fluctuate in response to variations in precipitation and groundwater levels, or water levels are artificially controlled (NYNHP).

The mosquito canals in the eastern portion of the Preserve (MU 10) were constructed by 1968, based on historic aerial photography. Mosquito canals are commonly called “mosquito ditches” in scientific literature, however, in this plan they are mapped as canals by the FWC and will be referred to as canals. Several of the mosquito canals that are connected to Rocky Creek are mapped as canals (0.2 percent of the Preserve). Most of the mosquito canals in MU 10 are not mapped. These canals are tidally influenced. Vegetation along the banks of the canals consists mainly of red mangroves with some scattered Brazilian pepper.



Photograph 2-6: Mangrove Swamp looking east into a mosquito canal.

Management Measures for Canals (Mosquito canals)

Several of the larger canals can be accessible by watercraft and live substrates are susceptible to physical damage. Boaters should be provided information via signage as to possible impacts they could cause. Exotic species management, primarily Brazilian pepper, should continue. Restoration (filling) of the canals (mosquito canals in MU 10) is a possibility. However, the general effectiveness of mosquito canal restoration is largely unknown and previous restoration efforts in other parts of the country have been evaluated on a case by case basis with not all efforts producing benefits. Some studies indicate that there are some positive influences by the canals on marine biota and that restoration may eliminate some habitat and do more harm than good (Krebs, 2003, 2004) (Henningsen, 2011). See Section 6 for potential additional information on mosquito canals.

Estuarine 5000 (Photograph 2-7)

> *Estuarine deepwater tidal habitats and adjacent tidal wetlands that are usually semi-enclosed by land but have open, partly obstructed, or sporadic access to the ocean, with ocean-derived water at least occasionally diluted by freshwater runoff from the land. The upstream and landward limit is where ocean-derived salts measure less than .5 ppt during the period of average annual low flow. The seaward limit is an imaginary line closing the mouth of a river, bay, or sound; and the seaward limit of wetland emergents, shrubs, or trees when not included in. (Cowardin, et al. 1979)*

The relatively shallow open waters of the estuary contain numerous small mangrove islands and numerous areas of hard bottom, mud bottom, oysters, and seagrasses. The seagrasses and oyster beds are important habitats for aquatic species and function to improve water quality (Figure 4). There is a more detailed discussion of the oyster and seagrass habitats later in this section. The shallow estuarine areas are susceptible to increasing inundation due to sea-level rise. Estuarine habitats (including oyster beds and seagrasses as a subset) make up 27 percent of the Preserve.

Management Measures for Estuarine Habitats

The prevention of water quality impacts and physical damage to live substrate and seagrass beds is important to maintain the integrity of the habitats. Boaters are advised to use designated channels and to access shallow areas only during high tides. Land management activities in adjacent uplands are restricted to prevent erosion and sedimentation of the estuarine waters. An attempt to mitigate adjacent land use impacts such as stormwater runoff, should be addressed through partnerships with Tampa Bay Watch or other stewardship programs that focus on the health of Old Tampa Bay.



Photograph 2-7: Example of estuarine habitats in Double Branch Bay Preserve.

Tidal Flat 5220 (likely a Salt Flat 5241) (Photographs 2-8, 2-9, 2-10, 2-11, and 2-12)

5220 Tidal Flat
A community of quiet waters, with substrates composed of silt or sand that is rich in organic matter and poorly drained at low tide. The substrate may be covered with algae. (NYNHP).

Subclasses differentiated by substrate type.

5221 Mud

5222 Sand

5241 Salt Flat
Salt marsh with much exposed bare soil on slightly higher areas within marsh; high salinity and dry conditions; sparse and stunted cover of succulents and/or shoregrass. (FNAI).

The tidal flats are 1.6 percent of the Preserve. These are very sparsely-vegetated areas exposed at low tide and are composed of mostly sand with some muddy/silty areas, depending on the character of the sediments. Other names for these communities are mud flats, salt barrens, salterns, salt flats, or salinas (Myers and Ewel, 1990). Most of the tidal flats at the Preserve have very sparse or no cover of herbaceous halophytes; however, some areas have a dense cover of shoreline sea purslane (*Sesuvium portulacastrum*). Many of the tidal flats support no vegetation at all. Some areas have encroachment of shrub sized white mangroves (*Laguncularia racemosa*), especially along the margins of the mangrove community. Also, some flats are now completely covered with young mangroves and shoreline sea purslane, possibly due to decreased grazing pressure resulting from the removal of cattle in the late 1980's. (Photograph 2-9). Pine stumps currently occur in portions of this community (Photographs 2-8 and 2-10). The pine stumps are visible in a 1968 aerial photograph and in a 1994 aerial photograph. Several large areas of sand only tidal flats are visible in 1968 and 1994 aerial photographs. Changes in vegetation at this interface may also result from increased inundation from sea-level rise. In the 1968 aerial photograph, tidal flats occur (Photograph 2-11) adjacent to the drainage (stormwater) canal that flows under Hillsborough Avenue between MUs 5 and 6. Currently (Photograph 2-12), the tidal flats are no longer present; they are occupied by a mix of salt marsh species and freshwater species such as cattail (*Typha* sp.) and Brazilian pepper. The former tidal flat area adjacent to the drainage canal is discussed in more detail in the Section 5.2.1 and Section 6.

Management Measures for Tidal Flats

Tidal flats require little management other than preservation and periodic cleanup of the litter deposited by tides. Hypersaline conditions and frequent inundation make the tidal flats too inhospitable for most invasive plant species. Unless absolutely necessary, vehicular traffic on the flats should be minimized to the greatest extent practicable to avoid compressing the soil and damaging soil crusts.

Photograph 2-11 depicts tidal flats that historically occurred adjacent to the drainage canal that had been vegetated with nuisance and exotic and invasive species such as Brazilian pepper and cattail (depicted in Photograph 2-12). Recent control efforts have substantially reduced these species. The drainage canal is part of Hillsborough Counties regional stormwater system that originates offsite. An evaluation of the canal's impacts on the Preserve by the Department could provide information to the Hillsborough County stormwater division so that future updates to the Northwest Five stormwater plan could include a discussion of the canal and the impacts to the Preserve. It is likely that sea-level rise is causing more frequent inundation (Tampa Bay Estuary Program, 2017) and impacts from freshwater inflows from the drainage canal affect the tidal flat by lowering the hypersaline soil conditions that maintain this barren and specialized landscape.



Photograph 2-8: Tidal flat with pine tree stumps looking north towards the mesic flatwoods.



Photograph 2-9: Tidal flats with scattered mangrove.



Photograph 2-10 Tidal flat with pine tree stump.



Photograph 2-11. Historical salt flats near drainage canal outfall in 1968.



Photograph 2-12: Area of former salt flats near drainage canal outfall in 2017.

Salt Marsh 5240 (Photograph 2-13)

> *Estuarine wetland on muck/sand/or limestone substrate; inundated with saltwater by daily tides; statewide; occasional or rare fire; treeless, dense herb layer with few shrubs; saltmarsh cordgrass, needle rush, saltgrass, saltwort, perennial glasswort, seaside oxeye (FNAI).*

Salt marsh is found throughout the Preserve in relatively small patches and comprises approximately 8.2 percent of the land cover. These patches occur primarily within the mangrove community at lower elevations and adjacent to, or embedded in, the mesic flatwoods at slightly higher elevations. Salt marsh consists of primarily herbaceous species and is tidally influenced but protected from wave action. Saltmarsh cordgrass (*Spartina alterniflora*) fringes some of the deeper, more waterward areas and needle rush (*Juncus roemerianus*) dominates the higher areas above mean sea level. Other species include salt grass (*Distichlis spicata*), and succulent species such as shoreline sea purslane. Shrub species are often intermixed, including wax myrtle, marsh elder (*Iva frutescens*), and saltwater false willow (*Baccharis angustifolia*). In lower elevations, the marshes are intermixed with mangroves, although woody species are a minor component of the salt marsh community.

Management Measures for Salt Marsh

Preservation of the salt marsh community consists primarily of eliminating disturbances such as airboats, dredge and fill activities, herbicide damage, and changes in salinity. A significant long-term threat to the salt marsh communities on the Preserve is sea-level rise (Tampa Bay Estuary Program, 2017). Encroachment into the marshes by the mangrove community appears to be occurring in some areas on the Preserve; this encroachment could be enhanced by a reduction in killing freezes and sea-level rise.

Mangrove Swamp 5250 (Photographs 2-14 and 2-15)

> *Estuarine wetland on muck/sand/or limestone substrate; inundated with saltwater by daily tides; central peninsula and Keys; no fire; dominated by mangrove and mangrove associate species; red mangrove, black mangrove, white mangrove, buttonwood (FNAI).*



Photograph 2-13: Salt marsh interspersed in mesic flatwoods.

All three Florida mangrove species, red, white and black (*Avicennia germinans*), are present in the Preserve. Another species present and usually found at the landward fringe behind mangroves is buttonwood (*Conocarpus erectus*). The mangrove community composes the majority (48.6 percent) of the total area in the Preserve and occurs primarily in MUs 8, 9, and 10. The mangroves east of Rocky Creek were historically impacted by the creation of mosquito canals, but the remainder of the mangrove communities are intact and in good condition. A comparison of 1968, 1994, and 2017 aerial photographs indicate a slight increase in mangrove land cover, possibly resulting from expansion of mangrove communities landward in response to sea-level rise (TBEP, 2017).

Management Measures for Mangroves

Brazillian pepper and other exotic invasive species management (surveys and eradication) in the mangrove swamps is an ongoing process that will continue by the Department.

Mangroves are state protected (Florida Statute 403.9321-403.9333, Mangrove Trimming and Preservation Act) and trimming, herbicide application, or any alteration of mangroves requires prior approval and a permit from the regulating agency. No trimming is likely within the Preserve; but adjacent property owners are a potential source of mangrove trimming and removal. Mangrove areas along the urban fringe will be monitored for illegal mangrove removal or trimming. The mangroves within the tract are protected against dredge and fill and shoreline hardening activities that are decimating these communities elsewhere in the state.



Photograph 2-14: Red mangrove lined shoreline at Double Branch Bay.



Photograph 2-15: Mixed black and white mangrove near the upland side of the mangrove fringed shoreline.

Urban Open Land 18211—CLC (FWC, 2016)
This land cover occurs at the mouth of Channel A in the form of upland sand mounds deposited at the mouth of the dredged channel. They are characterized by herbaceous covers and scattered trees such as cabbage palm.

Management Measures for Urban Open Land
These disturbed areas are subjected to invasive species control. Staff also routinely remove trash that wash up on these areas by the tide.



Photograph 2-16: Oyster bar.

Oyster Bars 6540 (Photograph 2-16)

> *Marine and Estuarine Mollusk Reefs are Faunal Based Natural Communities typically characterized as expansive concentrations of sessile mollusks occurring in intertidal and subtidal zones to a depth of 40 feet. In Florida, the most developed Mollusk Reefs are generally restricted to estuarine areas and are dominated by the American oyster (FNAI).*

Based on SWFWMD mapping (SWFWMD, 2016), areas of oyster habitat occur within the estuarine natural community at the Preserve (Figure 4). They occur mostly in the western

section of the Preserve between Double Branch Creek and Channel A/Rocky Creek as both oyster reefs and scattered clusters.

Oyster reefs provide intertidal and subtidal areas of hard shell bottom dominated by the presence of the bivalve mollusk, the American oyster (*Crassostrea virginica*). The mollusk is gregarious in settling patterns resulting in reef formation, although oysters can occur as scattered small clusters. Oyster reefs help to stabilize sediments in estuaries, filter the water, and provide critical habitat for many species including the imperiled oystercatcher.

The oysters most often occur in estuaries or lagoons associated with saltmarsh, mangrove and tidal flat communities. The hard bottom reef community provides habitat for a variety of organisms that use spaces in and among the shells including barnacles, other mollusks, mud crabs, amphipods, polychaetes and other invertebrates. This rich and diverse invertebrate community attracts a variety of birds, fish and mammals to feed on the oysters or other associated reef fauna (Kilgen and Dugas, 1989).

Management for Oyster Bars

Management strategies to improve water quality will contribute to the health of the oyster resources at the Preserve. Specific actions include: 1) prevent and reduce hydrologic change that alters salinity regimes 2) reduce erosion and sedimentation from any construction, dredging, boat wakes and other shoreline disturbances 3) prevent physical damage by boats to oyster reefs (FWC, 2012).

Stresses for oysters include poor water quality such as the presence of pathogens, low oxygen, high sedimentation, salinity changes (too high or low), and deposition of oil. Deeper water channels within the Preserve (Channel A, Rocky Creek and Double Branch Creek) allow boat access at higher speeds which may promote shoreline erosion and sedimentation to nearby waters. In addition, airboats have access to all of the Preserve waters. Designating no wake zones on all deep water channels should be considered to help protect sensitive resources.

Development of healthy oyster areas is dependent upon maintenance of an intertidal elevation. Therefore, as sea level continues to rise, mortality of beds may occur if subtidal conditions persist. The threat to oyster beds by sea-level rise is mixed, therefore beds should be monitored for areal coverage and condition periodically (every 10 years or as new regional data is available) and any losses documented (Ridge, et al. 2015).

Seagrass 911

> *Marine and Estuarine Seagrass Beds are Floral Based Natural Communities typically characterized as expansive stands of vascular plants. This community occurs in subtidal (rarely intertidal) zones, in clear, coastal waters where wave energy is moderate. Seagrasses are not true grasses. The three most common species of seagrasses in Florida are turtle grass, manatee grass, and shoal grass. Nearly pure stands of any one of these species can occur, but mixed stands are also common (FNAI).*

Based on SWFWMD mapping (SWFWMD, 2016), areas of seagrass occur within the small portions of the estuarine natural community at the Preserve and along the shallow shelf of Old Tampa Bay that abuts the Preserve (Figure 4). Five of the seven seagrasses known from Florida are found in Tampa Bay including turtle grass (*Thalassia testudinum*), manatee grass (*Syringodium filiforme*), shoal grass (*Halodule wrightii*), widgeon grass (*Ruppia maritima*) and star grass (*Halophila engelmannii*). However, the relative abundance of each species within the Preserve is not known. There are plans to identify and voucher seagrass samples from the Preserve in 2019 and 2020.

In the 1950's seagrasses covered an estimated 40,000 acres in Old Tampa Bay, but declines in water quality and physical disturbances resulted in loss of nearly half of the seagrasses by 1988. Subsequent improvements in water quality have allowed recovery of seagrass beds to levels found in the 1950's (Tampa Bay Estuary Program, 2017; Tampa Bay Watch, 2017)

Protection of seagrass beds in the Preserve is extremely important. Seagrasses provide nursery areas for fish and invertebrates, as well as foraging areas for sea turtles and manatees. This resource along with the mangrove community supports abundant small fish and invertebrates that are food resources for wading birds, shorebirds, and other predators.

Management for Seagrass

Management of seagrass areas requires diligent protection of the water resources from sedimentation effects and nutrient sources. Additional management strategies include maintaining vegetation cover along areas subject to wave action, such as spoil islands, minimizing wave action from boat wakes, and protecting shallow seagrass areas from boat access and propeller scarring (FWC, 2012).

In Tampa Bay, propeller scarring can be a significant boating impact to seagrass areas in shallows especially near channels, between and in the lee of islands, and along longshore bars (Yates, et al., 2011). Seagrass bed recovery from propeller scarring may require 4 to 7 years of growth (Durako, et al. 1992). Strategies to manage these impacts may include (Yates, et al., 2011; FWC, 2012):

- Education of boaters
- Channel marking
- Enforcement
- Posting of protective zones around shallow seagrass areas
- Seagrass planting is a last resort restoration/management option as it can be expensive and success can be difficult.

2.2.2 Management Measures for all Natural Communities

Although the Department has been treating and surveying exotic vegetation at the Preserve for over a decade, propagule and seed sources from the surrounding privately-owned properties make control difficult. The natural communities on the Preserve would benefit from continued

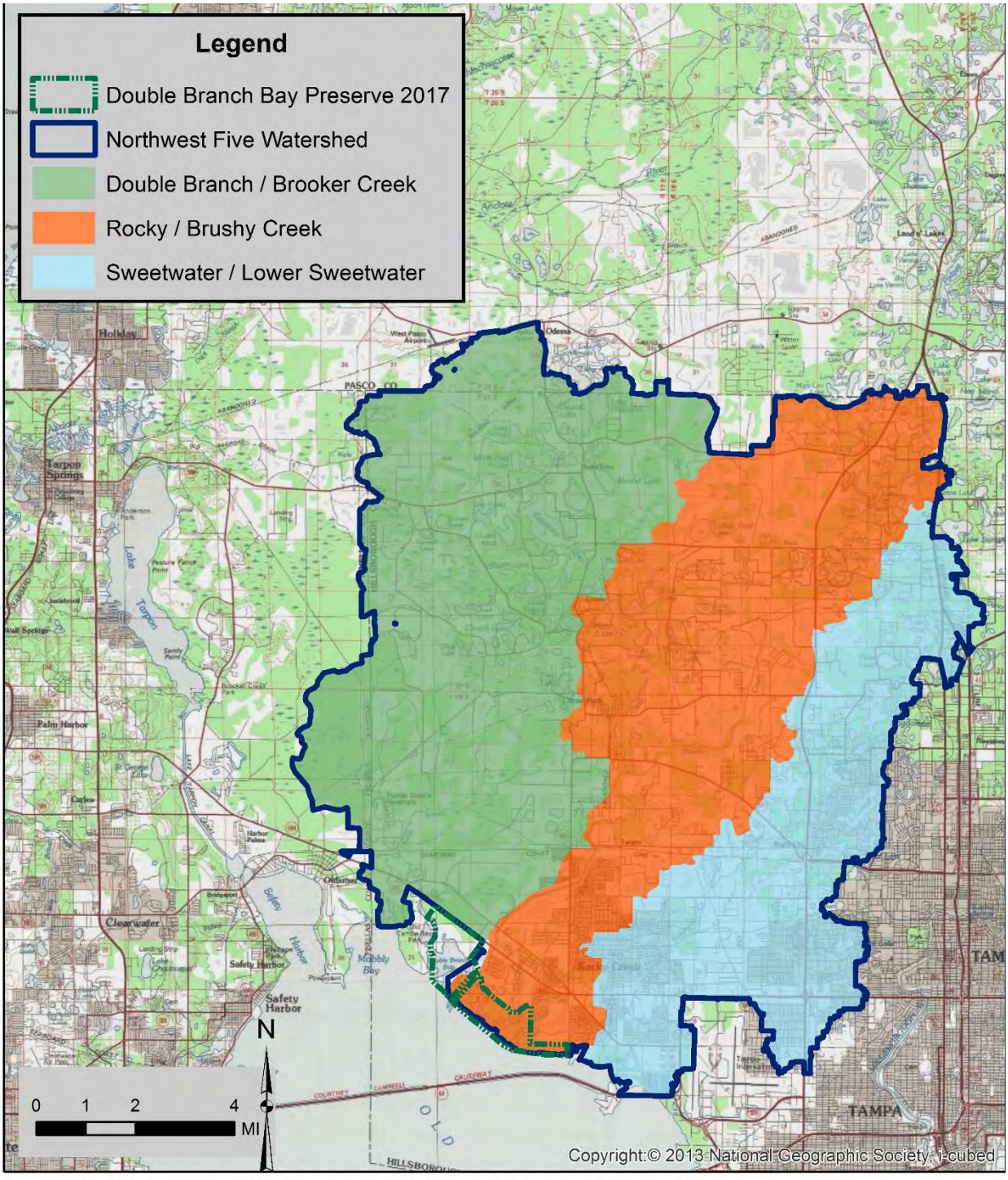
frequent scheduled treatments of exotic invasive vegetation and from the treatment of exotic invasive vegetation on the adjacent natural properties, including Upper Tampa Bay Park (see Figure 1). The dominant exotic species present include Brazilian pepper and lead tree.

2.3 Water Resources

The Preserve is located mostly within the Northwest Five watershed, a 140-square mile portion of northwest Hillsborough County. The Preserve is located between the sub-watersheds of Rocky/Brushy Creek and Double Branch Creek (Figure 5). CH2M Hill prepared the Hillsborough County Northwest Five Watershed Management Plan Update in 2016 to consolidate four previously separate sub-watersheds that discharge stormwater to Old Tampa Bay, including the two sub-watersheds surrounding the Preserve.

The Preserve does not lie wholly within one of the designated sub-watershed boundaries. The 23.5 square mile (mi^2) Rocky/Brushy Creeks sub-watershed discharges into Tampa Bay through the Rocky Creek/Dick Creek system on the east side of the Preserve, and Channel A in the central part of the Preserve. The western side of the Preserve is within the 12.6 mi^2 Double Branch Creek sub-watershed that discharges to Mobbly Bay through Double Branch Creek.

A portion of the Preserve was excluded from the Northwest Five Watershed Management Plan Update and the aforementioned sub-basins. The excluded portion of the Preserve lies between MUs 5 and 6 and contains a short wide channelized drainage canal that discharges onto the Preserve from developed properties north of Hillsborough Avenue (Photograph 2-17). The stormwater from this canal flows into historically marine environments within the Preserve. It is suggested that Hillsborough County be notified of this drainage canal and its omission from the Northwest Five Watershed Management Plan.



Additional Sources: Hillsborough County, Florida, 2016; Water & Air Research, Inc., 2017.

Figure 5.
Watershed Map in the Vicinity of the Double Branch Bay Preserve
Hillsborough County, Florida

Although Channel A bisects the Preserve, the channel and adjacent right of way is not part of the Preserve; its presence affects water quality in and near the Preserve. Channel A is manmade, passing under Hillsborough Avenue and bisecting Cabbagehead Bayou as it enters Old Tampa Bay. The portion of Channel A through the Preserve is estuarine, as this section occurs below the salinity barrier. The channel is typical of a canal being nearly straight with uniform steep banks and little littoral zone for the colonization of emergent and aquatic vegetation. The mean depth of the system is 4.1 feet with the deep center of the main channel averaging around 8 feet. The width of Lower Channel A is approximately 200 feet at high tide.

The combined Rocky Creek/Dick Creek system flows through the eastern part of the Preserve. Dick Creek is a small highly urbanized watershed within the larger Rocky/Brushy Creek Watershed that joins with Rocky Creek at approximately 1,500 feet south of Hillsborough Avenue. Rocky Creek ultimately discharges to Old Tampa Bay though a dredged channel that is contained within the Preserve. Portions of the original, meandered Dick Creek pass through the Preserve to the northwest of the channelized Rocky Creek outflow and also flow to Old Tampa Bay.

Within the area excluded from the watershed management plan are two large concrete culverts (approximately 30- to 36-inch diameter) under Hillsborough Avenue northwest of Countryway Boulevard, and the stormwater outfall flows through a steep-sided canal approximately 1,000 feet southwest through the Preserve (between MUs 5 and 6) (Photograph 2-17). The location of the canal is shown in Figure 3. The source of the water may be an overflow from a constructed wet detention stormwater system just north of Hillsborough Avenue. The canal is evident in historic aerial photographs of the Preserve (and north of Hillsborough Avenue, as well) as early as 1968, prior to significant urbanization of the area.

In the 1968 aerial photograph, tidal flats occur adjacent to the drainage (stormwater) canal that flows under Hillsborough Avenue between MUs 5 and 6. Currently, they are no longer present; they are occupied by salt marsh species and some cattail (*Typha* sp.) and Brazilian pepper. At the time of the site visit, cattail and Brazilian pepper had been sprayed and were dead or dying.

Double Branch Creek Sub-watershed contains numerous water conveyances upstream of the Preserve including West Branch, East Branch, and Memorial Channel. Double Branch Creek forms by the combination of West and East Branch which flows southeast, obtaining flow from Memorial Channel just north of Hillsborough Avenue. Double Branch Creek flows through portions of Upper Tampa Bay Park just south of Hillsborough Avenue before flowing roughly along the boundary of Upper Tampa Bay Park and Double Branch Bay Preserve, reaching Mobbly Bay approximately 2.1 river miles southeast of the Hillsborough Avenue crossing.

Water bodies within The Rocky/Brushy Creek Sub-watershed system, which includes the waters within the Preserve, are considered impaired water bodies due to high levels of nutrients and low DO. Impaired water is defined by the State of Florida as a water body or water body segment that does not meet applicable water quality standards, due in whole or in part to discharges of pollutants from point or non-point sources. Low DO and high concentration of nutrients are common in stormwater runoff from residential and commercial areas. In addition,

the historic dredging and channeling of creeks within the Rocky/Brushy Creek sub-watershed contribute to the degraded water quality (University of South Florida and Hillsborough County Stormwater Section, 2012).



Photograph 2-17: Unnamed drainage canal and stormwater outfall.

2.3.1 Aquatic Preserves and Outstanding Florida Waters

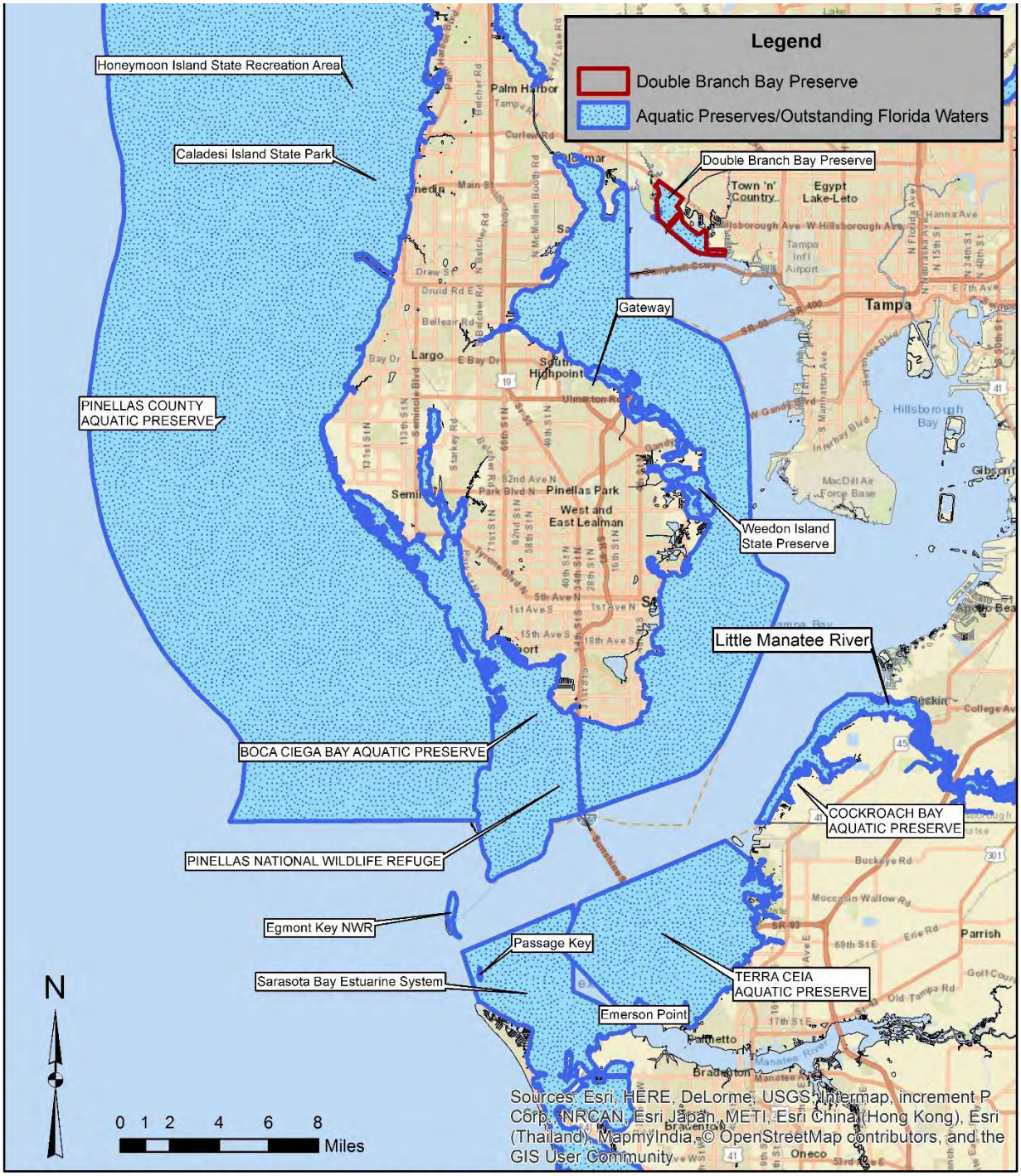
The closest Aquatic Preserve is located approximately 1 mile west of the Double Branch Bay Preserve in Pinellas County waters (Figure 6). All waters of Pinellas County are designated as an Aquatic Preserve and therefore, an Outstanding Florida Water (OFW), including a portion of Old Tampa Bay. The waters within the Preserve are considered an OFW because it was purchased under CARL. Projects regulated by FDEP or a Water Management District proposed within an OFW must not lower existing ambient water quality as determined at the time of OFW designation. FDEP cannot issue permits for direct discharges to OFWs that would lower ambient (existing) water quality. In most cases, this deters new wastewater discharges directly into an OFW, and requires increased treatment for stormwater discharging directly into an OFW.

2.3.2 Water Resource Management Measures

The Preserve helps improve water quality in Old Tampa Bay by preserving the natural vegetation communities that act as filters for stormwater runoff entering the bay through

Rocky/Dick Creek, Double Branch Creek and an unnamed drainage canal. In addition, the organisms in the shallow wetlands and tidal flats have some ability to assimilate nutrients, preventing them from entering the bay. The management measures required on the Preserve with respect to maintaining or improving the water quality are:

- Control exotic vegetation with approved herbicides consistent with labeling and Best Management Practices (http://www.fleppc.org/publications.htm). Use biological controls as they become available to control exotic vegetation.
- Avoid soil disturbances to minimize erosion, and subsequent turbidity and sedimentation in surface waters.
- Continue to remove trash and debris as it accumulates.
- Discourage boaters from encroaching into shallow areas to avoid groundings and damage to submerged aquatic vegetation.
- Preserve or restore vegetation in riparian habitat to act as buffers against surface water impacts, such as erosion, and to filter and deposit sediments and uptake nutrients before entry to Old Tampa Bay.
- Ensure that the site is securely fenced to avoid the improper and illegal disposal of hydrocarbons, volatile substances, batteries, solvents, etc.
- Implement best management practices during construction or other disturbance of the soil or vegetation.
- Notify Hillsborough County of the exclusion of the stormwater entering the site (from the unnamed drainage canal) from the Northwest Five Watershed Management Plan.
- Discourage or minimize vehicle access through tidal flats to access portions of the site for routine land management tasks.



Additional Sources: FDEP, 2017; Hillsborough County, Florida, 2016, 2017; Water & Air Research, Inc., 2017.

Figure 6.
Outstanding Florida Waters and Aquatic Preserves in the Vicinity of the Double Branch Bay Preserve. Hillsborough, Pinellas and Manatee Counties, Florida. Hillsborough County, Florida

2.4 Fish and Wildlife Resources

2.4.1 Existing Conditions

Appendix C (Observed Species) contains lists of animal and plant species observed during all informal and formal surveys of the Preserve as well as species expected to occur based on literature reviews (Humphrey, 1992; Kale and Maehr, 1990; Larson, et al, 2004; Mole; 1992; Rodgers, et al, 1996; Wunderlin and Hansen, 2011). Internet reviews (e.g., FNAI Biodiversity Matrix Query) were also conducted and the results included in Appendix C. The biota lists are updated periodically as new species are documented on the Preserve. Sources of information reviewed include:

- Biological surveys of the Preserve or adjacent preserves (Upper Tampa Bay Park, Rocky Creek Coastal Preserve)
- Bower Tract Wildlife Surveys Summary, Wildlands Conservation, Inc., 2010
- Plant survey revised to include mesic flatwoods adjacent to Hillsborough Avenue, 2010
- Double Branch Bay E Bird Hotspots, Dec. 2010 – June 2017, https://ebird.org.
- Onsite collection of plant material representing the flora of the Preserve, a written report describing the flora of these areas of the Preserve including a checklist/excel spreadsheet) of the vascular flora, with the GPS locations of listed or rare species and specified exotic invasive species, 2016
- Fish survey, 2015 (No source available)

Marine surveys documented 79 species of fish and 7 species of crustaceans. Terrestrial surveys have documented four species of amphibians and three species of reptiles on the Preserve, including two introduced amphibian species. To date, more than 100 species of birds have been documented; the number of observed bird species has been increasing over time due to new sightings documented on the E BIRD website, E Bird (Appendix C). There are 14 mammal species documented at the Preserve, including two introduced species and one imperiled species.

2.4.2 Management Measures for Fish and Wildlife

The implementation of specific management measures for fish and wildlife requires information regarding the species that are present on the Preserve. Formal surveys have been conducted periodically and species observed are listed in Appendix C. Imperiled species observed or expected are listed in Appendix D. Exotic plant and animal species observed are listed in Appendix E. Additional surveys may be considered at seasonally appropriate times so that migrant species and those species only active on a seasonal basis would be included. These surveys would help create a more comprehensive list of the species that utilize the Preserve, especially reptile species and species that utilize the salt water habitats.

The primary management tasks focus on plant and animal habitats, rather than individual species. The prescribed burn program and the management of exotic invasive plants and animals are the primary management tasks used to improve habitats and, subsequently, plant and animal populations. Invasive exotic plant and prescribed fire management is detailed in Sections 5.2.1 and 5.3.2, respectively. These two programs are ongoing at the Preserve on an as-needed basis that is prioritized by the Department. Other tasks that benefit wildlife populations include maintaining site security to prevent trespassing, poaching, and the control of exotic wildlife, such as feral cats, dogs, and other feral animals. Feral hogs are known to occasionally occur on site, but the presences of other exotic or feral animals (other than a domesticated dog, (Wildlands Conservation, 2010) have not been recently documented. Assessing the presence of feral animals would be a focus of opportunistic and pedestrian wildlife surveys. The management of invasive exotic animals is detailed in Section 5.2.2.

2.5 Special Status Species

Population and distribution information on special status species utilizing the Preserve was obtained from existing and previous management plans, the staff of the Upper Tampa Bay Park, the Department, local experts and consultants, and relevant literature. State and/or federally listed plant and animal species observed on the site or in the vicinity are listed in Appendix D. These species and their habitat requirements are discussed in this section.

Three vertebrate (tricolored heron, gopher tortoise, and West Indian manatee) and one plant species designated as imperiled have been observed on the Preserve. The population size and distribution of these species, either on the Preserve or adjacent or nearby lands has not been determined. Appropriate surveys are required to estimate the number of individuals and their distribution on the Preserve and the quality and size of available suitable habitat. Surveys of populations and habitats, and consultation with FWC's Wildlife Conservation, Prioritization, and Recovery (WCPR) program, will take place during the short-term 2-year planning period. After consulting with FWC and determining the feasibility of maintaining viable populations of any particular imperiled species, the necessary habitat management and maintenance tasks will be initiated and completed during the remaining 8 years of this management plan. Sea-level rise is known to impact various imperiled species and their associated habitats (FWC, 2016). The FWC document "A Guide to Climate Change Adaptation for Conservation" outlines impacted habitats and species and is a helpful management resource (FWC, 2016). Natural communities on the Preserve that are included in this guide include; mesic flatwoods, tidally influenced stream, estuarine, tidal flats, salt marsh, mangrove swamp, oyster bars, and seagrass.

To date, there have been ongoing activities intended to protect the habitats present on the Preserve. These actions include maintaining the integrity of fencing and access gates, limiting access to day hikers, conducting prescribed burns, and removing exotic invasive plant species. Terrestrial hunting is prohibited, as is the collection of plants within the preserve. State waters are open to waterfowl hunting and fishing.

2-year Planning Period

To achieve the long-term goal of supporting viable populations of species within the Preserve, several tasks are necessary. The first step is to assess the diversity, distribution, intactness, health and rarity of the plant and animal species that have been documented on the Preserve. Surveys and documentation of species has been undertaken and is ongoing and historical plant and animal survey data have been compiled as species occurrence lists (Appendices D and E). Using the species occurrence lists, along with other site information such as the natural community habitat map and descriptions, the Department (and consultations with FWC personnel) will determine which species are likely to persist long-term. The habitat management measures necessary for maintaining populations and the sampling methods best suited to monitor these particular species will then be determined.

Additional sources of information will also be evaluated such as periodic opportunistic pedestrian surveys and the use of bioblitzes. A bioblitz is an intense period of biological surveying using qualified volunteers to record all living species within a designated area. Bioblitzes are becoming an acceptable method for collecting useful data on public lands. The FWC began utilizing bioblitzes in 2017 and participants are asked to upload photos of the plants and animals they encounter in wildlife management areas into the iNaturalist app, using a cellphone or other digital device. Biologists with iNaturalist identify the uploaded species if possible. Sightings of Florida species then are being gathered on the newly created iNaturalist platform known as the Florida Nature Trackers Program. FWC dedicates a website to bioblitzes; http://myfwc.com/news/news-releases/2017/april/25/bioblitz/.

Passive sampling techniques, such as game camera placement, acoustic monitoring for frogs, bats, and birds may be deployed where feasible and likely to yield useful results. In addition to general monitoring, species-specific surveys will be conducted prior to management activities such as mechanical fuel reduction in fire-suppressed uplands.

For the observed special status species, such as the gopher tortoise and certain wading birds, there are standardized methods for conducting surveys and these surveys will be completed within the 2-year planning period. Note that gopher tortoises are not a predominant species in the mesic flatwoods; however, they have been documented (Wildlands Conservation, 2010). The following summarizes the species-specific management actions that will take place during the initial 2-year planning period.

2.5.1 Description of Special Status Species and Management Measures

Wading Birds

Wading birds observed or expected on the Preserve include roseate spoonbill, reddish egret, little blue heron, tricolored heron, and wood stork. Wading bird diets consist mainly of small fish, but they are also known to eat shrimp, crayfish, isopods, amphipods, and insects (Rodgers, et al., 1996). While the Preserve provides mangroves for roosting and abundant shallow estuarine

foraging opportunities it is not known if these species nest in the Preserve. Wading birds generally prefer nesting on islands separated from the mainland by broad areas of open water to protect their nests from predation by raccoons and other land mammals.

Management Measures for Wading Birds

Surveys to determine the presence of wading bird rookeries will take place April - June. Surveys also will take place to determine if wading birds are exploiting areas within the preserve as foraging habitat. Additionally, the U.S. Fish and Wildlife Service (USFWS), Florida Fish and Wildlife Conservation Commission (FWC), various online resources (such as the Breeding Bird Atlas and Waterbird Colony Locator) (FWC, 2003), http://atoll.floridamarine.org/waterBirds/) and conservations groups (e.g. Audubon Society) will be consulted to determine what other surveys have been done in the general area and if other data, such as GIS data regarding locations of known rookeries, are available.

Management of foraging and roosting habitat for wading birds includes the preservation of existing natural wetlands onsite, control of exotic plant species and feral animals, maintaining water quality to protect fish populations, and limiting human interference. If any rookeries are discovered, measures will be taken to protect these nesting areas. Such measures may include, but not necessarily be limited to, restricting human access by reducing hiking, canoeing, motorized boat activity near the rookeries, and rescheduling of nearby planned prescribed burns so these occur outside the nesting seasons. Should it become necessary to prevent depredation of eggs or fledglings, efforts also will be taken to control feral cats and dogs. (FWC, 2013a).

Wood Stork

Wood storks are birds of freshwater and brackish wetlands, primarily nesting in cypress or mangrove swamps. Wood storks feed in freshwater marshes, narrow tidal creeks, or flooded tidal pools. Particularly attractive feeding sites are depressions in marshes or swamps where fish become concentrated during periods of falling water levels.

Wood storks have been observed foraging at the Preserve. Though no rookeries are known to occur on the site, four colonies are located within the 15-mile foraging buffer (https://www.fws.gov/northflorida/woodstorks/wood-storks.htm), with the closest colony (Sheldon Road-Citrus Park) 4.2 miles away (active in 2015). Other nearby rookery sites include Alligator Lake (4.7 miles), Northlake Sagebrush (9.3 miles), and East Lake –Bellows Lake (14.7 miles) (U.S. Fish and Wildlife Service, 2017).

On June 26, 2014, The U.S. Fish and Wildlife Service changed the protected status of the wood stork from endangered to threatened under the Endangered Species Act (ESA), reflecting a highly successful conservation and 30-year recovery effort of regulation and partnership efforts with states, local agencies, tribes, conservation groups, private landowners, and other stakeholders to protect and restore vital habitat. Since 2004, the 3-year averages (2003 to 2012) for nesting pairs ranged from 7,086 to 10,147, all above the 6,000 3-year average identified in the 1997 recovery plan as the threshold to consider reclassifying the species to threatened status. However, the 5-year average of 10,000 nesting pairs, identified in the current

recovery plan as the threshold for delisting, has not yet been reached. The down-listing recognizes the wood stork's ongoing recovery and the positive impact that collaborative conservation efforts over the last two decades are having on the status of the breeding population. (U.S. Fish and Wildlife Service, 2014; https://www.fws.gov/news/ShowNews.cfm?ID=D8AEC082-A7E9-C4CA-C6375DE1198A72B1)

Management Measures for the Wood Stork

Surveys to confirm the presence of wood stork rookeries will take place April - June, along with other wading bird rookery surveys. If potential rookeries are found by USFWS regional surveys, measures will be taken to confirm and protect these nesting sites.

American Oystercatcher

The American oystercatcher needs extensive beach, sandbar, mudflat, and mollusk beds for feeding and roosting. They also forage on bivalves, marine worms, crustaceans, small fish, gastropods, and many insects found in the aquatic environment. The American oystercatcher nests on sandy dunes, salt marsh islands, and dredge spoil islands, building its nest above the high tide mark. The oystercatcher is extremely vulnerable to disturbance and is declining due to loss of undisturbed nesting habitat and introduced predators (FWC, 2013b). The Preserve may provide foraging habitat, but it is likely too close to human activity for the birds to nest in this area.

Management Measures for the American Oystercatcher

The status of the American Oystercatcher on the Preserve needs to be determined. It is possible that the property provides nesting habitat for this species in the extensive estuarine areas containing mud flats, oysters, and mangroves. Breeding season surveys (conducted April through August) are recommended (FWC, 2013b). If the site is determined to be a nesting area, the area should be posted to prevent human interference. No exotic vegetation control, fire preparation or other maintenance activity should be undertaken near active nests. American oystercatchers and their food resources also require maintenance of good water quality.

West Indian Manatee

Manatees have been observed in the waters of the Preserve on several occasions. Because of the shallow nature of the Preserve and surrounding waters, they are likely infrequent visitors restricted to deeper areas, or passage through the area on high tide. They live in salt and freshwater with depths from 1.5 to 6 meters and forage on areas of submerged aquatic vegetation such as seagrasses (FWC, 2013c). During cooler periods they are known to seek and congregate in areas of warmer water such as springs and warm water discharge from industrial and utility outfalls.

Management Measures for the West Indian Manatee

The USFWS developed a recovery plan for the manatees (U.S. Fish and Wildlife Service, 2001), which made the following recommendations that apply to the Preserve:

- Minimize human-caused injuries and mortalities to manatees,
- Rescue and rehabilitate sick, injured, or orphaned manatees,

- Minimize impacts from boat and barge collisions, water control structures, and poaching,
- Minimize alteration, degradation, and destruction of habitat used by manatees and monitor its status,
- Minimize harassment of manatees from boat and barge traffic, fishing, diving, and swimming; and
- Determine and monitor status of manatee population and determine aspects of life history and ecology.

In order to accomplish the recommendations listed above, maintaining and improving water quality are needed to promote healthy seagrass beds that provide forage for manatees. Florida Fish and Wildlife Conservation Commission will be relied upon to enforce existing speed regulations at the Preserve to minimize the likelihood of boat/manatee collisions.

Gopher Tortoise

Limited gopher tortoise habitat exists on the Preserve uplands because the depth to seasonal high water is 12 inches or less for all soil types mapped on the property. Nevertheless, one gopher tortoise was observed in the mesic flatwoods (Wildlands Conservation, 2010). In addition, potential habitat exists in limited, isolated areas for gopher tortoises on sand spoil islands. Formal surveys to estimate the size of the resident gopher tortoise population and map the distribution of burrows in the uplands of the Preserve have not been conducted due to the overall lack of suitable soils and small amount of upland habitat within the Preserve.

Management Measures for Gopher Tortoise

Hillsborough County can conduct tortoise surveys using the new “Line Transect Distance Sampling” method being adopted by FWC (Smith and Howze, 2013) due to acquisition of a fiber optic burrow camera. In addition to surveys for estimating the size of the tortoise population, the quality of suitable gopher tortoise habitat on the site needs assessment using the vegetation monitoring methods described in FWC’s gopher tortoise permitting guidelines (FWC, 2017d).

Because of limited potential habitat, surveys should be conducted to optimize efficiency. Surveys for gopher tortoise should be conducted in uplands post-burn following prescribed burns or wildfire. In addition, spoil islands where sandy habitats exist, should be checked periodically.

Sea Turtles

The Tampa Bay area has been under study recently to evaluate the occurrence and distribution of sea turtles in the area (FWC, 2017c). At least four of the five species of marine turtles use the waters of Tampa Bay for at least some part of the year. These include the loggerhead (*Caretta caretta*), green sea turtle *(Chelonia mydas)*, Kemps ridley *(Lepidochelys kempi),* and hawksbill *(Eretmochelys imbricata)*. The objectives of these studies are to identify and characterize life history stages of marine turtle species that occur in Florida waters, to identify habitats specific to life history stages, and to identify threats to specific life history stages.

It appears that *L. kempi* and *C. caretta* may be year-round residents of Tampa Bay. The bay supports a range of life stages including juveniles, subadults, and adults (FWC, 2017). The loggerhead, Kemps ridley, and hawksbill utilize the rich estuarine resources of Tampa Bay for foraging on mollusks, crustaceans (especially crabs) and sponges. The green sea turtle is an herbivore feeding on submerged aquatic vegetation such as the seagrasses found in the waters of the Preserve.

Management Measures for Sea Turtles

Protection of seagrass beds from boat damage, maintenance of good water quality to support healthy seagrasses and healthy invertebrate populations are key measures to ensure abundant food sources for sea turtles. Seagrass areas within the Preserve should be monitored in conjunction with regional surveys to track expansion or loss of this resource. Opportunities within the Preserve may exist to expand or restore seagrass beds. This will create more foraging habitat for sea turtles.

Listed Plants

To date, one listed plant species has been documented by the Department on the Preserve (Appendix D), the state endangered Tampa mock vervain (Glandularia tampensis). The Tampa mock vervain was first discovered in MU 1 in 2010. The occurrence and distribution of this species within the Preserve and the size of potential populations are generally unknown. No subsequent surveys have documented this species and it no longer appears to be at the location where it was previously documented (Water & Air, 2017-field visit). There is also potential for the state-threatened erect pricklypear on sandy spoil islands and the sandy edges of tidal creeks around middens. A systematic search for this species should be included as part of any listed plant surveys.

Management Measures for Listed Plants

Thorough surveys of suitable habitat in the vicinity of previous Tampa mock vervain sightings should be conducted to determine if other individuals persist on the Preserve, especially after mechanical roller chopping and exposure to fire. Natural community maps, aerial photography, and habitat characteristics will be used to narrow down the best habitat for Tampa mock vervain and erect pricklypear at the Preserve. Surveys to determine general locations of the Tampa mock vervain, as well as other potential other imperiled species that may be present, can be included as part of the general vegetation surveys done to assess plant communities. These surveys must be conducted in early spring when the Tampa mock vervain is most likely to be in bloom (note that it can bloom all summer). Vouchering (at a recognized institutional herbarium) and proper identification of each imperiled species found at the Preserve is critical and will be conducted as long as collection does not jeopardize the integrity of the population. The Department has developed and maintained a close working relationship with the University of South Florida, and representative plants from a number of Hillsborough County's preserves and parks have been deposited at the University of South Florida Herbarium. These specimens can be seen at http://www.florida.plantatlas.usf.edu/.

General practices for the protection of imperiled plant species as well as state-listed commercially-exploited species include enforcement of rules prohibiting unauthorized plant

collection within the preserve, exclusion of off-road vehicular traffic and pedestrian access to sensitive areas, and continued control of invasive exotic invasive plant species. Habitat-specific management practices will be conducted in a manner that is consistent with the natural life cycle of the Tampa mock vervain (if found on site). Management of the mesic flatwoods, a community where the Tampa mock vervain historically has occurred, will continue using appropriate prescribed fire regimes. Since the Preserve is one of only a few locations where this species has been observed, the Department could contact rare plant specialists at Bok Tower Gardens for assistance in the reintroduction of the species into suitable habitat on the Preserve.

Management Measures for All Imperiled Species

Management measures for all protected species at the Preserve include management of exotic vegetation and animals, maintenance of natural hydroperiods and drainage patterns, restriction of inappropriate recreational uses, apprehension and prosecution of poachers and trespassers, protection of water quality, and periodic monitoring to assess the status of the various species. Public education and information should be provided at kiosks, as printed material and via the internet so citizens are informed about activities that disturb or harm imperiled species. Wildlife surveys are recommended to determine the presence and monitor the status of the imperiled species on the Preserve. GPS logging of nests, territories, and the location of listed plant populations is recommended for resident species or important foraging areas. Collected information regarding imperiled species will be recorded in FNAI report forms and submitted as appropriate. Examples of these forms are provided as Appendix D.

10-year Planning Period

During the 10-year planning period monitoring/surveying of plant and animal species will continue using methods that have yielded the best results at the Preserve historically. In addition to generalized monitoring, specific surveys for imperiled species, such as gopher tortoises and wading bird rookeries, may be conducted on an as-needed basis to document populations and locations. Evaluation and protection of estuarine habitats supporting imperiled species such as mangrove, seagrass, and oyster areas is a long-term priority, as well as consideration of expansion and restoration of these areas, if warranted. Regional surveys of these resources should be acquired and evaluated focusing on the Double Branch Bay area. All collected data will be stored in spatial and tabular data form.

3.0 Cultural Resources

3.1 Definition of Terminology

There are five widely accepted categories of cultural resources: 1) archaeological resources; 2) historic structures; 3) cultural landscapes; 4) ethnographic resources, and 5) museum collections. As defined in the National Historic Preservation Act and its implementing regulations in 36 Code of Federal Regulations (CFR) 800, historic properties are those buildings, area of potential effects, sites, districts, artifacts, and remains that are related to culturally important places and events, and that are listed in or eligible for inclusion in the National Register of Historic Places.

The significance of historic properties is assessed by the property's ability to meet the following four criteria for inclusion in the National Register of Historic Places (36CFR60.4):

- Association with events that made a substantial contribution to our history;
- Association with the lives of persons important in our past;
- Sites that embody characteristics of a type, period, or methods of construction or that represent the work of a master, possess high artistic value, or represent a distinguishable entity; or
- Have yielded, or may be likely to yield, information important to prehistory or history.

Properties may be eligible for the National Register of Historic Places for contribution at the national, state, or local level. In order for a structure to be listed in the National Register of Historic Places, it must possess historic integrity of those features necessary to convey its significance, such as location, designs, setting, workmanship, materials, feeling, and association in accordance with National Register of Historical Places guidelines.

Although no historical structures are known to occur on the Preserve, archaeological resources are present. There are five recorded sites and one waiting recordation within the preserve. Each site is in a remote area and as such are difficult to access and extremely difficult to secure. At least one of the sites has been disturbed in the past ten years. Because of the vulnerability to vandalism and difficulty in securing these sites, maps showing the location of known archaeological resources are not included in the management plan.

3.2 Agency Correspondence

There has been correspondence documented with Louis Tesar, Division of Historic Resources, related to Cultural Resource Analysis for State Lands Management Review Team in 2006 and 2015 regarding the presence of six recorded sites near the Preserve and Upper Tampa Bay Regional Park. At least two reconnaissance surveys have been conducted in the vicinity by various researchers (Pluckhahn, et al., 2011). Their report recommended preservation of the sites, further study to define the limits of sites listed in The Florida Master Site File and additional surveys to discover and document heretofore unknown sites.

3.3 Management Measures for Cultural Resources

The staff will coordinate with DHR on the protection and management of archaeological and historical resources. The management of the archaeological and historic resources will comply with the provisions of Chapter 267, Florida Statues, specifically Sections 267.061 2(a) and (b). The collection of artifacts or the disturbance of archaeological and historic sites on the project site will be prohibited, unless prior authorization has been obtained from the Department of State, DHR.

Knowledge of cultural resources may improve with additional study of the six known sites, research across the entirety of the Preserve, and monitoring to detect deterioration of sites due to weather or vandalism. The fact that staff located another potential site in the summer of 2018 warrants further research within the Preserve. Impacts to identified cultural resources are likely to occur through normal deterioration of the resource from weather, flowing water or from potential vandalism. At least one of the six known sites appears to have been disturbed within the last ten years and all the known sites potentially are affected by sea level rise.

Best Management Practices for Protecting Archaeological Sites, available from the Department of State, DHR (2013) have been, and continue to be, followed. For example, in response to the discovery of another site in 2018 staff solicited assistance from the Florida Public Archaeology Network to record the site within the Florida Master Site File. Additionally, the Heritage Monitoring Program (https://hms.fpan.us/hms/home) has been suggested as a means for potential help both with monitoring existing sites for possible vandalism and searching for new, undiscovered sites.

Hillsborough County will comply with Department of State, Division of Historical Resources (DHR) "Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties (revised March 2013). Per these procedures, the County must provide DHR the opportunity to review, comment and provide any recommendations on any undertakings regarding historic or cultural resources including land clearing or ground disturbing activities.

Although the majority of the Preserve will remain undisturbed by development activities, limited construction work may occur on the property to accommodate public access and passive recreational uses. DHR will be consulted prior to initiation of significant ground-disturbing improvements. DHR's recommendations, such as development of a cultural resources model to determine the need for a phase I assessment within the limits of construction, will be followed. Should cultural resources be discovered during routine operations or site construction activities, or if evidence is found that suggests the presence of an archaeological or historic resource at the project site DHR will be contacted immediately and work will cease until an evaluation is conducted.

Short-term management goals for the protection of cultural resources include:

Training-Hillsborough County Conservation and Environmental Lands Department will ensure staff are trained in cultural resource management. Staff periodically will be sent to Archeological Resource Management Training through DHR or other similar programs. Trained staff should periodically consult the DHR web site and obtain updated training as needed.

Education/Interpretation-Historical information can be incorporated into all programming. Interpretation of known cultural resources on the Preserve will be made available to the public through various educational forums, including kiosks, signs, web-based information and education programs. The staff will also be working closely with the local Florida Public Archaeology Network (http://www.flpublicarchaeology.org/) to learn more about the protection and interpretation of cultural resources.

Inspections-Cultural sites should be inspected at least once a year to ensure that damage or vandalism has not occurred. Security measures such as posting, fencing, inspections, and law enforcement should be implemented as needed to deter vandalism or prosecute violators.

CELM's one long-term management goal regarding cultural resources is for additional surveys of the site, as funding permits. Newly discovered sites will be recorded with DHR and afforded the same level protection as currently known sites.

4.0 Recreational Resources

The Preserve is located in a rapidly-developing section of Hillsborough County. A number of passive recreational land acquisitions have increased and complemented other significant regional recreational resources. Figures 1 and 7 provide the context of nearby land and water resources offering resource-based recreational opportunities.

Conservation and preservation of natural and cultural resources of the Preserve has been the primary focus of activity on the property since acquisition. The focus of the next 10 years is to improve public access for passive recreation on the Preserve. Recreational uses of the property include wildlife viewing, boating and paddling, fishing, and hiking.

Improved public access and use of the property can be accomplished by interconnecting proposed hiking and paddling trails on the Preserve to existing facilities in the immediate area and region, especially utilizing amenities at the adjacent Upper Tampa Bay Park. Proposed passive recreation improvements will include designating hiking and paddling trails and providing way-finding and interpretive facilities at the Preserve, while simultaneously preserving its important habitat value. Currently, trails are unmarked and provide limited access to key features at the Preserve (Photograph 4-1).

4.1 Existing Recreational Facilities

There are no existing structures or improvements on the property except fences, gates and signs associated with site security, and access. Currently, there are minimal passive recreation amenities on the Preserve. The only public entrance by land is through an unlocked pedestrian gate along Hillsborough Avenue. The entrance has a small sign with no formal parking but is accessible from a sidewalk adjacent to Hillsborough Avenue. This entrance connects to a service road in the northwest portion of the site that can be used for hiking.

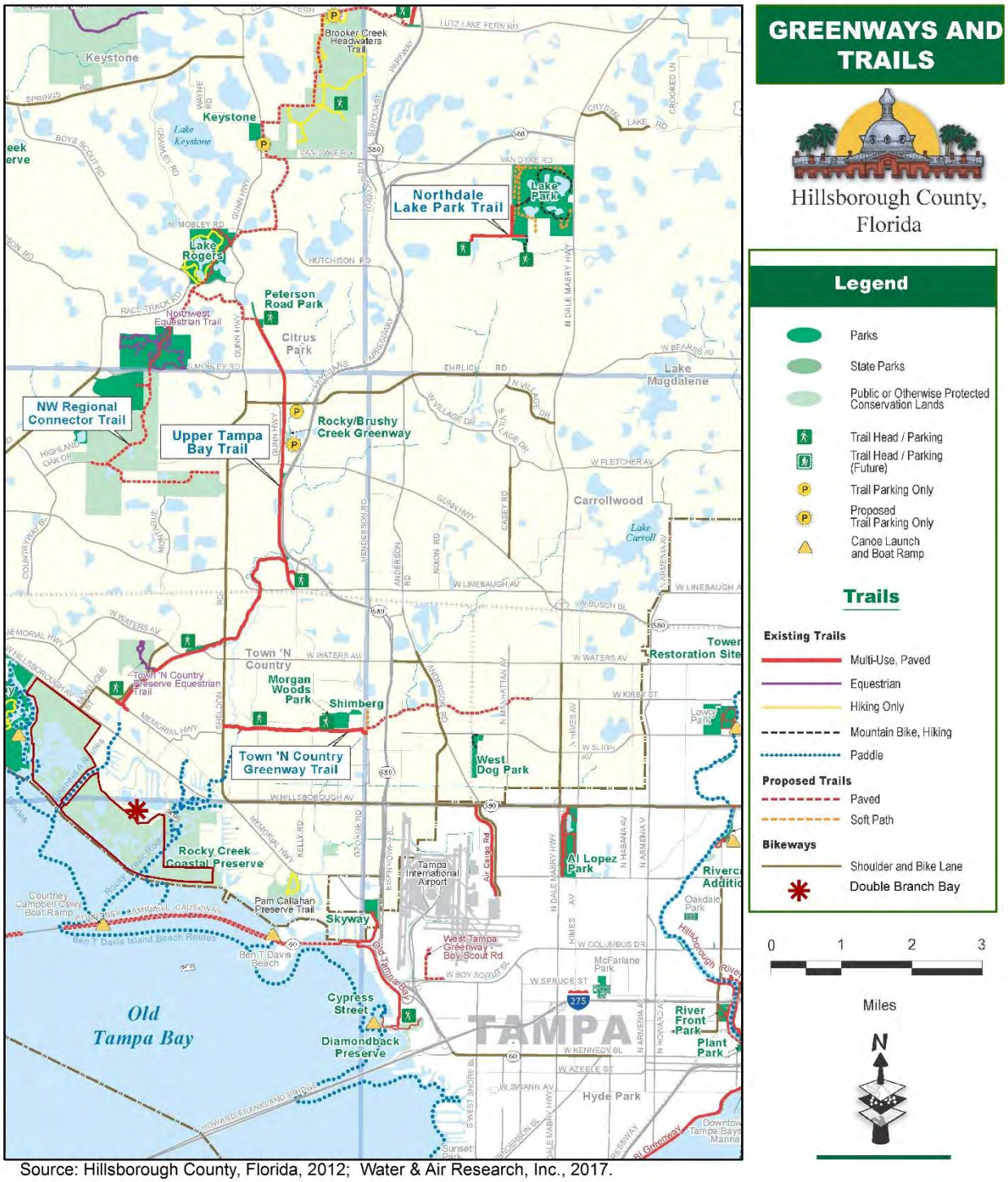
There is no canoe launch at the Preserve; the nearest public access canoe/kayak launch is located at Upper Tampa Bay Park. Users of the marked Upper Tampa Bay Park paddling trail can explore Double Branch Creek along a marked paddling trail with the northern limit at the Hillsborough Avenue Bridge and the southern limit at the mouth of Double Branch Creek. Currently, there are no marked paddling trails from the Upper Tampa Bay Park paddling trail into the beautiful back waters of Double Branch Bay Preserve.

The Upper Tampa Bay Park paddling trail along Double Branch Creek is designated by navigational aids to the mouth of Old Tampa Bay. From this point in Old Tampa Bay, a paddling

connection west to the Pinellas Blue Way Trail is possible. To the southeast, additional paddling linkages to Channel A/Rocky Creek, Rocky Creek are possible through the waters of the Preserve (Figures 7 and 8).



Photograph 4-1: Trail through mesic flatwoods heading towards Double Branch Creek and proposed canoe trail.



Source: Hillsborough County, Florida, 2012; Water & Air Research, Inc., 2017.

Figure 7.
Trails, Parks and Greenways in Northwest Hillsborough County, Florida

4.2 Proposed Recreational Facilities

The County envisions improving the hiking and paddling use of the Preserve by connecting onsite amenities to Upper Tampa Bay Park and to Double Branch Creek. A proposed hiking loop (Figure 8) will have way-finding trail signage and interpretive signage. The proposed 2.1-mile loop trail will have a spur that connects to a landing spot on Double Branch Creek. In addition, a short paddling link from the Upper Tampa Bay Park paddling trail will allow paddlers the option to disembark and access the Preserve's proposed hiking trail (Photograph 4-1). Figure 11 – (Map ID 5) and Table 6-3 provide additional information on the canoe trail and hiking trail connection. The short paddling spur will depart from the main paddling trail between markers three and four (Figure 8). Signage should be included with the hiking trail markers to clearly designate this landing.

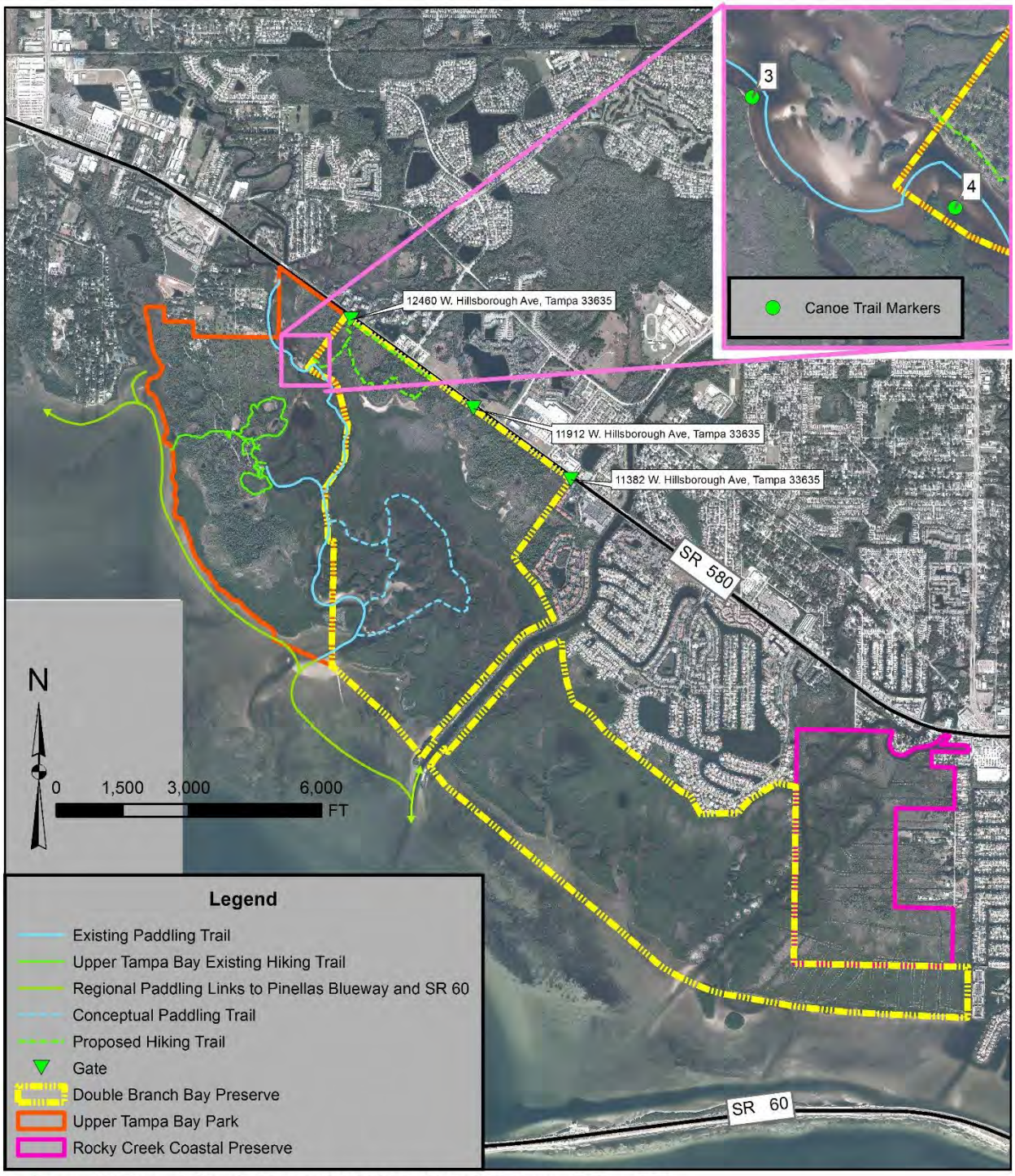
In addition to the hiking trail, there is an opportunity to expand designated paddling trails of Upper Tampa Bay Park into Double Branch Bay from Double Branch Creek. Double Branch Bay offers a unique experience of paddling through and past mangrove islands, tidal flats, oyster bars and a salt marsh so near to a heavily urbanized area. A conceptual paddling trail loop is illustrated in Figure 8 and the area shown in Photograph 4-2. The Preserve's paddling loop should be well marked and add an additional 1.0 to 2.0 miles to the existing paddling opportunities.

There is also the opportunity to improve regional paddling amenities from the mouth of Double Branch to the mouth of Channel A, which bisects the site, by providing markers and a designated landing spot. A paddling trail brochure could be developed similar to the Pinellas Blueway Guide to interconnect the paddling opportunities from Pinellas County into the Upper Tampa Bay Park and Double Branch Bay Preserve trails (Figures 7 and 8).

A new informational kiosk at the existing access point from Hillsborough Avenue to the site is recommended. The kiosk should include basic information on the site's resources such as a site map showing the hiking and paddling trails, natural resource interpretation, and safety recommendations. A digital map using QR codes or other digital means, of the site will be produced for self-guided trail use. All proposed trails should be clearly marked with way-finding facilities and installed within the 8-year phase of the plan. The 10-year management plan should include inventory of markers and signage and replacement of any way-finding facilities that are missing or in disrepair. The 10-year plan should also include additional interpretive kiosks at strategic access points explaining the unique natural resources occurring on the Preserve.



Photograph 4-2: Double Branch Bay estuary where the proposed canoe trail could be located.



Source: Hillsborough County, Florida, 2016, 2017; Water & Air Research, Inc., 2017.

Figure 8.
Existing and Proposed Recreational Resources at Double Branch Bay Preserve and Connection to Upper Tampa Bay Park
Hillsborough County, Florida

5.0 Resource Management

5.1 Site Security

The Preserve lies in unincorporated Hillsborough County and is within the jurisdiction of the County Sheriff's Department. The preserve is periodically patrolled by the sheriff for unauthorized access by trespassers and by FWC Marine Patrol for game, fishing, and boating violators. There are no resident security personnel on the Preserve property.

The Preserve is fenced on the northern boundary with Hillsborough Avenue and on part of the eastern boundary along the uplands to minimize unauthorized access. There is no fencing on the southern wetland boundary, Channel A/Rocky Creek, Rocky Creek/Dick Creek, or the common boundary with the Rocky Creek Coastal Preserve.

There are three access gates to the Preserve along Hillsborough Avenue: one gate on the western end near the Upper Tampa Bay Park Boundary, one gate on the eastern end near where the site abuts private property associated with Camden Bay apartments, and one at approximately the midpoint between the eastern and western gate (Figure 1). The midpoint and western gates provide room for vehicle pull-off from Hillsborough Avenue within a fenced inset. The street addresses for the Preserve's gates are: 12460 West Hillsborough Avenue (western gate), 11912 West Hillsborough Avenue (midpoint gate) and 11382 West Hillsborough (eastern gate). All three vehicle access gates are locked. There is an unlocked pedestrian access gate at the midpoint gate. Signage at each gate identifies the property and provides emergency contact numbers should problems occur.

Proposed security improvements include posting safety and emergency information at hiking trail kiosks and signs at the proposed paddling landing spots.

5.2 Exotic Species Management

The management and control of exotic invasive plant and animal species is one of the most important tasks in maintaining and restoring natural communities. Exotic invasive plant and animals can negatively disrupt natural communities in a variety of ways. They can out-compete and displace native species and alter the natural balance of natural communities by reducing floral and faunal biodiversity. Exotic invasive plants can alter natural processes such as fire frequency or intensity and water flow. http://www.fleppc.org/FLEPPC_main.htm

In addition to herbicide applications for exotic invasive plant species and other control methods (hand pulling and biological controls), the long-term control of these species must include surveys for new infestations and monitoring areas previously targeted with eradication measures. Routine surveys of natural communities help discover new infestations before they spread extensively. Monitoring historical eradication efforts help determine the effectiveness of herbicide formulations, herbicide application timing and overall eradication efforts.

Monitoring and surveying methodology may follow the procedures used to monitor plant and animal communities throughout the Preserve, such as methods described in FWC's

(FWC, 2017a) Objective Based Vegetation Management Program (OBVM) or in the Bureau of Land Management's Technical Reference, Measuring & Monitoring Plant Populations (Elzinga, et al., 1998). Exotic animal species surveys will be included with standardized sampling for native vertebrate species. Species-specific sampling methods may be necessary on a case-by-case basis.

Exotic species control is time consuming and expensive. Resources include the commitment of staff time for surveys, monitoring, and exotic invasive species control or sufficient funds and staff time for hiring and managing qualified contractors.

5.2.1 Exotic Invasive Plants

Exotic invasive plant species observed on the Preserve occur in most of the natural plant communities with varying degrees of infestation (Appendix E, Photographs 5-1 and 5-2). Thirty-seven exotic plant species have been identified onsite with 19 listed on the Florida Exotic Pest Plant Council's (FLEPPC, 2017) list of the most invasive species (Category I and II, Appendix E). The most common exotic invasive species targeted for eradication at the Preserve are Brazilian pepper (Photograph 5-2), camphor tree (*Cinnamomum camphora*), caesarweed (*Urena lobata*), Japanese and old world climbing ferns (*Lygodium japonicum*, *L. microphyllum*), and skunkvine (*Paederia foetida*). Natural communities most affected by these species include the mesic flatwoods and the spoil islands, although every natural community at the Preserve is host to an exotic species.

Early documentation and treatment is the most effective method for controlling exotic invasive plant infestations. The Department periodically checks the Preserve during routine visits to identify any new infestations or recurrences of exotic plants, and if observed, they take appropriate actions to address the problem. Adjacent lands are a source for exotic invasive species through landscaping practices or harboring seed sources. Cooperation and consultation with adjoining property owners and landscape managers was attempted by the Department historically without success. Early detection through surveys and rapid control/treatment followed by monitoring are part of the exotic invasive plant management effort at the Preserve. Mapping and documenting the locations of new and ongoing infestations are also included in the exotic invasive management program.

Various resources describe methods for controlling exotic invasive plants using chemical herbicides and biological treatments. Exotic invasive plant species control is an evolving science and Florida Exotic Pest Plant Council (FLEPPC) updates guidelines as new information becomes available. The Department is committed to using the most appropriate and effective methodologies available to reduce existing infestations and to develop site-specific methodologies for managing species. Some on line resources include (Appendix E):

- University of Florida, Center for Aquatic and Invasive Plants Web site http://plants.ifas.ufl.edu.
- Florida Exotic Plant Pest Council Web site http://fleppc.org.



Photograph 5-1: Cattail (*Typha sp.*) infestation
in salt marsh south of Stormwater Canal.



Photograph 5-2: Herbicided Brazilian pepper (*Schinus terebinthifolius*)
along the canal.

- Identification and Biology of Non-Native Plants in Florida's Natural Areas. K.A. Langeland and K. Craddock Burks. 165 pp. 1998. IFAS Publication SP 257.
- Control of Non-Native Plants in Natural Areas of Florida. K.A. Langeland and R.K. Stocker. 34 pp. 2001. IFAS Publication SP 242.

2-year Planning Period

The 2-year planning period tasks include a general assessment of exotic invasive species conditions within the Preserve and preparation of an updated GIS layer showing all existing infestations of exotic invasive plants. This task will also include monitoring the most recent efforts by contractors and Department staff to treat exotic invasive plants. Monitoring data will help determine if previous control efforts (e.g., treatment schedules, herbicide formulations) were effective.

Portions of the preserve adjacent to off-site seed sources that could result in new infestations will be designated as highest priority for monitoring and management. Standard plant population sampling methods will be used in the exotic species surveys. Post treatment monitoring will occur in treated areas to assess the effectiveness of management efforts. Qualified contractors may be hired to conduct pre-treatment surveys, treatment, and post-treatment monitoring to assist the Department.

10-year Planning Period

The 10-year planning period tasks include surveys to search for new exotic invasive plant species infestations and regular monitoring of the effectiveness of treatment in previously treated areas. The early detection of exotic invasive species on site is a high priority and County staff will search for new infestations whenever field visits to the Preserve are conducted. The 10-year planning period goal is to limit undesirable species to, or below, population levels that would adversely affect the normal functions of natural communities. All collected data on treatment efforts and location and extent of exotic plant infestations will be stored in tabular and spatial formats.

5.2.2 Invasive Exotic Animals

Exotic animals observed on the Preserve (Appendix E) to date are the nine-banded armadillo (*Dasypus novemcintus*), greenhouse frog, (*Eleutherodactylus planirostris*), Cuban tree frog (*Osteopilus septentrionalis*), and domestic dog (*Canis familiaris*). Feral pigs (*Sus scrofa*) are a common exotic animal that occurs in the area and can potentially occur on the Preserve. The Bower Tract Wildlife Survey (Wildlands Conservation, Inc. 2010, Appendix C) reported a 10:1 exotic to native ratio for the anuran species, indicative of a high level of invasion. Periodic surveys will be conducted to determine the occurrence of exotic faunal species. Removal of exotics, like the anuran species, is not practical unless cost effective methods are invented.

Department staff engaged in routine management tasks such as mowing, firebreak maintenance, and exotic invasive plant management should document exotic animal species occurrences; however, systematic surveys using accepted methodologies will still be required to

assess the extent of exotic species infestations. The objectives of exotic faunal surveys are 1) documentation of exotic species while populations are still small enough to control (if possible) and 2) assessment of control measures, if applicable.

Feral hogs have not been documented at the Preserve, however, the habitat is suitable, and the remoteness of many areas may preclude the timely discovery of an infestation. County staff should be vigilant to feral hog signs and conduct periodic feral hog surveys. Feral hogs may be destructive to natural plant communities and populations of reptiles and amphibians. The Department can contract with professional trappers if the need arises.

One pest documented near the Preserve is the Mexican bromeliad weevil (*Metamasius callizona*), an exotic insect that kills native bromeliads such as the giant air plant (*Tillandsia utriculata)*. Scientists at the University of Florida began releasing a parasitic fly (*Lixadmontia franki*) native to Honduras in several test areas in June 2007, to determine its efficacy in controlling the weevil. This fly was found affective in controlling the weevil during testing and released in Florida in 2007 and 2008. Subsequent monitoring of the fly releases has found it to be ineffective in controlling the weevil in the wild (Cooper, 2011). A weevil resistant form of the giant air plant has been found in Belize and is being currently being studied http://entomology.ifas.ufl.edu/frank/savebromeliads/ and may be used for re-introductions if approved.

Other pest infestations are likely on the Preserve and the Department should be aware of them. The lethal yellowing disease (Phoenix Palm decline) of cabbage palms (*Sabal palmetto*) has been documented in Hillsborough and Manatee Counties and can be difficult to identify in urban areas due to the landscaping practice of removing old leaves and flower stalks prior to showing symptoms of the disease such as yellowing and premature fruit drop. The retention of old leaves and flower stalks results in more discernible lethal yellowing symptoms in natural communities (Appendix E).

Laurel wilt is another lethal pathogen that occurs in the area. It only affects laurel family (*Lauraceae*) species. No native species in the laurel family occur at the Preserve other than the exotic species camphortree (*Cinnamomon camphora*).

5.3 Prescribed Fire

5.3.1 The Importance of Fire

Prescribed fire is a land management tool used to restore and maintain fire-dependent ecosystems, enhance forest health, improve wildlife habitat, and prevent dangerous, uncontrolled wildfire by reducing hazardous fuels loads. Fire promotes healthy ecosystems by stimulating pyrophytic vegetation, inhibiting non-pyrophytic vegetation, releasing nutrients into the soil and enhancing food production for wildlife (https://www.freshfromflorida.com/Divisions-Offices/Florida-Forest-Service/Wildland-Fire/Prescribed-Fire/The-Natural-Role-of-Fire).

Wildfire has historically been a concern at the Preserve; there have been two since 2008, the most recent in 2016, in MUs 3 and 5. The threat of wildfire is high due to the Preserve's urban

interface and close proximity to Hillsborough Avenue. A safety benefit of prescribed fire is that it reduces fuels that have built up on the forest floor over time to manageable levels, reducing potential for catastrophic wildfire. If fuels are not reduced every few years, wildfires can become destructive and harder to control.

Florida has a long history of lightning fires and is designated as one of the lightning capitals of the world. Many of the state's natural communities are adapted to fire and depend on periodic fire to remain healthy. Prescribed fire is a vital tool for managing mesic flatwoods found at the Preserve and the gopher tortoise population (only one documented at the Preserve, Wildlands Conservation, 2010) that occupies them. The upland acreage on the Preserve is likely too small to benefit most listed animal species that are dependent on fire. Listed plants species, of which only one has been historically observed, would likely benefit from periodic fire.

5.3.2 Management Measures for Fire

Prescribed burning is the single most important land management task carried out by ELM of the Department (Appendix F Prescribed Burn Policy No. 2015-01). The FFS is under contract with Hillsborough County and will continue to conduct burns on the Preserve. Heavy fuel loads in some areas coupled with urban conditions and adjacent roads make prescribed fire at the Preserve difficult. Within the Preserve, many areas of pyrophytic habitat in the mesic flatwoods and adjacent marshes have increased fuels because of a long history of fire exclusion and suppression. Areas recently burned by wildfire may have smoke issues due to increased dead wood and snags. MUs that contain thick layers of accumulated detritus (duff) can create smoke dispersal issues and result in tree mortality due to root damage.

The use of prescribed fire is dependent on ecological needs, seasonal timing and scheduling, available resources, and appropriate weather conditions. FFS will conduct prescribed burns under contract to the County. Preparation for prescribed fire includes the creation or maintenance of fire lanes, surveying pre-burn conditions, preparing a prescribed burn plan, and notifying adjacent property owners.

The Preserve is divided into 10 separate MUs based on the type of habitat and the appropriate burn schedule (Figure 9). For example, prescribed fire within the mesic flatwoods should occur on 2- to 4-year intervals to reduce hardwood species encroachment and to maintain the health of pyrophytic mesic flatwoods species.

The Department prioritizes prescribed fire for MUs that contain listed species or natural communities dependent on fire (e.g., gopher tortoises, mesic flatwoods) and to mitigate wildfire by reducing fuel loads (e.g., MUs adjacent to urban areas).

Prescribed fire as a management tool raises concerns regarding the health and safety of nearby residents and their property. Some safety concerns are reduced by following standard prescribed fire procedures. The management of smoke is a serious and difficult issue, especially when conducting prescribed fire in urban areas, and adjacent to busy roads and low-lying areas. Formulating prescribed fire prescriptions to increase smoke dispersal and reduce smoke on nearby roads and urban areas can help alleviate smoke-related health issues. In

addition to weather conditions, types and amounts of fuels have a significant effect on the quantity and quality of smoke generated by prescribed fires and potential threats to public safety and health. As fuels change over time, the significance of smoke-related issues also may change. Initially, heavy loads of fuel within a fire-suppressed MU require specific weather and wind conditions (e.g., wind speed and direction). Whereas lighter fuels (after several prescribed fires) will generate less smoke and may allow for burning over a wider range of weather and wind conditions.

The mesic flatwoods on the preserve will require frequent fire (2- to 4-year intervals) to control hardwood invasion (FNAI, 2010). Fire stimulates flowering in many flatwoods herbs and frequent fire (1 to 3 years) increases species richness and abundance. Prescribed fire in this matrix community will indirectly determine fire frequency and season for all the embedded communities, such as salt marsh, and shrub and brushland.

Long term experimental plots (over 44 years) in mesic flatwoods burned in late winter at 1-, 2-, and 4-year intervals have shown that annual burning increased herbaceous cover relative to shrub cover compared to plots winter burned at 2- or 4-year intervals (FNAI, 2010). Annual burns also increased species richness at smaller scales, but not at the largest scale. Saw palmetto cover decreased but wiregrass cover remained the same in annual winter burns. The authors concluded that long-term, high frequency winter burning can maintain high quality ground cover in mesic flatwoods but early summer burns (while maintaining a high frequency) may be necessary to increase cover of bunchgrasses. Early summer burns, as opposed to those in late winter, increased the dominance of fall-flowering forbs in a study at St. Marks National Wildlife Refuge in Wakulla County (Platt, et al, 1988)

The mesic flatwoods will be placed on a schedule of frequent winter burns (annual if possible) to reduce fuel loads. Periodic growing season burns will be conducted when fuel load and weather permits. The long-term goal is to reach the “maintenance” phase for the mesic flatwoods. Mesic flatwoods in “maintenance” phase is easier and safer to burn which allows for more growing season burns to stimulate native plants. The maintenance phase of the Preserve's mesic flatwoods is defined as the ecological conditions that result from a natural fire regime (e.g., few hardwoods, reduced shrub heights, reduced fuel loads, etc.).

Prescribed Fire Training

Prescribed burns will be conducted by certified Department prescribed burn staff. FFS may be requested to participate on burns, or at times, conduct certain high-risk burns under the supplemental prescribed burning contract. All Department field staff participating on burns are certified through the FFS with National Wildfire Coordinating Group (NWCG) courses S-130/S-190/L-180, at a minimum.

All prescribed burn managers (burn bosses) are certified through the FFS via the Certified Prescribed Burn Manager course. After successfully completing the course, potential prescribed burn managers must submit a burn plan to the local FFS Forest Area Supervisor (FAS), do an onsite pre-burn inspection with the FAS, then successfully conduct two prescribed burns with FAS (or their designated representative) present.

Department staff with less experience are teamed up with more experienced members to ensure both safety and to enhance learning. As they progress through their training, they are allowed to operate more independently.

The Department maintains all prescribed burn equipment (brush trucks, UTVs, spray tanks, chainsaws, etc.). Periodic refresher training is done to ensure Department staff knows how to operate the equipment. Pre-burn equipment checks are done the morning of each burn. Any equipment issues that may arise during the burns, if they cannot be corrected by Department staff immediately, are documented at the end of the day at the post-burn debrief and addressed upon return to the Department's home office.

5.4 Climate Change

The potential impact of climate change on Florida's conservation lands has been under study to assess impacts on fish and wildlife resources, native vegetation communities and invasive and exotic species (FWC, 2016). The effects of climate change may become more frequent and severe within the timeframe covered by this management plan and may include sea-level rise, increasing temperature and increasing acidification of coastal waters. Therefore, staying abreast of the latest information is important to develop adaptive management strategies to enhance the resiliency of natural communities. Low-lying coastal habitats, such as those associated with Double Branch Bay Preserve are projected to be affected by rising sea levels and increased frequency and intensity of coastal storms (Tampa Bay Estuary Program, 2017; Yates, et al. 2011; FWC, 2016).

The impacts of rising sea level on habitats in the Tampa Bay area will depend on both the rate and the magnitude of the rise. The current rate is about an inch a decade, based upon NOAA tide gage data but that may increase (Yates, et al. 2011). It appears probable that there will be increasing water depth along the bay's current shoreline, and the shoreline itself will migrate landward (Florida Oceans Coastal Council, 2009 and 2010). Depending on the rate of sea-level rise, emergent tidal wetlands and other coastal habitats may be able to persist by accreting vertically, migrating landward, or both. If the sea level increases more rapidly than the biota can respond, however, these adaptive responses might not be possible, resulting in habitat loss (FWC, 2016). Based on current models (Sea Level Affecting Marsh Model v 6.01) Tampa Bay will become a mangrove dominated estuary and have resultant losses of salt marsh, salt barrens, and coastal upland forests (Tampa Bay Estuary Program, 2017).



Sources: SWFWMD, 2016; Hillsborough County, Florida, 2016, 2017; Water & Air Research, Inc., 2017.

Figure 9.
Management Units at Double Branch Bay Preserve
Hillsborough County, Florida

5.5 General Management Needs

Updating Natural Community Maps

Field verification and updating the current natural community map will achieve the short-term goal of confirming the accuracy of current maps and help ensure communities are being managed appropriately. Discrepancies in current mapping include freshwater wetlands mapped as mangrove swamp and salt marsh, mesic flatwoods mapped as shrub and brushland, spoil mounds mapped as urban open land, and no mapping of the majority of mosquito canals in MU 10.

6.0 Habitat Restoration

Natural communities within the Preserve are relatively intact with the exception of the following areas; the mosquito canals in the mangrove swamp and salt marsh (MU 10), the spoil mounds along Rocky Creek (mapped as Mangrove Swamp and Urban Open Land in MUs 8 and 9), the mesic flatwoods and associated wetlands with historical fire suppression south of Hillsborough Avenue (MUs 1 through 7), and MUs 5, 6, and 8 at the outfall of the drainage canal (Figure 3). Recent restoration activities include 3 years of invasive plant control funded by SWFWMD and the prescribed fire program.

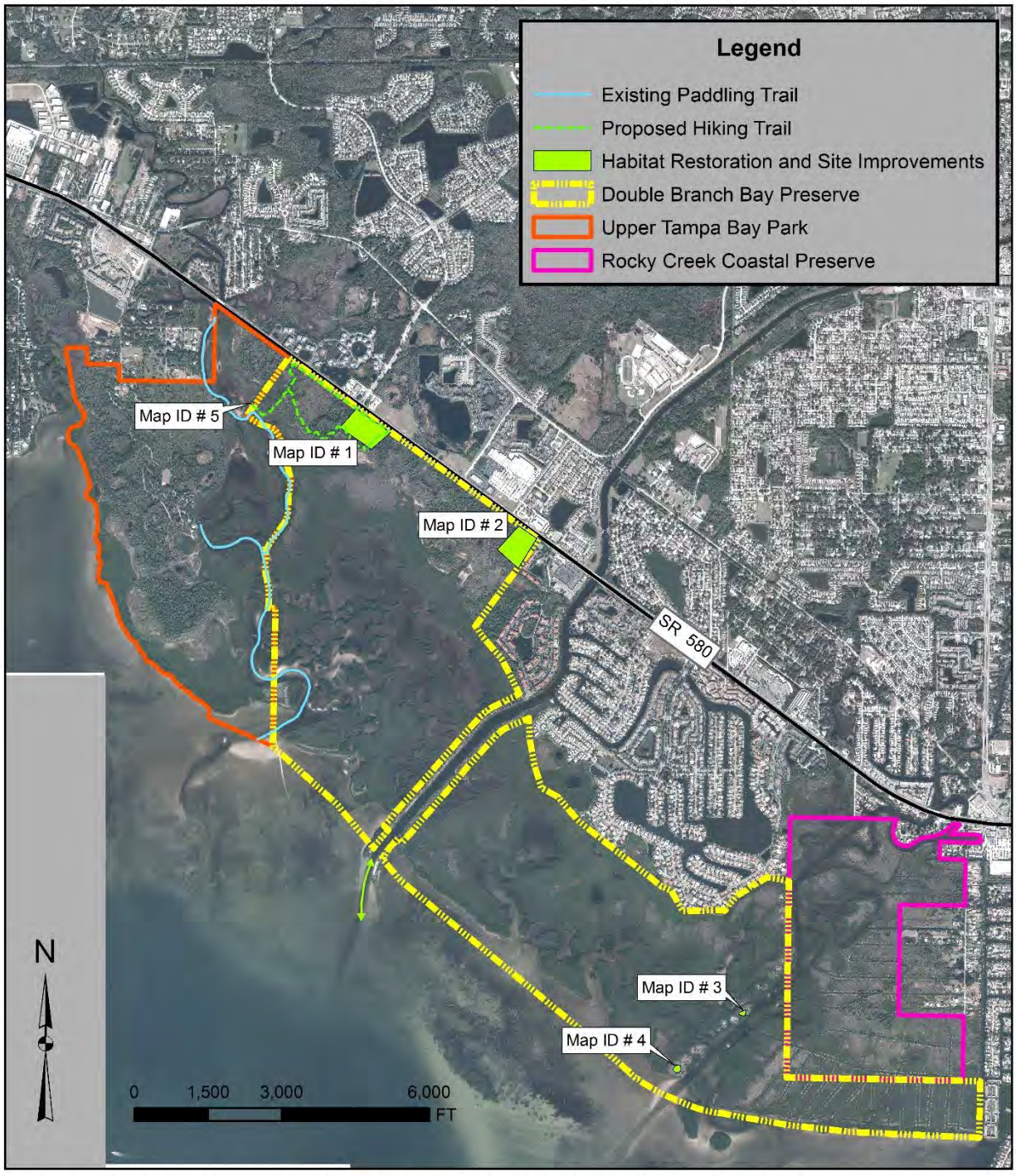
Restoration Needs

Figure 10 depicts the locations of habitat restoration areas and facility needs for the Preserve. Tables 6-1 and 6-2 outline the goals for the 2-year and 10-year planning periods, respectively, and Table 6-3 includes prioritized cost estimates for the currently planned restoration and facility needs.

An investigation to determine the feasibility of restoring mosquito canals to native habitat has been conducted (Krebs, 2003 and 2004) and a study evaluated whether cuts in the spoil islands/berms along the banks of Channel A would benefit the mangrove swamps and tidal flows (Henningsen, 2011). This topic is detailed later in this section under Mosquito Canal Restoration Evaluations.

Mechanical Vegetation Management (MVM)

Due to continual threat of wildfire, in addition to ecological needs, a pressing management need for the Preserve is the reduction of fuel in several areas within the mesic flatwoods (MU 6) and shrub and brushland (MU 1) communities. This goal can be accomplished using MVM and/or prescribed fire. Nine acres of mesic flatwoods in MU 6 (Figure 11 - Map ID 1) and eight acres of previously (2007) roller chopped shrub and brush land in MU 1 (Figure 11 - Map ID 2) are proposed, if feasible, for MVM fuel reduction and habitat restoration (Table 6-3).



Sources: SWFWMD, 2016; Hillsborough County, Florida, 2016, 2017; Water & Air Research, Inc., 2017.

Figure 10.
Habitat Restoration Needs and Site Improvements at Double Branch Bay Preserve
Hillsborough County, Florida

Supplemental Plantings

Two spoil mounds (mapped as urban open land – Figure 3) totaling 0.8 acre in MU 9 (Figure 11 – Map ID 3 and 4) are proposed for supplemental native vegetation plantings. A potential restoration species is the state-threatened erect pricklypear.

Intra- and Inter-Agency Agreements

Consultations and agreements ("memorandums of understanding") with agencies positioned to assist with pressing management needs, such as with exotic invasive plant and animal eradication efforts, will be explored. There is already an agreement with the FFS for prescribed fire.

Consultation with the staff of FWC's WCPR program, will take place during the short-term 2-year planning period to determine necessary surveys and survey methodologies for imperiled species observed on the Preserve, as well as those expected to occur on site.

In summary, the 2-year planning period restoration goals are to collect and assess information necessary for addressing immediate management needs (e.g., prescribed fire, exotic invasive species infestations). The data collection and assessment will also assist with long-term conservation tasks. Updated natural community maps are necessary for assessing the current ecological conditions of MUs in the Preserve and are used as a baseline for evaluating habitat changes due to management actions, sea-level rise or other negative impacts. Evaluations by, and consultations with, FFS and FWC may be helpful for managing pyrophytic habitats. Managing the Preserve as part of a larger ecological landscape will require cooperation, collaboration, and commitments of those responsible for managing adjacent preserved lands. Table 6-1 summarizes the anticipated schedule of work for the next 2 years.

Mosquito Canal Restoration Evaluations

In early 2004, the U.S. Geological Service (USGS) began conducting a 5-year study on the ecological repercussions of the historical canaling of wetlands for mosquito control in three communities in Tampa Bay (Krebs, 2003 and 2004). The study has hypothesized the following;

- Man-made canals constructed for mosquito control provide suitable habitat for fishes and decapod crustaceans in Tampa Bay.
- Mosquito-control canals that are oriented spatially such that tidal exchange flows directly into and out of the canal may be better suited habitat for fishes and crustaceans than those canals that are oriented perpendicular to the tide.
- Mosquito-control canals that receive direct exposure to the tides should be better flushed and as a result, have better water quality and less sedimentation.
- Canals that are perpendicular to the tides should receive less direct flushing and could potentially be blocked by sediment deposits which accumulate as the tide passes across the mouth of the canal. As a result, canals that are constructed in this manner may possess poor water quality relative to canals that receive direct tidal flushing.

- Mosquito-control canals are located throughout the wetlands of Tampa Bay and the hydrological and habitat conditions each particular mosquito canal provides may be unique.

A subsequent publication by the same authors reached a similar conclusion in that mosquito canals depending on their situation in the environment may provide habitat comparable to natural tidal creeks. (Krebs, 2007)
The following are determinations from a SWFWMD study regarding mosquito canals (Henningsen, 2011);

- Leave all spoil mounds (adjacent to mosquito canals) in place. Observations throughout indicate that spoil mounds do not block sheetflow (neither freshwater nor tidal waters), as spaces between mounds basically form “saddles” that are at marsh elevations that allow sheetflow to occur around the mounds and throughout the wetland areas.
- The spoil mounds typically harbor intact viable native upland and transitional plant communities, thereby increasing the habitat complexity of the preserve.
- Due to mound elevations typically rising 2- to 6-feet above current wetland grades, the mounds can serve as areas that will accommodate projected sea-level rise. Accordingly, the spoil mounds should allow the establishment of new persistent estuarine emergent wetland plant communities; current emergent wetland communities are projected to drown, the current intertidal communities eventually becoming subtidal habitats as a result of sea-level rise.
- Current mosquito canals appear to be providing viable habitats for a variety of estuarine species.
- Current mosquito canals appear to harbor combinations of soft bottom (silts-clays-some sands) to sandy substrata.
- Observations within a mosquito canal at a low spring tide revealed the presence of various fishes, oyster bars, seagrasses, blue crab, and various infauna (as evidenced from burrows within bottom sediments).
- Discussions with fisheries scientist Bob McMichael (Florida Fish and Wildlife Research Institute [FFWRI] of FWC) corroborate that mosquito canals can provide valuable estuarine habitats. FFWRI fisheries seine sampling within the Rocky Creek Preserve (inclusive of two dredged channels) and adjacent/nearby areas indicate a variety of finfish and invertebrates using available habitats.
- If possible, debris within mosquito canals, wetlands, and uplands should be removed; debris includes lumber, furniture, piping, tires, miscellaneous trash, etc.

This information on the ecological ramifications of mosquito canals comes to some conclusions that may justify leaving some mosquito canals in place. This information is general and the relevance to the Preserve would have to be investigated by the Department to determine if

restoration via removal of the canals would be ecologically sound and beneficial and if it is, would it be a viable option for the Preserve.

Goals of the 2-year Planning Period

Short-term management goals for the Preserve include immediate management and information gathering tasks necessary to address long-term management goals. Other short-term goals include plant and animal surveys, exotic species surveys and monitoring of historically treated infestations.

Table 6-1. Short-term Goals of the Preserve 2-Year Planning Period, Sept. 2019 – Sept. 2021

Category	Task	Schedule	Labor Source
Conservation Planning	Update natural community map.	Draft completed Summer 2018	Staff or Contractor
Conservation Planning	Update the Prescribed Fire Management Plan as needed.	Spring – Summer 2019	Staff or Contractor
Monitoring	Initiate species-specific plant surveys for Tampa mock vervain and erect pricklypear.	Spring 2019	Staff or Contractor
Monitoring	Vegetation surveys and monitoring of MUs, with special focus on exotic and invasive plant species.	Completed - Spring 2018; conduct annually	Staff or Contractor
Maintenance	Implement plan to ensure the maintenance of imperiled species if needed.	Summer 2019	Staff or Contractor
Maintenance	Initiate control of exotic invasive plant and animal species as needed.	Summer – Fall 2019	Staff or Contractor
Maintenance	Conduct prescribed fires.	Winter 2018 – Spring 2019	Staff or Contractor
Restoration	Implement MVM in MU 6.	2019 - 2021	Contractor
Restoration	Implement MVM in MU 1.	2019 - 2021	Contractor
Restoration	Supplemental planting 0.3-acre site in MU 9.	Rainy season 2019-2021	Staff or Contractor
Restoration	Supplemental planting 0.5-acre site in MU 9.	Rainy season 2019-2021	Staff or Contractor
Recreation Planning	Evaluate a canoe/kayak trail connection to Upper Tampa Bay Park. GPS connection, prepare and install signage, and update maps.	2019 - 2021	Staff or Contractor
Recreation Planning	Evaluate the canoe/kayak trail to be located in the estuary of Double Branch Bay. GPS trail, prepare and install signage and update maps.	2019 - 2021	Staff or Contractor
Recreation Planning	Evaluate a canoe/kayak landing to access the proposed walking trail.	2019 - 2021	Staff or Contractor

Goals of the 10-year Planning Period

The 10-year planning period focuses on maintenance of intact habitats and restoration of degraded habitats. Management tasks will address management limitations, such as consistent implementation of prescribed fire. Ongoing exotic species eradication and monitoring efforts will continue, along with opportunistic plant and animal surveys.

Prescribed fire is the most important tool for managing the mesic flatwoods and adjacent marshes at the Preserve. The mesic flatwoods (MUs 1 through 7 plus offshore islands) will be maintained as pyrophytic habitats.

The management tasks for the 10-year planning period are described in Table 6-2. For each category, there are short-term objectives to be achieved during the first 2 years (Table 6-1) of the updated management plan and long-term objectives that are expected to be met by the final year of this 10-year management plan.

Table 6-2. Long-term Goals of the Preserve 10-year Planning Period, Oct. 2021 – 30 Sept. 2029.

Category	Task	Schedule	Labor Source
Conservation Planning	Modify the prescribed fire management plan if needed (e.g. modify burn frequencies, firing techniques, etc.).	2021 – Sept. 2029	Staff or Contractor
Monitoring	Periodic plant species-specific surveys for Tampa mock vervain.	2021 – Sept. 2029	Staff or Contractor
Monitoring	Periodic monitoring of MUs, with emphasis on sensitive and exotic invasive plant species.	2021 – Sept. 2029	Staff or Contractor
Maintenance	Imperiled species maintenance if needed.	2021 – Sept. 2029	Staff or Contractor
Maintenance	Exotic invasive plant and animal control efforts.	2021 – Sept. 2029	Staff or Contractor
Maintenance	Prescribed fire.	2021 – Sept. 2029	Staff or Contractor
Conservation Planning	Update natural community maps.	2027 – 2029	Staff or Contractor

Table 6-3. Double Branch Bay Preserve Habitat Restoration and Facilities Needs

Double Branch Bay Preserve					
Restoration Needs					
Map ID	Method	Acres	Estimated Cost (High)	Estimated Cost (Low)	Priority
1	MVM	9	$6,559	$4,257	1
2	MVM	8	$5,950	$3,576	1
3	SP	0.3	$55	$109	4
4	SP	0.5	$93	$186	4
	Total	**18**	**$12,657**	**$8,128**	
Restoration Summary - Restoration needs intended to address effects of fire exclusion and improve general fire management within the site.					

Facilities Needs					
Map ID	Type		Estimated Cost (High)	Estimated Cost (Low)	Priority
1 to 5	Hiking trail, trail markers, kiosk		$6,000	$3,000	2
5	Canoe trail connection		$2,000	$1,000	2
	Total		**$8,000**	**$4,000**	
Facilities Summary - Facilities needs reflect the opportunity to expand canoeing opportunities.					

MVM = Mechanical Vegetation Management
SP = Supplemental Plantings

Conservation Planning

Activity: Update natural community map

Short-term Objectives

- Conduct site visits to field verify the accuracy of each natural community polygon within the Preserve.
- Revise natural community descriptions to reflect observed conditions.
- Update relevant GIS shape files and databases using the appropriate methods (FNAI, 2012) and quality control procedures so revised natural community maps can be incorporated into FNAI's statewide habitat database.

Long-term Objectives

- Repeat short-term objectives to reflect any natural community changes or errors. Information from the TBEP sea-level rise study may help with community mapping efforts. A TBEP sea level rise study site is located on the adjacent Upper Tampa Bay Park (2027 – 2029).

Activity: Update the Prescribed Fire Management Plan as-needed

Short-term Objectives

- Revise and update relevant GIS, spatial and tabular databases for prescribed fire management plan.
- Evaluate MVM fuel reduction tasks and methods to reduce fuel loads to facilitate more prescribed fire.
- Revise current prescribed fire management plan as needed.
- Establish short- and long-term fire-related goals for each MU.
- Develop short- and long-term schedule for MUs in accordance with the revised plan.
- Conduct brief post-burn ecological monitoring of burned MUs to evaluate the burn and determine if the long-term goals are feasible.

Long-term Objectives

- Modify the prescribed fire management plan if needed (e.g. modify burn frequencies, firing techniques, etc.).

Monitoring and Surveying

The purpose of surveying and monitoring is to look for new exotic invasive species infestations (surveying) or to assess the efficacy of previous management tasks such as historical and recent exotic invasive species control efforts or the ecological outcome of prescribed fire (monitoring) (Appendix F). Species-specific methods may be required for Tampa mock vervain (if this species is found on site) to address management practices that may affect these species or to determine if habitat restoration could restore remnant populations of these species. All collected data will be stored in the form of spatial and tabular data.

The long-term monitoring program for the Preserve is generally a continuation of methods successfully used during the 2-year planning period. The frequency with which monitoring is done depends upon the information needed. For example, surveying habitats to detect new infestations of exotic species will likely need to be done on an annual or semi-annual basis while monitoring to assess the effects of various management practices will likely be done less frequently, such as every 2 to 3 years, or based on the timing of the management task (e.g., post burn monitoring). Monitoring of the plant communities on the Preserve may in part be based on methods described in the FWCs OBVM.

The short- and long-term objectives of the monitoring program for this 10-year management plan are as follows:

Activity: Initiate species-specific plant surveys

Short-term Objectives

- Survey appropriate habitat on the Preserve for Tampa mock vervain and erect pricklypear.

Long-term Objectives

- Periodic surveys for Tampa mock vervain or erect pricklypear.

Activity: Vegetation surveys and monitoring of MUs with special focus on exotic invasive plant species

Short-term Objectives

- Determine presence of exotic invasive vegetation via surveys of new areas and monitoring of areas with historical exotic vegetation eradication efforts.
- Assess effectiveness of initial control efforts using previously developed sampling methods.

Long-term Objectives

- Annually monitor known populations of exotic invasive plant species in order to detect increases in numbers and also to detect newly established infestations.

Activity: Monitoring of native and exotic flora and fauna within the Preserve

Short-term Objectives

- Designate focal habitats as well as focal floral and faunal native and exotic species as part of the Conservation Planning process.
- Determine appropriate monitoring techniques, including species-specific methods as needed.
- Initiate seasonally-appropriate vegetation monitoring in each habitat.
- Develop schedule, initiate pre-treatment sampling of exotic species infestations, and repeat post-treatment surveys as needed to assess effectiveness of efforts to control.

Long-term Objectives

- Within 1 year post-burn, repeat the seasonally appropriate vegetation monitoring in order to assess effectiveness of the prescribed fire management plan.
- Conduct annual vegetation monitoring to assess the progress of each restoration project.

Habitat Maintenance

Habitat maintenance is essential to the Preserve management. Tasks considered habitat maintenance are those long-term efforts intended to maintain a particular habitat in a desirable condition, such as using prescribed fire on an appropriate schedule in pine flatwoods to achieve

the “maintenance” phase or limiting exotic invasive plant species to, or below, levels than can be successfully maintained.

Efforts to maintain natural communities within the Preserve have been influenced by conditions beyond the boundaries of the preserve. For example, how and when prescribed fire can be utilized is dependent on the weather fire behavior and impact of smoke dispersion. Exotic invasive species maintenance is also affected by private properties adjacent to the Preserve that are a known source of exotic plant infestations.

The extent to which such external factors influence maintenance activities will likely vary over time therefore, the schedule for meeting long-term objectives for maintenance of habitats may vary as conditions change.

Activity: Implement management to ensure the maintenance of imperiled species if populations are located on site.

Short-term Objectives

- Conduct required natural community management activities that directly benefit viable imperiled species populations that can be maintained in an ecologically sound manner.

Activity: Control of exotic and invasive plant infestations

Short-term Objectives

- Map distribution of exotic invasive plant infestations throughout the Preserve. Use standard ecological methods to estimate frequency of occurrence and percent cover of exotic invasive plants.
- Prioritize short- and long-term exotic plant species control efforts if needed, based on monitoring information.
- Develop bid proposal and select a contractor for treatment of exotic invasive plants for short-term priority MUs.
- Initiate efforts to control exotic plants through use of staff or by securing services of appropriate contractors.
- Reduce exotic and invasive plant species to manageable levels within short term priority MUs and evaluate success of efforts using appropriate monitoring methods.

Long-term Objectives

- On an as-needed basis develop bid proposal and select a contractor for treatment of exotic and invasive plants for long-term priority MUs.
- Restrict exotic and invasive plant infestations to levels that can be maintained on an annual basis.

Activity: Control of exotic and invasive wildlife infestations

Short-term Objectives

- Determine presence of exotic invasive wildlife species during cursory surveys.

- Develop species-specific sampling methods for monitoring changes in distribution or size of exotic wildlife populations.
- Initiate efforts to control exotic wildlife using staff or appropriate contractors.
- Assess effectiveness of initial control efforts using previously developed sampling methods.

Long-term Objectives

- Consistently inhibit exotic animal populations to, or below, tolerable levels on an annual basis.
- Periodically monitor known populations of exotic animal species to detect increases in numbers or newly established exotic wildlife.

Activity: Conduct prescribed fires

Short-term Objectives

- Conduct prescribed fire management.

Long-term Objectives

- Conduct prescribed fire management.

Habitat Restoration

The majority of the Preserve requires no intensive long-term restoration projects as most natural communities are in relatively good shape except for the continual effort to reduce exotic invasive species populations and the mesic flatwoods that is not in the prescribed fire "maintenance" phase. Restoration tasks that can be completed in a relatively short period include MVM in two areas within the mesic flatwoods (MU 6) and shrub and brushland (MU 1) communities. Two areas of spoil mounds are proposed for supplemental planting (SP) of Florida native species. An investigation into the impact on historic tidal flats by sea-level rise or the drainage canal is proposed. Remediating the effects of long-term suppression of periodic fire is discussed in the Maintenance section.

Activity: Implement MVM in MU 6 and MU 1

Short-term Objectives

- Develop MVM specifications for the two fuel reduction projects.
- Conduct MVM fuel reduction in MU 1 and MU 6 using roller chopping or other effective techniques.

Activity: Use SP to introduce desirable native species to two spoil mounds

Short-term Objectives

- Develop planting plan and specifications for SP on the two spoil mounds.
- Conduct SP on the 0.3- and 0.5-acre spoil mounds in MU 9.

Recreation

Activity: Evaluate a canoe/kayak trail loop to be located in the Double Branch Bay Estuary.

Short-term Objectives

- Identify and map (collect GPS coordinates) the proposed paddling trail and landing on the Preserve hiking trail.
- Prepare and install signage or kiosks.
- Coordinate with Upper Tampa Bay Park and all other regional trail organizations connected to the Preserve to update canoe trail maps and information on paddling trail connections and hiking trail options in the Preserve.

Activity: Canoe Trail Connection to Hiking Trail.

Short-term Objectives

- Construct a simple facility suitable for disembarking boats and accessing the hiking trails.
- Coordinate with Upper Tampa Bay Park to update the canoe trail maps and information on paddling trail connections and hiking trail options in the Preserve.

7.0 Compliance

7.1 ELAPP Policies and Ordinances

The Preserve was purchased by the State under the CARL program (Farr and Brook, 2006)and leased to Hillsborough County. Subsequent to the State purchase of the Preserve, Hillsborough County created the Jan K. Platt Environmental Lands Acquisition and Protection Program (ELAPP) to acquire, conserve and manage conservations lands throughout the County and has developed management standards and policies for those lands. The Preserve is managed by the Hillsborough County Conservation and Environmental Lands Management team using many of the same departmental policies developed for ELAPP land purchases. Appendix F contains the policies used to manage the Preserve including:

- Gopher Tortoise Relocation Policy
- Habitat Monitoring Policy
- Invasive Exotic Plant Policy
- Mitigation Policy
- Prescribed Burning Policy
- Recreational Use Policy
- Site Security Policy
- Habitat Restoration Policy

- Nuisance and Non-native Animal Removal
- Firearms Use Standard

7.2 Compliance with Comprehensive Plans

The management of the Preserve assists Hillsborough County in implementing the goals, objectives, and policies of the Conservation and Aquifer Recharge, Future Land Use, Coastal Zone and Recreation and Open Space Elements of the County's Comprehensive Plan. Appendix G includes a letter of compliance from the Hillsborough County City-County Planning Commission that states this updated Land Management Plan complies with the Hillsborough County Comprehensive Plan.

The preservation of wildlife habitats and the provision of public recreation and environmental conservation at the Preserve help to accomplish the goals, objectives, and policies of the County's Comprehensive Plan. The preservation of wildlife habitats, the development of public recreation and establishment of environmental conservation activities on the Preserve will help to accomplish or further enhance the goals and objectives referred to in Section 8.0. Copies of the relevant elements of the County's Comprehensive Plan are included in Appendix G.

7.3 Proposed Expansion Plans and Evaluation of Surplus Properties

There are few opportunities for expansion of the Preserve due to extensive development of properties near Tampa Bay. However, there are four potential land acquisitions that may enhance the value of the Preserve with respect to habitat, land management, recreation, or security (Figure 11). Lands that connect the Preserve to other public land holdings, help protect the Preserve's assets, or that provide contiguous habitat are most valued. Potential land acquisitions are shown on Figure 11, and the information on each parcel was obtained from the Hillsborough County Property Appraiser's Office official website (http://www.hcpafl.org/) and is presented in Appendix A.

Hillsborough County's Jan K. Platt ELAPP would be the entity to pursue purchase of parcels meeting the program criteria. If the parcels were to be acquired they would be evaluated and appropriate management implemented, such as clearing of nuisance or exotic species that can spread to adjacent or nearby Preserve lands.

Parcel 1 is a 12.5 acre mostly rectangular site located west of Channel A. The property borders an apartment complex on the parcel's northern and eastern boundary and abuts the Preserve along its western and southern boundary. It appears to contain some upland habitat, likely mesic flatwoods.

Parcels 2, 3, and 4 are adjacent to one another, abutting the northern border of the Preserve. They are situated east of Channel A between Cape Hatteras Drive and East Longboat Boulevard. Parcels 2 and 3 are 3.0 and 3.3 acres, respectively. Parcel 4 is over 13.5 acres. The three parcels total approximately 20 acres and appear to have wetland habitat associated with

them. The northern portion of each of these sites is adjacent to single family residential homes in the Bayport Colony South development. These acquisitions would also provide buffer between the urban interface and the Preserve.

No property associated with Double Branch Bay has been declared surplus to date. The State of Florida owns the property and Hillsborough County holds a long-term lease. Hillsborough County evaluates and recommends areas on the Preserve for surplus designation by FDEP's Division of State Lands, the Acquisition and Restoration Council, and the Board of Trustees, if warranted. The evaluation consists of GIS modeling and analysis, aerial photography interpretation, analysis of environmental resources, review of operational and management needs, and a review of public access and recreational use of the area. Hillsborough County also considers the intent of the original acquisition by the State and agreement with the State to hold a long-term lease on conservation land (Parker, 2017). Hillsborough County has recommended to the State that all portions of the property are being managed and operated for the original purposes of acquisition and remain integral to the continued conservation of important land and wildlife resource based public outdoor recreation.



Sources: SWFWMD, 2016; Hillsborough County, Florida, 2016, 2017; Water & Air Research, Inc., 2017.

Figure 11.
Double Branch Bay Preserve Expansion Opportunities
Hillsborough County, Florida

8.0 Summary of Management Objectives

Hillsborough County has a centralized management operation for all natural preserve lands which have been acquired by the Jan K. Platt ELAPP. It should be noted, however, that this property was not acquired through the Jan K. Platt ELAPP, although most management aspects are treated similarly. With the exception of the capital improvement projects, such as fencing, road construction, etc., site management expenses are not budgeted on a site-specific basis. The program is funded to cover capital equipment, personnel, and operating expenses for the Environmental Lands Management (ELM) section of the Department.

The ELM currently consists of 35 permanent staff positions. Currently, the annual operating budget for the Department is just over $4 million. These funds are used to manage the approximately 62,000 acres of land overseen by the ELM. The staff is located in four offices in Plant City, Ruskin, Riverview, and Odessa.

Most activities will be performed by teams of two or three staff members, including plant and animal inventories, exotic plant control, trail and fire lane maintenance, etc. Prescribed burns will be conducted by a burn crew consisting of a burn boss and Department members, with a FFS unit on site in stand-by mode if conditions warrant. Volunteers occasionally participate on burn crews but must be FFS certified and registered in the County's Volunteer Program. Volunteer participation has also been used for ELAPP site management on most of the County's natural preserve sites and includes activities such as plant and animal inventories, exotic plant control, nest box construction, installation and maintenance, trash removal, habitat restoration (planting natives), fence and gate installation and repair, site patrol, trail installation and maintenance, etc. The Department will work with local residents who express an interest in preservation and management of the site. Such volunteers can be invaluable in reporting unauthorized activities, as well as providing additional site observations such as wildlife sightings and public usage.

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Other Sources:

All photographs were taken by Water & Air Research, Inc. in 2017 unless otherwise noted.

APPENDIX A
Legal Documents

No Rent

SUBLEASE AGREEMENT
[D]OUBLE BRANCH BAY - (BOWER TRACT)

Term 50 years from Nov. 13, 1985 (2035)

This Sublease Agreement is made between the Department of Natural Resources of the State of Florida on behalf of the Division of Recreation and Parks, as Sublessor, and Hillsborough County, as Sublessee. The parties, for and in consideration of mutual covenants and agreements covenant and agree as follows: 11/12/35

1. The parties acknowledge that:

A. The Board of Trustees of the Internal Improvement Trust Fund (hereinafter referred to as the "Board") holds title to certain property identified as the Double Branch Bay for public outdoor recreation purposes: and

B. The Department of Natural Resources of the State of Florida is the Lessee of the property in order to provide for the Division of Recreation and Parks to sublease the property to local government for outdoor recreation and related purposes and to represent the State in coordination with local management.

2. Description of Premises: The property, subject to this Sublease, is situated in Hillsborough County, and described in Exhibit "A", attached hereto and made a part hereof.

3. Term and Purpose: This Sublease shall be for a period coterminous with the time remaining on Trustees Lease Agreement No. 3419, dated November 13, 1985, attached hereto as Exhibit B, for public outdoor recreation and related purposes, unless otherwise terminated pursuant to the provisions of this Sublease.

4. Conformity: This Sublease shall be subject to all the terms and conditions of the Trustees Lease Agreement No. 3419. The Sublessee shall prevent any unauthorized use of the property or any use not in conformance with Exhibit "B" and this Sublease.

5. Right of Use: The Sublessee shall have the right to enter upon the property for all purposes necessary to the full enjoyment of the rights herein granted.

6. Assignment: This Sublease and any rights and privileges conferred herein shall not be assigned or transferred by the Sublessee without the prior written approval of the Sublessor.

7. Development Agreement: Prior to construction of any facilities, improvements on or alteration of the property, the Sublessee shall enter into a development agreement with the Sublessor wherein the Sublessee shall commit to development, operation and maintenance of the property for public recreational use.

8. Management Plan: The Sublessee shall be responsible for preparation of a management plan in compliance with the provisions of paragraph 12 of Exhibit "B", and shall implement all management projects pursuant to the management plan as necessary to carry out the purpose stated in paragraph 3 herein.

9. Development Time Frame: The Sublessee shall construct and make available to the public, within five years from the effective date of this Sublease, site improvements on the property for public recreational use and for protection of the natural resources. This provision shall be in accordance with the development agreement.

10. Site Plan: The Sublessee shall submit a final site plan to the Sublessor for review and approval prior to any alteration of the land or construction of facilities.

11. Incurred Costs: All costs of construction, operation, maintenance, use and restoration of the property, shall be the responsibility of the Sublessee. The Sublessee shall be responsible for any and all assessments or taxes of every kind and description which are now or may be hereafter lawfully assessed and levied against the property during the effective period of this Sublease.

12. Ownership of Improvements: All improvements provided by the Sublessee shall be and remain the property of the Sublessee during the effective period of this Sublease.

13. Security and Maintenance: The Sublessee shall provide continuous security and protection and keep the property clean, maintained and in a good state of repair at all times.

14. User Fees: All user fees which the Sublessee may wish to impose shall be uniformly imposed among users regardless of the political jurisdiction in which the user may reside. All user fees will be subject to prior written approval of the Sublessor.

15. Right of Inspection: The Sublessor and its duly authorized agents shall have the right at any reasonable time to inspect the property and the works and operations thereon of the Sublessee in any matter pertaining to this Sublease. Should the Sublessee violate any covenant(s) of the lease or sublease, Sublessor must notify Sublessee in writing that it requires Sublessee's correction of that violation to its satisfaction. Sublessee must cure the violation within 90 days following the date of notice. Upon Sublessee's failure to cure the violation within the time prescribed, Sublessor may terminate this sublease upon 30 days prior written notice.

16. Right of Audit: The Sublessee shall make available to the Sublessor all financial records relating to this Sublease, and the Sublessor shall have the right to audit such records at any reasonable time, this right shall be continuous until such audit is completed and exercised without unreasonably interfering with the operation of Sublessee's facilities; this Sublease may be terminated by the Sublessor should the Sublessee fail to allow public access to all documents, papers, letters or other materials made or received in conjunction with this Sublease, pursuant to the provisions of Chapter 119, F.S.

17. Signs: The S essee shall erect a permanent formation sign on the site. The sign shall identify the park name and state that funds for acquisition were provided by the Conservation and Recreation Lands Program administered through the State of Florida Department of Natural Resources.

18. Liability: To the extent allowable by Florida law, the Sublessee shall investigate all claims of every nature at its expense and shall indemnify, protect, defend, hold and save harmless the Sublessor and the State of Florida from any and all claims, actions, lawsuits and demands of any kind or nature arising out of the Sublessee's use and management of the property. The Sublessee will provide public liability coverages in the form of insurance policies or self-insurance for any and all claims against the Sublessee, the Sublessor or the State of Florida. If an action is commenced against the Sublessor based on any claim arising out of the use or ownership of the leased premises during the term of the Sublease (including without limitation an action seeking damages for loss of life, personal injury or damage to property occurring in or about the leased premises), Sublessee will pay the expense of Sublessor's defense, including costs and reasonable attorneys fees for any defense in that action; if a judgment is entered in such action against both Sublessor and Sublessee or if both agree that a settlement of the claim or lawsuit should be made, Sublessee shall be responsible for payment of such judgment or settlement. Nothing contained herein shall be deemed to constitute a waiver of sovereign immunity on the part of Sublessor or to affect, limit or reduce the protection afforded Sublessor under provisions of Section 375.251, Florida Statutes, or to protect Sublessee from liability for any deliberate willful or malicious act of Sublessee. In connection with any dispute arising out of this agreement, including without limitation litigation and appeals, the Sublessor will be able to recover from the Sublessee attorneys fees and costs.

19. Termination: Upon termination or expiration of this Sublease, the Sublessee shall surrender the premises to the Sublessor. In the event no further use of this parcel or any part thereof is needed, the Sublessee shall give nofification to the Sublessor and the Bureau of State Lands Management, 3900 Commonwealth Boulevard, Tallahassee, Florida 32303 at least six (6) months prior to the release of any or all of the premises. Notification will included a legal description, the lease number, and an explanation of the release. Upon termination of this Sublease, all improvements shall automatically become the property of the Board, unless the Board, at its option, should require immediate removal at the Sublessee's expense of any and all such improvements upon written notice to the Sublessee. Any improvements to remain on the property upon termination of this Sublease shall be at the Board's d scretion. The Sublessee shall meet the following conditions upon termination of the Sublease:

(a) The premises shall meet applicable county and municipal building and safety codes.

(b) The Sublessee shall properly dispose of utility fees, including having the utilities turned off.

(c) The Sublessee shall not commit waste; reasonable wear and tear is acceptable.

(d) Prior to formal release a representative of the Bureau of State Lands Management shall perform an on-site inspection and the keys to any buildings on the premises shall be turned over to the Bureau.

(e) If the premises do not meet all conditions agreed upon, the Sublessee shall reimburse the Board for any expenses incurred in meeting the prescribed conditions.

IN WITNESS WHEREOF, The lawfully designated agents of the Department of Natural Resources of the State of Florida has hereunto subscribed his name and caused his official seal to be hereunto affixed on the 23 day of January, 1986, and the Hillsborough County has duly executed same on this _____ day of _____, 198__.

EXECUTIVE BOARD OF THE
DEPARTMENT OF NATURAL RESOURCES

Attest: Violet Davis

Approved
By: _____
Elton J. Gissendanner
Executive Director
Its Agent for this Purpose

_____
Hillsborough County
Project Sponsor

Attest: Richard L. Ake
Clerk of Circuit Court
By: _____
Chief Deputy Clerk

BOARD OF COUNTY COMMISSIONERS
HILLSBOROUGH COUNTY, FLORIDA

By: _____
Its Agent for this Purpose
Chairman

J Bean 11/19/85
DNR Attorney

Effective Date: _____

Approved as to Form, but not as to
Delegation of Authority pursuant
to Chapter 16-1, F.A.C.

BOARD OF COUNTY COMMISSIONERS
HILLSBOROUGH COUNTY, FLORIDA
DOCUMENT No. 85-1869

APPROVED BY COUNTY ATTORNEY
BY _____

Issued With
Policy No.

POLICY OF TITLE INSURANCE

COMMONWEALTH LAND
TITLE INSURANCE COMPANY
A Reliance Group Holdings Company

POLICY NUMBER
115-119587

SCHEDULE A

File No. 85-376-1

Amount of Insurance: $ 5,965,000.00

Premium: $17,720.63

Date of Policy: August 15, 1985 at 12:57 P.M. , at M.

1. Name of Insured: TRUSTEES OF THE INTERNAL IMPROVEMENT FUND OF THE STATE OF FLORIDA

2. The estate or interest in the land described herein and which is covered by this policy is fee simple and is at Date of Policy vested in:

Trustees of the Internal Improvement Fund of the State of Florida as shown in instruments recorded in O.R. 4620, page 027; O.R. 4620 page 031; O.R. 4620, page 039; O.R. 4620, page 041; O.R. 4620, page 043; and O.R. 4620, page 045, all being of the public records of Hillsborough County, Florida.

3. The land referred to in this policy is described in the said instrument, is situated in the County of Hillsborough, State of Florida, and is identified as follows:

SEE SCHEDULE A-1 ANNEXED HERETO.

REGISTER AND PARK, P.A.

Countersigned: _____
Authorized Officer or Agent

Policy No. 115-119587

SCHEDULE B File No. 85-376-1

This policy does not insure against loss or damage by reason of the following:

1. Rights or claims of parties other than Insured in actual possession of any or all of the property.
2. Unrecorded easements, discrepancies or conflicts in boundary lines, shortage in area and encroachments which an accurate and complete survey would disclose.
3. Unfiled mechanics' or materialmen's liens.
4. Riparian and littoral rights are not insured.
5. Residual Royal Rights in favor of Coastal Petroleum Company by virtue of Consent Decree entered in the United States District Court for the Southern District of Florida in consolidated cases Nos. 68-951-CIV.CA. and 69-699-CIV. CA, filed August 25, 1976.
6. Easement in favor of Hillsborough County recorded in O.R. Book 1887, page 462.
7. Subject to rights of the Public and Florida Department of Transportation for road right-of-way (SR 580, SR 17) and two drainage easements as set forth in Deed recorded io Deed Book 1528, page 371.
8. Permanent Easement for Channel A in favor of Hillsborough County, Florida, recorded in O.R. Book 1636, page 957.
9. Permanent Maintenance and Spoil Easement in favor of Hillsborough County, Florida, recorded in O.R. Book 1602, page 706.

EXCEPTIONS 1, 2 and 3 ABOVE ARE HEREBY DELETED IN THEIR ENTIRETY.

Int. Tax Pd. $ _____

QUIT CLAIM DEED
and Disclaimer

Documentary Tax Pd. $ .50

James F. Taylor, Jr. Clerk Hillsborough County

By: _____ Deputy Clerk

OFF. REC. 4620 PG 045

This Quit-Claim Deed, made as of this 15th day of August, A. D. 1985, by the TAMPA PORT AUTHORITY, a body politic and corporate under the laws of the State of Florida, of the County of Hillsborough, grantor

first party, to

the BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND OF THE STATE OF FLORIDA

whose postoffice address is Rm. 412, 3900 Commonwealth Blvd.
Tallahassee, Florida 32303

second party:

(Wherever used herein the terms "first party" and "second party" shall include singular and plural, heirs, legal representatives, and assigns of individuals, and the successors and assigns of corporations, wherever the context so admits or requires.)

Witnesseth, *That the said first party, for and in consideration of the sum of* $10.00 and O.G.V.C. *in hand paid by the said second party, the receipt whereof is hereby acknowledged, does hereby remise, release and quit-claim unto the said second party forever, all the right, title, interest, claim and demand which the said first party has in and to the following described lot, piece or parcel of land, situate, lying and being in the County of* Hillsborough, *State of* Florida, *to-wit:*

All submerged lands and other lands, including but not limited to those lands lying below the mean high water line, lying in, and as part of, those lands described on Exhibit "A" attached hereto and incorporated by references,

Such lands as depicted on that certain survey prepared by Piercefield-Amaden and Associates, Inc., certified July 16, 1985, Project #8500798-044-02-S.

GRANTOR DOES DISCLAIM ANY FURTHER RIGHT, TITLE OR INTEREST IN THOSE SUBMERGED LANDS DESCRIBED ABOVE FOR ITSELF AND FOR ANYONE CLAIMING BY THROUGH OR UNDER GRANTOR BY VIRTUE OF THE OPERATION OF CHAPTER 84-447, LAWS OF FLORIDA OR ANY SUCCESSOR LAW.

REC. FEE	29.00
James F. Taylor, Jr.	
CLERK CIRCUIT COURT	
HILLSBOROUGH CO.	
TOTAL	29.50
REC. CLK.	

RECORD VERIFIED
James F. Taylor, Jr.
Clerk of Circuit Court
Hillsborough County, Fla.
By Kathy L. Batson, D.C.

To Have and to Hold *the same together with all and singular the appurtenances thereunto belonging or in anywise appertaining, and all the estate, right, title, interest, lien, equity and claim whatsoever of the said first party, either in law or equity, to the only proper use, benefit and behoof of the said second party forever.*

In Witness Whereof, *The said first party has signed and sealed these presents the day and year first above written.*

WITNESSES AS TO PORT AUTHORITY

TAMPA PORT AUTHORITY

_____ (SEAL)
, Chairman

Attested by: _____ (SEAL)
, Secretary

STATE OF FLORIDA,
COUNTY OF Hillsborough

SEAL

I HEREBY CERTIFY that on this day, before me, an officer duly authorized in the State aforesaid and in the County aforesaid to take acknowledgments, personally appeared Joseph Garcia, Chairman and Robert R. Cromwell, Secretary to me known to be the persons described in and who executed the foregoing instrument and who acknowledged before me that they executed the same on behalf of the Tampa Port Authority.

WITNESS my hand and official seal in the County and State last aforesaid this 15th day of August A. D. 1985.

_____
Notary Public

Notary Public, State of Florida
My Commission Expires Sept. 2, 1987
Bonded Thru Troy Fain - Insurance, Inc.

Return to:

This instrument prepared by: Lorin E[illegible]olton, Esq.

Rm. 412, 3900 Commonwe[illegible]
Tallahassee, Florida 32[illegible]

12557795 Time 12 5/P
104 0006 154685
RECORDED 040744 B
CK 29.50

PARCEL I

Lands in Section 29, Township 28 South, Range 17 East, Hillsborough County, Florida, being described as follows:

That part of the South 7/8 of said Section 29, lying southwesterly of Hillsborough Avenue (State Road No. 580).

Less a Department of Transportation borrow pit described as follows:

Commence at the intersection of the north boundary of the Southeast 1/4 of the Northwest 1/4 of said Section 29 and the centerline of "New State Road 17"; thence Southeasterly along said centerline, 180.74 feet; thence Southwesterly at right angles to said centerline, 300.00 feet for a Point of Beginning; thence continue along same line, Southwesterly, 800.00 feet; thence Southeasterly at right angles, 300.00 feet; thence Northeasterly at right angles, 800.00 feet; thence Northwesterly at right angles, 300.00 feet to the Point of Beginning.

And Less a tract described as follows:

Begin at the Southwest corner of said Section 29; thence along the west boundary of said Section 29, N00°18'36"E, 4614.04 feet to the Northwest corner of the South 1/2 of the Northwest 1/4 of the Northwest 1/4 of said Section 29; thence along the north boundary of said South 1/2 of the Northwest 1/4 of the Northwest 1/4 of Section 29, S89°59'32"E, 440 feet more or less to the southwesterly right of way boundary of Hillsborough Avenue (State Road No. 580); thence along said right of way boundary, S54°14'00" E, 1400 feet more or less to the northeasterly projection of the above described Borrow Pit; thence along said Borrow Pit boundary and the projection thereof, S35°46'00"W, 1450 feet more or less to the centerline of Double Branch Creek; thence southerly along said centerline to the south boundary of said Section 29; thence along said south boundary, West, 1100 feet more or less to the Southwest corner of said Section 29 and the Point of Beginning.

And Less

That part of said Section 29 contained in the lands hereafter described as Parcel V.

Lands in Section 29, Township 28 South, Range 17 East, Hillsborough County, Florida, being described as follows:

OFF. REC. 4620 PG 047

Commence at the intersection of the north boundary of the Southeast 1/4 of the Northwest 1/4 of said Section 29 and the centerline of "New State Road 17"; thence Southeasterly along said centerline, 180.74 feet; thence Southwesterly at right angles to said centerline, 300.00 feet for a Point of Beginning; thence continue along same line, Southwesterly, 800.00 feet; thence Southeasterly at right angles, 300.00 feet; thence Northeasterly at right angles, 800.00 feet; thence Northwesterly at right angles, 300.00 feet to the Point of Beginning.

PARCEL III

Lands in Section 32, Township 28 South, Range 17 East Hillsborough County Florida being described as follows:

The North 1/2 of said Section 32; Less that part lying west of the centerline of Double Branch Creek.

Less that part of said Section 32 contained in the lands hereafter described as Parcel V.

AND

Government Lots 1 and 2 in Section 32.

AND

Government Lots 3 and 4 in said Section 32; less that portion of Government Lots 3 and 4 lying West of the centerline of Double Branch Creek.

PARCEL IV

Lands in Section 33, Township 28 South, Range 17 East, Hillsborough County, Florida, being described as follows:

That part of the West 1/2 of said Section 33, north and westerly of Channel A and the Mean High Water Traverse Line described as

follows: Commence th point of intersect n of the westerly right of way boundary for said Channel A and the southwesterly right of way boundary of Hillsborough Avenue (State Road No. 580); thence along said southwesterly right of way boundary, N54°14'W, 1231.00 feet; thence S35°46'W, to a point on the north boundary of said Section 33; thence westerly along said north boundary of Section 33 to the Northwest corner of said Section 33; thence Southerly along the west boundary of said Section 33; to a point of intersection with the said Mean High Water Traverse Line and a Point of Beginning; thence continue Southerly along said west boundary of Section 33 to the point of intersection with the northwesterly right of way boundary of foresaid Channel A; thence Northeasterly along said northwesterly right of way boundary to a point of intersection with the Mean High Water Traverse Line; thence N21°21'20"W, 229.29 feet; thence N27°19'40"W, 700.00 feet; thence N40°14'15"W, 575.00 feet; thence N33°15'55"W, 567.34 feet more or less to the said west boundary of section 33 and the Point of Beginning.

OFF. REC. 4620 048

AND

PARCEL V

Lands in Sections 28, 29, 32, and 33, Township 28 South, Range 17 East, Hillsborough County, Florida, being more particularly described as follows:

Commence at the East 1/4 corner of Section 33; thence N00°25'40"E., 195.56 feet to a point on the Southerly Right-of-way Line of Hillsborough Avenue (100.00'R/W); thence N54°14'00"W., 4709.46 feet along said Southerly Right-of-way Line of Hillsborough Avenue for a Point-of- Beginning; thence continue along said Southerly Right- of-way Line of Hillsborough Avenue, 2030.12 feet; thence S35°46'00"W., 1387.93 feet to a point on the Mean High Water Traverse Line; thence along said Traverse Line the following courses and distances, S14°53'25"E., 138.88 feet; thence S41°23'05"E., 700.00 feet; thence S47°47'45"E., 400.00 feet; thence S16°12'45"E, 453.30 feet; thence S33°15'55"E, 520.10 feet; thence leaving said Mean High Water Traverse Line N35°46'00"E, 2141.81 feet to the Point of Beginning.

PARCEL VI

Lands in Section 33, Township 28 South, Range 17 East, Hillsborough County, Florida, being described as follows:

follows: Begin at a point of intersection of the South Boundary of said Section 33 and Mean High Water Traverse Line, 3074.47 feet more or less West of the Southeast corner of said Section 33; thence along said Mean High Water Traverse Line the following calls: N40°32'40"W, 476.56 feet; N59°48'W, 400.00 feet; N17°18'20"W, 475.00 feet; N10°18'40"W, 566.70 feet; N02°00'40"W, 403.35 feet; N21°21'20"W, 167.03 feet to a point of intersection with the easterly right of way boundary of Channel A; thence Southerly along said easterly right of way to a point of intersection of the west boundary of the South 1/2 of said Section 33; thence South along said west boundary to the Southwest corner of said Section 33; thence East along the south boundary of said Section 33 to the Point of Beginning.

OFF. REC. 4620 PG 049

PARCEL VII

Lands in Sections 3, 4 and 10, Township 29 South, Range 17 East, Hillsborough County, Florida, being described as follows:

All of fractional Section 4 and the West 1/4 of said Section 3; less Channel G right of way

And Less that part of Section 4 and the West 1/4 of Section 3, north of the following described line: Begin at a point on the east boundary of said West 1/4 of Section 3, 1288.75 feet more or less south of the north boundary of said Section 3; thence N80°08'17"W, 447.78 feet; thence S58°02'03"W, 665.65 feet; thence S39°21'53"W, 445.45 feet; thence S80°31'03"W, 840.07 feet; thence N29°31'27"W, 486.17 feet; thence N66°50'00"W, 218.45 feet; thence N51°32'20"W, 2200.00 feet; thence N40°32'40"W, 282.06 feet more or less to a point on the north boundary of said Section 4 and the end of said line.

AND

All of fractional Section 10.

PARCEL VIII

Lands in Section 33, Township 28 South, Range 17 East, Hillsborough County, Florida, being described as follows:

boundary for Channel A and the southwesterly right of way boundary of Hillsborough Avenue (State Road No. 580), thence along said southwesterly right of way boundary, N54°14'W, 1231.00 feet; thence S35°46'W, to a point on the north boundary of said Section 33; thence westerly along said north boundary of Section 33 to the Northwest corner of said Section 33; thence Southerly along the west boundary of said Section 33, to a point of intersection with the northwesterly right of way boundary of foresaid Channel A and a Point of Beginning; thence Northeasterly along said northwesterly right of way boundary to a point of intersection with the Mean High Water Traverse Line; S21°21'20"E, 201.58 feet more or less to the southeasterly right of way boundary of foresaid Channel A; thence Southwesterly along said southeasterly right of way boundary of Channel A to the intersection with the West boundary of said Section 33; thence northerly along the said west boundary of section 33 to the Point of Beginning.

OFF. REC. 4620 PG 050

PARCEL IX

All of fractional Section 5, Township 29 South, Range 17 East, Hillsborough County, Florida;

PARCEL X

All of fractional Section 9, Township 29 South, Range 17 East, Hillsborough County, Florida; less Channel G right of way

PARCEL XI

Lands in Section 4, Township 29 South, Range 17 East, Hillsborough County, Florida, being more particularly described as follows:

Begin at a point of intersection of the South boundary of Section 33, Township 28 South, Range 17 East, Hillsborough County, Florida and the Mean High Water Traverse Line, 3074.47 feet more or less West of the Southeast corner of said Section 33; thence West along said South boundary of Section 33, also being the North boundary of the aforesaid Section 4, 89.16 feet; thence leaving said boundary S. 40°32'40" E., 74.10 feet; thence S. 89°27'39" E., 91.95 feet to a point on the aforesaid Mean High Water Traverse Line; thence along said line, N. 40°32'40" W., 71.72 feet to the Point of Beginning.

Florida Department of Environmental Protection

Memorandum

DATE: October 27, 2011

TO: Gloria Barber, OMC Manager
BPLA, Upland Section

FROM: Janice Ellison, OMC Manager
BPLA, Asset Management

SUBJECT: Land for Lease

Hillsborough County
SOLI#29-0040.0



Q:\Ellison_j\Murphy Act\Special Notice-030111\Response from Managing Agencies-Special Notice-030111\MEMO-To Uplands-Hillsborough Co to Lease-102711.docx

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search | directory | contact us | 411 | subscribe | tour | help
Environment > Search > Worksheet Search

Worksheet Details

Contact Us | FAQ
New Search | Results List

WS ID: 95039

File Number: 290040.0

Counties: HILLSBOROUGH

Applicant: CYNTHIA PARKS

Address/Bureau: PART NOT INCLUDED IN REOLDS FARM PLAT #1

Type of Activity:

Project Location:

Section	Township	Range
31	28S	17E

Comments: THE STATE HOLDS TITLE TO THE PARCEL DESCRIBED AS THE PART NOT INCLUDED IN REOLDS FARM PLAT #1 BY VIRTUE OF THE MURPHY ACT.
TAX CERTIFICATE NO. 151 OF 7/7/1924 WAS ISSUED AND ACCORDING TO OUR RECORDS IS STILL OPEN AND AVAILABLE.
THE PARCEL IS ON SOLI UNDER NO. 290040.0 AND ON THE PROPERTY APPRAISERS DATABASE UNDER FOLIO NO. 0055440000.
THIS PARCEL APPEARS TO FALL WITHIN TIITF OWNED LANDS AS PART OF A 1596 ACRE PARCEL UNDER LEASE 3419 TO HILLSBOROUGH COUNTY AS PART OF THE BOWER TRACT/DOUBLE BRANCH BAY. THI SPARCEL IS ON SOLI UNDER NOS. 290045.0, 290045.1, 290045.2, .8, .9 AND 290046.0.
TO: LISA COOLEY, BPLA
KMC 5/16/05

Preparer: SHARI NAFTZINGER

Date Prepared: 05/16/2005

Documents:

DM ID	Doc Index	Relevant	Page(s)
155738	MTC0155738	Y	

NOTICE: THE CONCLUSIONS AND DETERMINATIONS SET FORTH IN THIS TITLE WORKSHEET ARE BASED ON A REVIEW OF THE RECORDS CURRENTLY AVAILABLE WITHIN THE DEPARTMENT OF ENVIRONMENTAL PROTECTION AS SUPPLEMENTED, IN SOME CASES, BY INFORMATION FURNISHED BY THE REQUESTING PARTY. SINCE THE ACCURACY AND COMPLETENESS OF THE TITLE INFORMATION REVIEWED MAY VARY, THE CONCLUSIONS AND DETERMINATIONS SET FORTH HEREIN DO NOT CONSTITUTE A LEGAL OPINION OF TITLE AND SHOULD NOT BE RELIED ON AS SUCH.

PI ID: IMU0290040.0
PI NAME: MURPHY ACT LANDS
ACTIVE YN: Y
ACREAGE: 1
COUNTY NAME: HILLSBOROUGH
CURRENT AGENCY: MURPHY ACT LAND
ORIGINAL AGENCY: MURPHY ACT LAND
LD REMARK: THAT PART NOT PLATTED..THAT PART NOT INCLUDED IN REOLDS FARM PLAT #1 (MURPHY ACT TAX CERT. #151 OF 7/7/1924)
VALUE ASSESSED: $1,000
VALUE JUST: $1,000
VALUE LAND: $1,000
UPDATED UID: BTLDS
UPDATED DATE: 01/19/2001
SPECIAL NOTE DESC: UN-ENCUMBERED PARCEL

LD ID: LD000337261
STR: 31 28S 17E
COUNTY NAME: HILLSBOROUGH
PI ID: IMU0290040.0

Inherited IMU Data
MARK HURD NUMBER: 340

DOR TAX NBR: 390055440000
COUNTY NAME: HILLSBOROUGH

Document Type: Murphy Act Certificate

LD ID:	LD000011866
AREA:	1 A - ACRES
STR:	31 28S 17E
COUNTY NAME:	HILLSBOROUGH
CERTIFICATE NBR:	151
CERTIFICATE DATE:	07/07/1924
ORIGINAL COUNTY:	HILLSBOROUGH
CERTIFICATE YEAR:	1924
OPEN YN:	Y
LEGAL REMARK:	THAT PART NOT INCLUDED IN REOLDS FARM PLAT #1

Form "B"

CERTIFICATION OF CLERK

I, Myrtle M. Culbreath, Clerk of the Circuit Court of Hillsborough County, State of Florida, hereby certify that the State and County tax sale certificates listed on attached sheets, Pages 1 to 7, inclusive, for the year 1924, were in the hands of the State in my custody on June 9, 1939 and that such certificates, according to my records, are subject to Section 9, Chapter 18296, Laws of Florida, Acts of 1937.

Myrtle M. Culbreath
CLERK OF THE CIRCUIT COURT
HILLSBORCUGH COUNTY, FLORIDA

M/A Cert #151

FORM "A"

STATE OF FLORIDA,
COUNTY OF HILLSBOROUGH

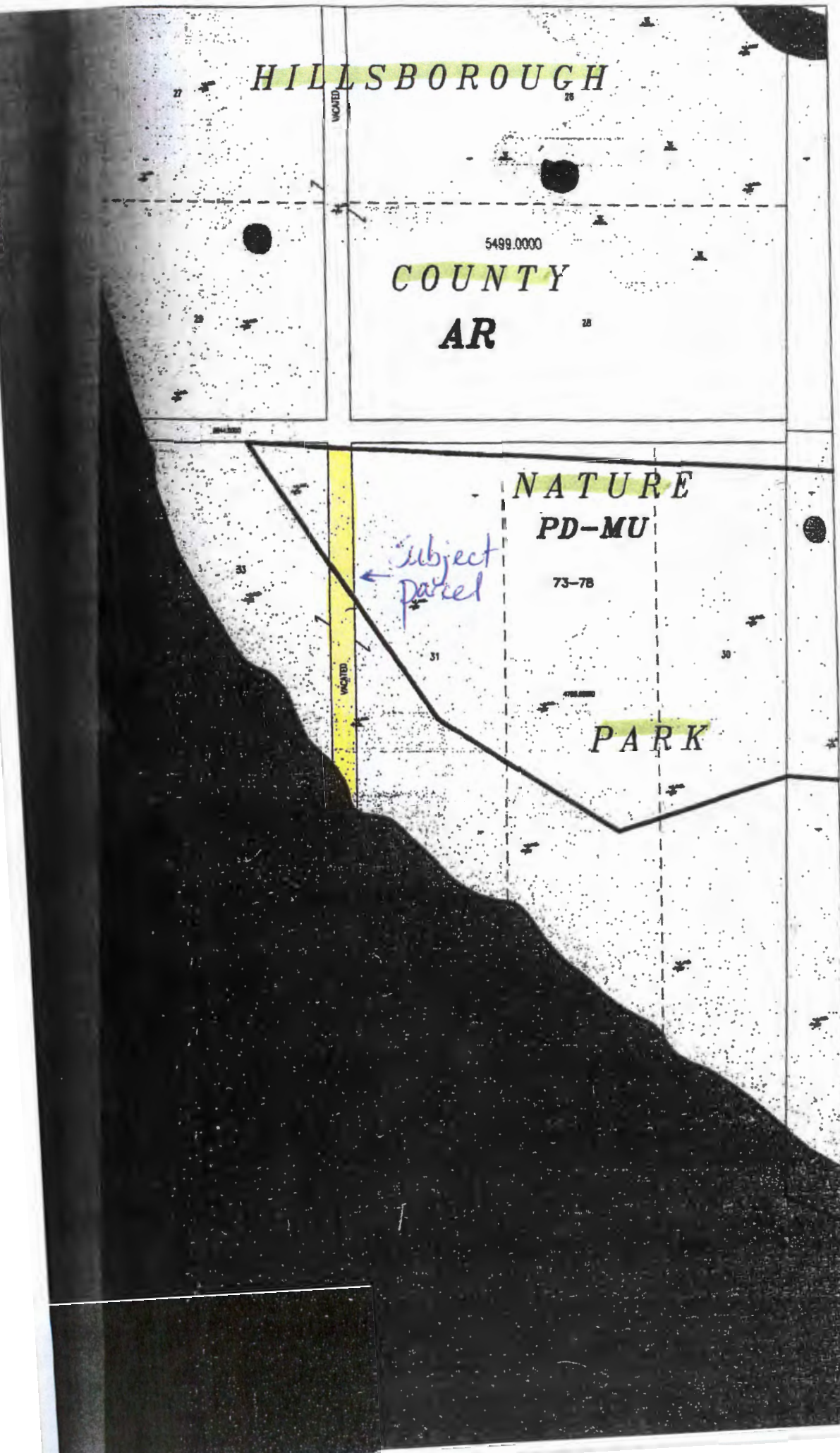
CERTIFICATES UNDER CHAPTER 18296

SALE OF July 7 19 24

VALDEZ PRINTING CO., TAMPA, PHONE 5440

NO.	DESCRIPTION	SEC.	TWP.	RG.	ACRES	AMOUNT	ASSD. VALUE
~~96~~	~~S½ of Tracts 3 & 4 in SW¼~~ D#4372	~~8~~	~~27~~	~~17~~	~~10~~	~~2.57~~	~~40.00~~
~~97~~	~~Tract 4 in SW¼~~ D#4199	~~13~~	~~27~~	~~17~~	~~10~~	~~5.08~~	~~40.00~~
~~61~~	~~Lot 3 Block 7 Welch's Subdivision Plat 9 Page 69~~ D#3363	~~30~~	~~27~~	~~17~~		~~1.17~~	~~20.00~~
~~62~~	~~Lot 5 Block 8 Welch's Subd 9 - 69~~ D#3363	~~30~~	~~27~~	~~17~~		~~1.20~~	~~20.00~~
~~148~~	~~1 A Square in SW cor of E½ of NW¼ of SW¼~~ D#3318	~~25~~	~~28~~	~~17~~	~~1~~	~~2.50~~	~~10.00~~
151	That Part not included in Reolds Farm Plat #1	31	28	17	1	1.29	10.00
~~102~~	~~Lots 1,2,3,4,5,7,8,9,11 & 12 Blk 1 East North Tampa Plat 1 Page 128~~ D#4560	~~12~~	~~27~~	~~18~~		~~7.09~~	~~100.00~~
~~103~~	~~Lots 1 to 12 inclusive Block 8 East North Tampa Plat 1 Page 128~~ D#4560	~~12~~	~~27~~	~~18~~		~~8.30~~	~~120.00~~
~~104~~	~~Lots 3, 9, 10 & 12 Block 5 East North Tampa Plat 1 Page 128~~ D#4560	~~18~~	~~27~~	~~18~~		~~3.17~~	~~40.00~~
~~105~~	~~Lot 6 Block 4 East North Tampa Plat 1 Page 128~~ D#4560	~~18~~	~~27~~	~~18~~		~~1.36~~	~~10.00~~
~~106~~	~~Lot 7 Block 5 East North Tampa Plat 1 Page 128~~ D#2254	~~18~~	~~27~~	~~18~~		~~1.36~~	~~10.00~~
~~107~~	~~Lot 12 Block 7 East North Tampa Plat 1 Page 128~~ D#3317	~~12~~	~~27~~	~~18~~		~~1.36~~	~~10.00~~
~~108~~	~~Lots 8, 11 & 12 Block 8 East North Tampa Plat 1 Page 128~~ D#4560 → D#4781	~~12~~	~~27~~	~~18~~		~~2.57~~	~~30.00~~
~~109~~	~~Lots 1, 2, 3, 4, 5 & 6 Block 9 East North Tampa Plat 1 Page 128~~ D#4560	~~12~~	~~27~~	~~18~~		~~4.67~~	~~60.00~~
~~800~~	~~Lots 9, 10 11 & 12 Block 9 East North Tampa Plat 1 Page 128~~ D#4781 → D#4560	~~12~~	~~27~~	~~18~~		~~3.17~~	~~40.00~~
~~801~~	~~Lots 9 to 8 incl. & Lots 11 & 12 Blk 10 East North Tampa 1 128~~ Lots 7,8,11,+12, D#4631	~~1~~	[redacted]	~~18~~		~~6.48~~	~~80.00~~

S.31 T.2



SEAL OF HILLSBOROUGH

SCALE: 1 " = 200 '

ZONING LEGEND

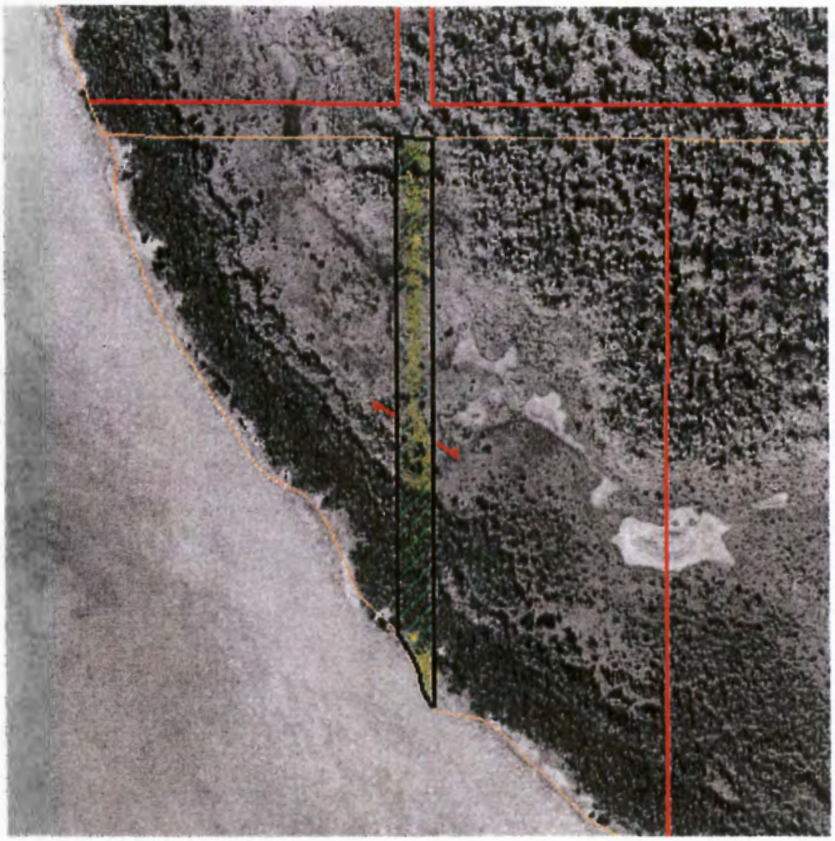
	ZONING BOUNDARIES
AR	NEW ZONING DISTRICT (TOP SYMBOL)
A	OLD ZONING DISTRICT (BOTTOM SYMBOL
(86-143, ZC-1)	PLANNED DEVELOPMEI
DRI-140	DEVELOPMENT OF REG

PLAN PROVISIONS: f Flex
t Infill

LEGEND

WATER	PROPI
SWAMP	SECTI
DITCH	DRAI
RAILROAD	STAT
COUNTY BRIDGE	SECT
STATE BRIDGE	MANG
STATE ROAD	123.0000
PAVED ROAD	7
UNPAVED ROAD	

Hillsborough County Property Appraiser
Parcel Query System



FOLIO: 0055440000 PIN: U-31-28-17-ZZZ-000000-39520.0 ACREAGE: 1.6

Map created on 5/16/2005 10:27:41 AM.

0 155 ft

Copyright 2002. Hillsborough County Property Appraiser.

FOLIO:	0055440000
PIN NUMBER:	U-31-28-17-ZZZ-000000-39520.0
OWNER 1:	TIITF/STATE OF FLORIDA
ADDRESS:	0 UNINCORPORATED
LEGAL DESC:	THAT PART NOT PLATTED
DOR CODE:	8700

VALUE SUMMARY:

BUILDING VALUE:	$0
EXTRA FEATURE VALUE:	$0
LAND VALUE (MARKET):	$800
LAND VALUE (AGRI.):	$0
JUST (MARKET) VALUE:	$800
ASSESSED VALUE (A10):	$800
EXEMPT VALUE:	$800
TAXABLE VALUE:	$0

h hc f g f

BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND

(1) 3419

LEASE AGREEMENT

DOUBLE BRANCH BAY (BOWER TRACT)

Lease No. 3419

WHEREAS, the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida holds title to certain lands and property for use by the State of Florida for public purposes, and

WHEREAS, the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida may enter into leases for the use, benefit and possession of public lands for the benefit of the State;

NOW THEREFORE, this agreement made between the BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND OF THE STATE OF FLORIDA, as LESSOR, and the DEPARTMENT OF NATURAL RESOURCES OF THE STATE OF FLORIDA, as LESSEE, to provide for the Division of Recreation and Parks to sublease the lands to local government for environmental protection and compatible outdoor recreation and related purposes and to represent the State in matters requiring coordination of local management of the lands.

W I T N E S S E T H

The parties, for and in consideration of mutual covenants and agrements hereinafter contained, hereby covenant and agree as follows:

1. The Lessor does hereby lease to the Lessee the following described lands in the County of Hillsborough, State of Florida, together with the improvements thereon (if applicable), viz:

(Exhibit A - attached)

TO HAVE AND TO HOLD the above described lands for a period of fifty (50) years, for the purposes of subleasing to local government and representing the State in coordination of

BOARD OF COUNTY COMMISSIONERS
HILLSBOROUGH COUNTY, FLORIDA

AGENDA ITEM COVER SHEET

CONSENT [ ] NON-CONTROVERSIAL [ ] REGULAR

SUBJECT: MAINTENANCE ENTITY TRANSFER SECOND AMENDMENT TO AGREEMENT BETWEEN SWFWMD & HILLSBOROUGH COUNTY
TEAM: Strategic Government
DEPT: Engineering Services/Stormwater Design CONTACT PERSON: Walid Hatoum

RECOMMENDATION: Approve the Second Amendment to Construction and Lease Agreement for the transferring of operation and maintenance responsibilities of Channels A, G, & H from SWFWMD to Hillsborough County.

BACKGROUND: On December 2, 1970, SWFWMD and County entered into a Construction & Lease Agreement for Channels A, G & H. In accordance with said agreement, SWFWMD was designated as the operation and maintenance entity for Channels A, G & H.

On April 12, 1972, SWFWMD and Hillsborough County entered into Addendum No. 1 to the Construction and Lease Agreement dated December 2, 1970. Addendum #1 required SWFWMD to assume the costs of and responsibility for the operation and maintenance of Channels G & H. In return, the County agreed to pay SWFWMD the sum of $55,000 for the District assuming the responsibility for providing adequate channel capacity at six different bridge locations in Channels G & H and for actual costs in District personnel placing monuments for channel right-of-ways.

This Agenda Item is to approve the transfer of operation & maintenance responsibilities for Channels A, G, & H from SWFWMD to the County and in return, SWFWMD to make a one time lump sum payment to the County in the amount of $152,821.53 as stated in the second amendment to the construction & lease agreement.

[ ] Continued Cost $ 0.00 Index/Subobject Code

SIGN-OFF APPROVALS	DATE
DIRECTOR	4/1/92
ACA 1st APPROVAL	James M. Bonney 4/2/92
BUDGET	4/2/92
CONTRACTS	Ray Weaver 4/3/92
LEGAL	4/1/92
ACA	James M. Bonney 4/2/92
FISCAL ACA (If Budget Amendment)	N/A

[X]Affected parties notified
[ ]Not required

[ ]Public Entity Crime Sworn Statement

[ ]Advertised
[X]Not Required

Date:

Paper:

[X]Attachments

SWFWMD Agreement, 2nd Amendment

[ ]None

[ ]Backup on file in County Administrator's Office

-- OCA STAFF ONLY --

BOARD ACTION:
[ ]Approved [ ]Disapproved [ ]Continued/Deferred Until

OTHER/SPECIAL INSTRUCTIONS:

BY:

MEETING DATE: April 15, 1992 AGENDA CODE:
(Revised 6-12-91)

SECOND AMENDMENT
TO
CONSTRUCTION AND LEASE AGREEMENT

THIS SECOND AMENDMENT, made and entered into this 13th day of July, 1994, by and between the SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT, a public corporation created by Chapter 61-691, Laws of Florida, as amended, for itself and on behalf of the NORTHWEST HILLSBOROUGH BASIN BOARD, hereinafter collectively referred to as "the DISTRICT", and HILLSBOROUGH COUNTY, a political subdivision of the State of Florida, hereinafter referred to as "the COUNTY".

W I T N E S S E T H :

WHEREAS, the DISTRICT and the COUNTY did enter into a CONSTRUCTION AND LEASE AGREEMENT, dated December 2, 1970; and,

WHEREAS, the parties subsequently entered into an Addendum No. 1 on April 12, 1972, amending and adding several provisions of the original Agreement; and,

WHEREAS, the parties wish to further amend the original Agreement and its Addendum No. 1 in order to provide that, among other things, the COUNTY shall assume the operation and maintenance responsibilities of Channels A, G and H, as well as the operation and maintenance responsibility of other drainage projects in return for a reimbursement to be paid by the DISTRICT to the COUNTY.

NOW, THEREFORE, in consideration of the mutual covenants and conditions contained herein, the parties mutually agree to amend the Agreement dated December 2, 1970, and the Addendum No. 1 to the Agreement dated April 12, 1972, as follows:

1. The sixth "WHEREAS" paragraph on page 1 of the original Agreement is deleted.

2. The first and third sentences of paragraph 6 on page 3 of the original Agreement are deleted.

3. Paragraph 7 of the original Agreement is amended to read as follows:

> 7. That the COUNTY will assume all responsibility for the operation and maintenance of the Project work, including, but not limited to, Channels A, G and H (excluding those specific operation and maintenance functions retained by the DISTRICT pursuant to paragraph 8 below). In consideration for this performance the DISTRICT shall pay to the COUNTY a one-time total of $350,000.00. The DISTRICT shall retain responsibility for all liabilities or claims that have arisen or may arise out of its operation and maintenance of the Project works prior to the effective date of the Second Amendment.

4. Paragraph 8 of the original Agreement is amended to read as follows:

> 8. That the DISTRICT shall retain only the following operation and maintenance responsibilities:
>
> a. Operation and maintenance of the two water control structures (Channel "A" salinity barrier and Channel "G" salinity barrier)

located on real property currently owned by the DISTRICT within the Project area.

b. Administration and operation of any aquatic plant control or aquatic plant control programs required within Channels A, G and H.

5. Paragraph 9 of the original Agreement is deleted.

6. Paragraph 10 of the original Agreement is amended to read:

10. That the parties may modify or alter any of said works at any time provided that the parties determine after due and proper study, that it is sound and proper from an engineering standpoint to make nay of said modifications, changes or alterations.

7. The first paragraph of paragraph 11 of the original Agreement is amended to read:

11. Notwithstanding the provision of the foregoing paragraph 10 or any statement contained therein, no portion of the Project shall be substantially altered without prior approval of the County Engineer of Hillsborough County, which said approval shall not be unreasonably withheld.

8. Paragraph 4 of the Addendum No. 1 to Agreement is deletad.

9. All other terms and conditions of the Original Agreement dated December 2, 1970, and the First Amendment to said Agreement dated April 12, 1972, are ratified, affirmed and remain in full force and effect except as amended herein.

IN WITNESS WHEREOF, the parties hereto have executed this Second Amendment to the Construction and Lease Agreement dated December 2, 1970, (amended April 12, 1972), as of the data first written above.

WITNESS:

Deanna M Bass

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

By: _____ For
Peter G. Hubbell, Executive Director

(SEAL)

BOARD OF COUNTY COMMISSIONERS
HILLSBOROUGH COUNTY FLORIDA
DOCUMENT NO: 94-1373

ATTEST: RICHARD AKE, CLERK OF CIRCUIT COURT

Gary Rhinehart
Deputy Clerk

HILLSBOROUGH COUNTY, FLORIDA

By: _____
Chairman, Board of County Commissioners

(SEAL)

BOCC STAFF	APPROVAL	DATE
A&A		6/9/94
ATTORNEY		7/1/94
FISCAL/BUDGET		7-1-94
PURCH/CONTRACTS		6-10-94

SecAmend.jgv
June 1, 1994

Approved by	Date	Initial
[illegible]	6-14-94	
Finance Dept.	6/14/94	
Legal Office		
Risk Mgmt.		

11-UTBW-20

ADDENDUM NO. 1

TO

CONSTRUCTION AND LEASE AGREEMENT

THIS ADDENDUM, made and entered into this 12 day of April, 19 72, by and between the SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT, a public corporation, hereinafter referred to as "District", on behalf of the NORTHWEST HILLSBOROUGH BASIN, a subdivision of the SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT, hereinafter referred to as "Basin", and HILLSBOROUGH COUNTY, a political subdivision of the State of Florida, hereinafter referred to as "County",

WITNESSETH:

WHEREAS, the District, Basin and County did enter into a CONSTRUCTION AND LEASE AGREEMENT, dated December 2, 1970; and

WHEREAS, the Agreement provides that as additional segments of the "Upper Tampa Bay Watershed Project" are completed and accepted, the Agreement will be amended to include the completed works as part of the Basin's operation and maintenance responsibility; and

WHEREAS, the Agreement also provides that the County is responsible for the repair or replacement of project works; and

WHEREAS, the Agreement further provides that the County is responsible for monumenting the right-of-way prior to acceptance by the Basin for operation and maintenance;

NOW, THEREFORE, the parties hereto enter into this addendum for and in consideration of the following covenants between the parties hereto:

1. The terms and conditions of the aforesaid CONSTRUCTION AND LEASE AGREEMENT between the parties hereto, dated December 2, 1970, are hereby reaffirmed, and the provisions herein are made a part of said Agreement.

2. The Basin agrees to assume the costs of and responsibility for the operation and maintenance of the following works of improvement:

a. Approximately 5.5 miles of Channel "G" Improvement starting from approximate station 100+00, which lies in Upper Tampa Bay, and follows the general alignment of Rocky Creek in a northerly direction

up to the Palomino Canal, thence easterly to the intersection of Sweetwater Creek to just southwest of Benjamin Road to approximate station 386+00.

b. Approximately 2.8 miles of Channel "H" Improvement starting from approximate station 386+00 of Channel "G", which lies within the existing channel of Sweetwater Creek, and follows the general alignment of the East Branch of Sweetwater Creek to just north of Waters Avenue and west of Dale Mabry Highway to approximate station 146+00.

3. The County agrees to pay the Basin the sum of thirty-five thousand dollars ($35,000) in return for the Basin assuming the responsibility for providing adequate channel capacity at the following bridge locations:

a. Channel "G" at Webb Road

b. Channel "G" at Hanley Road

c. Channel "G" at Benjamin Road

d. Channel "H" at Thatcher Road

e. Channel "H" at Manhattan Avenue

f. Channel "H" at Anderson Road

4. The County further agrees to pay the Basin for its actual cost in having Basin personnel monument the channel right-of-way described in paragraph 2 above. Prior to the Basin monumenting the right-of-way the County will pay the Basin twenty thousand dollars ($20,000.00), which is the Engineer's estimated cost of the work. The Basin will maintain an accurate record of all costs involved in the work and such record shall be made available to the County at any reasonable time upon request of the County. After the work is complete, the Basin will notify the County in writing of its actual cost in monumenting the channel right-of-way. If the actual cost is less than the Engineer's estimate, the balance will be returned to the County. If the cost exceeds the estimate, the County will make an appropriate payment to the Basin for these costs.

5. The terms and conditions of this addendum have been presented to and approved by the Northwest Hillsborough Basin Board at a duly and properly called and held meeting of said Board on March 10, 1972.

6. The terms and conditions of this addendum have been presented to and approved by the Board of Governors of the Southwest Florida Water Management District at a duly and properly called and held meeting of said Board on April 5, 1972.

7. The terms and conditions of this addendum have been presented and approved by the Board of County Commissioners of Hillsborough County at a duly and properly called and held meeting of said Board on April 12, 1972.

IN WITNESS WHEREOF, the parties hereto have executed this addendum the day and year first above written.

Attest:

Donald R. Fenster
As to Basin

NORTHWEST HILLSBOROUGH BASIN BOARD

By E. Medard
E. MEDARD, Chairman Ex Officio

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT, BY ITS GOVERNING BOARD

E. Medard
E. MEDARD, Secretary

By D. S. McAteer
D. S. McATEER, Chairman

HILLSBOROUGH COUNTY BOARD OF COUNTY COMMISSIONERS

Estelle S. Waters, D.C.
As to County

Approved
M.G.G.
4/5/72

Southwest Florida Water Management District
NORTHWEST HILLSBOROUGH BASIN
Channel "A"

November 2, 1970

CHANNEL "A" and STRUCTURE "A-1"

That channel running from a point on Rocky Creek, about 300 feet south of West Linebaugh Avenue, in SECTION 23, TOWNSHIP 28 SOUTH, RANGE 17 EAST, at Structure A-1, to a point on the north shore of Old Tampa Bay, about ¼ mile west of the northeast corner of SECTION 5, TOWNSHIP 29 SOUTH, RANGE 17 EAST, Hillsborough County, Florida.

R3H/cb

14-002-100

CONSTRUCTION AND LEASE AGREEMENT

THIS AGREEMENT, made and entered into this 2nd day of December, 1970, by and between the SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT, a public corporation, hereinafter referred to as "District", on behalf of the NORTHWEST HILLSBOROUGH BASIN, a subdivision of the SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT, hereinafter referred to as "Basin", and HILLSBOROUGH COUNTY, a political subdivision of the State of Florida, hereinafter referred to as "County",

WITNESSETH:

WHEREAS, the District is authorized, by the law under which it was created to manage, throughout a 15-county area of the State of Florida, the water resources of said area for the benefit of the general public; and

WHEREAS, the District is divided into several watershed basins, one of which is the Northwest Hillsborough Basin; and

WHEREAS, County is the sponsoring agent for a Public Law 566 project, known as the "Upper Tampa Bay Watershed Project", hereinafter referred to as "Project", within the area known as the Northwest Hillsborough Basin of the Southwest Florida Water Management District; and

WHEREAS, the County and the District have entered into two previous contracts, concerning the operation and maintenance of portions of the said Project, being dated September 15, 1965, and February 19, 1969; and

WHEREAS, this agreement in addition to said operation and maintenance by the Basin provides for contribution to Project construction costs by the Basin; and

WHEREAS, the County owns, operates and maintains certain other small water control facilities within the boundaries of the Basin which it is agreed should more properly be operated and maintained by Basin; and

WHEREAS, the District is the legal entity authorized to execute contracts and is executing this contract on behalf of the Basin;

NOW, THEREFORE, the parties hereto enter into this agreement for and in consideration of the following covenants between the parties hereto:

1. The previous contracts between the District and the County of September 15, 1965, and February 19, 1969, for operation and maintenance of a portion of said Project are hereby cancelled upon execution of this contract.

2. Each of the parties hereto avers, for itself, that it desires to enter into this agreement for the purpose of proceeding with the plans, specifications and construction of said Project and for the continued operation and maintenance of that part of the Project which is more specifically set forth in the exhibits attached hereto and made a part hereof and for the operation and maintenance of the balance of the construction of said Project in the future as the same is completed. The parties recognize that under their respective legal authorities, they may be unable to obligate themselves to spend funds in excess of one budget year; however, each of the parties do hereby bind themselves to the terms of this agreement as they may be able under the laws and decisions of the State of Florida, and do further agree, as they may be legally authorized under the laws and decisions of the State of Florida, to take the necessary steps, from time to time, to budget, levy and set aside the necessary funds to carry out each of the financial responsibilities as provided for herein. If, for any reason, either of the parties to this agreement is unable to fulfill its financial responsibilities herein, at any time, then the remaining party has the option to pay the necessary funds to complete the Project without any further liabilities to the remaining party. The parties hereto are entering into this agreement as a joint venture and do specifically agree that, by entering into this agreement, they do not desire nor intend to enter into a partnership, nor do any of them assume or agree to pay the obligation of the other. The provisions of this paragraph do not in any way relieve either of the parties hereto of their respective responsibilities provided for in this agreement, and any breach of this agreement will cause said violating party to be responsible to the other party herein, as may be available under the laws and decisions of the State of Florida.

3. The complete construction of the remaining segments of the Project is the responsibility of County; provided, however, that Basin agrees to pay 34.1% of the construction contract cost, which amount is to be paid to County. The payment of said funds by the Basin to the County shall be on a periodic basis in a manner acceptable to both County and Basin. Basin further agrees to budget sufficient sums annually to allow completion of the Project within the 8-year period, as hereinafter provided.

RECD. T.P.A.
AUG 1-4 1997
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4. County agrees to acquire and pay all costs for all acquisition of rights of way, public and private relocations, and bridges for the Project. Land acquisition will be funded annually for the next eight (8) years, or less if the project is completed earlier, from the date of this agreement, according to a plan to be developed jointly between County and Basin which will allow the completion of all remaining land acquisition in that period of time. Upon completion of land acquisition for any segment of the Project and prior to acceptance by Basin for operation and maintenance, County shall provide Basin with complete R/W acquisition maps with all necessary dimensions, and copies of all instruments conveying right-of-way.

5. The parties hereto agree that the Basin will have review and approval authority of the construction plans for the works of said Project which remain to be constructed, said authority to be limited to that authority as presently held by the County under said Public Law 566 project.

6. That the County does hereby lease to the District, the works which are described in the exhibits attached hereto. The parties hereto agree that any additional segments of the Project as completed, shall be included and made a part of this lease agreement, and any other water control facilities not in the Project may also be made a part of this lease agreement by an appropriate certificate attached hereto, duly executed by the proper officials of each of the parties hereto. County does hereby affirm that it has acquired, and will in the future acquire title to all lands involved herein, and adequate access routes thereto, sufficient in quality so that the Basin may operate and maintain the same as provided for under this agreement.

7. That the Basin shall assume the costs of and responsibility for the operation and maintenance of the works, which are described in the exhibits attached hereto. The Basin shall continue to be responsible for the operation and maintenance of said works as long as necessary to carry out the purposes for which the Basin was created, not to exceed fifty (50) years, or until the Basin and the County mutually agree to terminate this contract. It is further agreed, that if and when the Basin determines that said works are not necessary to carry out the purposes for which said Basin was created, it shall notify the County in writing and the County shall have twelve (12) months from said date of notification to assume all Basin responsibilities on said works. The Basin

shall return said works to the County in good working order at the time this agreement terminates and the District shall return to the County, its successors and assigns, any and all title information and procedures, which are transferred by the County to the Basin, under this agreement.

8. That the Basin shall not pay the County any moneys for the privilege of leasing and operating and maintaining said works nor shall the County pay the Basin for assuming the responsibility for operation and maintenance of said works provided for under this lease agreement.

9. That during the pendency of this agreement, the Basin shall maintain said works at a standard equal to, or higher than, the maintenance and operation of said works as of the time the County turned over the same to the Basin.

10. That the Basin may modify or alter any of said works at any time during the period that it has the responsibility for the operation and maintenance of said works provided that the said Basin determines after due and proper study, that it is sound and proper from an engineering standpoint to make any of said modifications, changes or alterations.

11. Notwithstanding the provisions of the foregoing paragraph 10 or any statement contained therein, no portion of the Project shall be substantially altered without prior approval of the County Engineer of Hillsborough County, which said approval shall not be unreasonably withheld; and the Basin shall use all due diligence to prevent damage to the roads and highways involved, and the parties hereto agree that the Basin shall not be responsible for the repair or replacement of the project works in the exhibits attached hereto, or additions to said works as provided for herein, unless the necessity for such repair or maintenance is due to the ordinary wear and tear, including acts of God, in the operation of said works or if the same are damaged or destroyed because of the negligence of the Basin, its agents or employees. If, at any time, the works are in need of repair or replacement and such repair or replacement is not the responsibility of the Basin, then the Basin shall natify County, in writing, of County's responsibility to repair or replace said project works within 180 days of said written notice.

In the event of the breach of any of the terms of this agreement by the Basin or the County, the other may notify the other party of the breach in writing. If the Basin

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or the County fails or refuses to cure said breach or to commence the necessary action to cure said breach within 60 days of said notification, then either party may at its option cancel this agreement.

12. The terms and conditions of the foregoing agreement have been presented to and approved by the Northwest Hillsborough Basin Board, a subdivision of the Southwest Florida Water Management District, at a duly and properly called and held meeting of said Board on October 28, 1970.

13. That the terms and conditions of the foregoing agreement have been presented to and approved by the Board of County Commissioners of Hillsborough County, at a duly and properly called and held meeting of said Board on November 2, 1970.

14. That the terms and conditions of the foregoing agreement have been presented to and approved by the Board of Governors of the Southwest Florida Water Management District, at a duly and properly called and held meeting of said Board on November 18, 1970.

IN WITNESS WHEREOF, the parties hereto have executed this agreement the day and year first above written.

Attest:

As to the County

As to the Basin

As to the District

SEAL

HILLSBOROUGH COUNTY BOARD OF COUNTY COMMISSIONERS

By

NORTHWEST HILLSBOROUGH BASIN BOARD

By
Edward Medard, Chairman Ex Officio

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT, BY ITS GOVERNING BOARD

By
D. S. McAteer, Chairman

Approved
M.G.S.
11/18/70

Southwest Florida Water Management District
NORTHWEST HILLSBOROUGH BASIN
Channel "A"

November 2, 1970

CHANNEL "A" and STRUCTURE "A-1"

That channel running from a point on Rocky Creek, about 300 feet south of West Linebaugh Avenue, in SECTION 23, TOWNSHIP 28 SOUTH, RANGE 17 EAST, at Structure A-1, to a point on the north shore of Old Tampa Bay, about ½ mile west of the northeast corner of SECTION 5, TOWNSHIP 29 SOUTH, RANGE 17 EAST, Hillsborough County, Florida.

RBH/eb

RECD-T.P.A.
AUG 14 1997
ENVIRONMENTAL DEPT.

State of Florida
Department of Natural Resources
Division of State Lands

Document Conversion

FILE HEADER SHEET

FILE #: 3419 (1)

JJH:05/16/91:Alpha Systems

BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND

(1) 3419

LEASE AGREEMENT

DOUBLE BRANCH BAY (BOWER TRACT)

Lease No. 3419

WHEREAS, the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida holds title to certain lands and property for use by the State of Florida for public purposes, and

WHEREAS, the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida may enter into leases for the use, benefit and possession of public lands for the benefit of the State;

NOW THEREFORE, this agreement made between the BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND OF THE STATE OF FLORIDA, as LESSOR, and the DEPARTMENT OF NATURAL RESOURCES OF THE STATE OF FLORIDA, as LESSEE, to provide for the Division of Recreation and Parks to sublease the lands to local government for environmental protection and compatible outdoor recreation and related purposes and to represent the State in matters requiring coordination of local management of the lands.

W I T N E S S E T H

The parties, for and in consideration of mutual covenants and agrements hereinafter contained, hereby covenant and agree as follows:

1. The Lessor does hereby lease to the Lessee the following described lands in the County of Hillsborough, State of Florida, together with the improvements thereon (if applicable), viz:

(Exhibit A - attached)

TO HAVE AND TO HOLD the above described lands for a period of fifty (50) years, for the purposes of subleasing to local government and representing the State in coordination of

local management for environmental protection and compatible public outdoor recreation and related purposes or until termination of the sublease agreement with local government, whichever occurs first.

2. The Lessee shall have the right to enter upon said lands for all purposes necessary to the full enjoyment of the rights herein conveyed to it, and shall take reasonable steps to prevent the unauthorized use of said lands.

3. The Lessee shall require the Sublessee to assume all responsibility for liabilities that accrue to the subject property or to the improvements thereon, including any and all drainage or special assessments or taxes of every kind and any and all mechanic's or materialman's liens which may be hereafter lawfully assessed and levied against the subject property during the effective period of the sublease, except as otherwise specified herewith.

4. This lease agreement may be terminated by mutual agreement of the parties hereto; however, the lease agreement shall be terminated at the sole option of the Lessor when and if the said premises including land and improvements shall cease to be used for environmental protection and compatible public outdoor recreation and related purposes.

5. The Lessee hereby agrees to require that, in the event no further use of this parcel or any part thereof is needed, the Sublessee shall give notification to the Bureau of State Lands Management, 3900 Commonwealth Boulevard, Tallahassee, Florida 32303 at least six (6) months prior to the release of any or all of the premises. Notification will include a legal description, the lease number, and an explanation of the release.

6. Upon termination or expiration of the sublease agreement with local government as provided for herein, this Lease Agreement shall terminate and the Lessee shall surrender up the premises to the Lessor. Furthermore, the Lessee herein shall

require the sublessee to leave all fixed improvements for the use of the Lessor and to put no claim upon said improvements; or at the option of the Lessor, the Lessee shall require the Sublessee to remove any and all improvements on the property at the Sublessee's expense. The Lessee shall assure that the Sublessee meets the following conditions upon termination of the Sublease.

(a) The premises shall meet applicable county and municipal building and safety codes.

(b) The Sublessee shall properly dispose of utility fees, including having the utilities turned off.

(c) The Sublessee shall not commit waste; ordinary wear and tear is acceptable.

(d) Prior to formal release a representative of the Bureau of State Lands Management shall perform an on-site inspection and the keys to any buildings on the premises shall be turned over to the Bureau.

(e) If the premises does not meet all conditions agreed upon, the Sublessee shall reimburse the Board for any resulting expenses.

7. In the sublease of the property, the Lessee herein shall require the Sublessee to agree to investigate all claims of every nature at its own expense and to indemnify, protect, defend, hold and save harmless the State of Florida from any and all claims, actions, lawsuits and demands of any kind or nature arising out of the agreement allowing for its use of the lands, to the extent allowable by law.

8. The Lessor warrants that it has the right to lease the hereinafter described lands and property; howevever, this Lease Agreement does not convey fee simple title.

9. The Lessor or its duly authorized agents shall have the right at any time to inspect the said land and the works and

operations thereon of the Sublessee in any matter pertaining to this agreement, following coordination with the Lessee herein.

10. The Lessee herein and its Sublessee are hereby authorized to grant utility easements which will be necessary to service authorized facilities located within the leased premises. Copies of any such easements granted should be filed timely with the Lessor.

11. This agreement is for the purposes specified herein and subleases of any nature excepting utility easements incident to authorized facilities (Provision 10) are prohibited, unless previously authorized by the Lessor. It is provided, however, that the Lessee is authorized to sublease the lands to an appropriate body or local government or public agency to develop and manage primarily for environmental protection and compatible public outdoor recreation and related purposes.

12. The Lessee herein shall require the Sublessee directly responsible for the lands to prepare a management plan in accordance with Section 253.034, Florida Statutes, within twelve (12) months of the execution date of a sublease agreement and it shall be submitted, through the Lessee, to the Board and Land Management Advisory Committee, when applicable, for approval. The approved Management Plan shall provide the basic guidance for all management activities and shall be reviewed jointly by the Lessee and the Board at least every five years. The Sublessee may use the property while the management plan is being developed provided such use is consistent with the management statement at purchase and approved by the Lessee.

13. Execution of this agreement in no way affects any of the parties' obligations pursuant to Chapter 267, Florida Statutes. The collection of artifacts or the disturbance of archaeological and historical sites on state-owned lands is prohibited unless prior authorization has been obtained from the Division of Archives, History and Records Management (DAHRM). The land management plan prepared pursuant to Section 253.034, Fla. Stat., shall be reviewed by the DAHRM to insure that

adequate measures have been planned to locate, identify, protect and preserve the archaeological and historical sites and properties on the tract.

IN TESTIMONY WHEREOF, the lawfully designated agent of the Board of Trustees of the Internal Improvement Trust Fund has hereunto subscribed his name and has caused the official seal of said Board to be hereunto affixed, in the City of Tallahassee, Florida, on the 13 day of November, A.D., 1985, and the Department of Natural Resources, Division of Recreation and Parks, has duly executed same this 13 day of November, A.D., 1985.

(SEAL)
BOARD OF TRUSTEES
OF THE INTERNAL
IMPROVEMENT TRUST
FUND OF THE STATE
OF FLORIDA

BOARD OF TRUSTEES OF THE
INTERNAL IMPROVEMENT TRUST
FUND OF THE STATE OF FLORIDA

BY _____
DIRECTOR, DIVISION OF STATE
LANDS, AGENT FOR THE BOARD OF
TRUSTEES OF THE INTERNAL
IMPROVEMENT TRUST FUND OF
THE STATE OF FLORIDA

(SEAL)
STATE OF FLORIDA
DEPARTMENT OF
NATURAL RESOURCES

FLORIDA DEPARTMENT OF
NATURAL RESOURCES

BY _____
ELTON J. GISSENDANNER
EXECUTIVE DIRECTOR

Approved for compliance
with Section 253.03, Fla.
Stat.

By: _____

Approved as to form and
legality:

By: _____ 11/19/85

Intang. Tax Pd. $ _____

Documentary Tax Pd. $ .50

James F. Taylor, Jr., Clerk Hillsborough County

By: _____ Deputy Clerk

OFF. REC. 4620 PG 045

QUIT CLAIM DEED and Disclaimer

This Quit-Claim Deed, made as of this 15th day of August, A. D. 1985, by the TAMPA PORT AUTHORITY, a body politic and corporate under the laws of the State of Florida, of the County of Hillsborough, grantor

first party, to

the BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND OF THE STATE OF FLORIDA

whose postoffice address is Rm. 412, 3900 Commonwealth Blvd.
Tallahassee, Florida 32303

second party:

(Wherever used herein the terms "first party" and "second party" shall include singular and plural, heirs, legal representatives, and assigns of individuals, and the successors and assigns of corporations, wherever the context so admits or requires.)

Witnesseth, *That the said first party, for and in consideration of the sum of* $10.00 and O.G.V.C. *in hand paid by the said second party, the receipt whereof is hereby acknowledged, does hereby remise, release and quit-claim unto the said second party forever, all the right, title, interest, claim and demand which the said first party has in and to the following described lot, piece or parcel of land, situate, lying and being in the County of* Hillsborough, *State of* Florida, *to-wit:*

All submerged lands and other lands, including but not limited to those lands lying below the mean high water line, lying in, and as part of, those lands described on Exhibit "A" attached hereto and incorporated by references,

Such lands as depicted on that certain survey prepared by Piercefield-Amaden and Associates, Inc., certified July 16, 1985, Project #8500798-044-02-S.

GRANTOR DOES DISCLAIM ANY FURTHER RIGHT, TITLE OR INTEREST IN THOSE SUBMERGED LANDS DESCRIBED ABOVE FOR ITSELF AND FOR ANYONE CLAIMING BY THROUGH OR UNDER GRANTOR BY VIRTUE OF THE OPERATION OF CHAPTER 84-447, LAWS OF FLORIDA OR ANY SUCCESSOR LAW.

REC. FEE	4.00
James F. Taylor, Jr.	
CLERK CIRCUIT COURT	
HILLSBOROUGH CO.	
TOTAL	34.50
REC. CLK.	

RECORD VERIFIED
James F. Taylor, Jr.
Clerk of Circuit Court
Hillsborough County, Fla.
By Kathy L. Batson, D.C.

To Have and to Hold *the same together with all and singular the appurtenances thereunto belonging or in anywise appertaining, and all the estate, right, title, interest, lien, equity and claim whatsoever of the said first party, either in law or equity, to the only proper use, benefit and behoof of the said second party forever.*

In Witness Whereof, *The said first party has signed and sealed these presents the day and year first above written.*

WITNESSES AS TO PORT AUTHORITY

_____

_____

TAMPA PORT AUTHORITY

_____ (SEAL)
Joseph Garcia, Chairman

Attested by: _____ (SEAL)
Robert R. Cromwell, Secretary

STATE OF FLORIDA,
COUNTY OF Hillsborough

SEAL

I HEREBY CERTIFY that on this day, before me, an officer duly authorized in the State aforesaid and in the County aforesaid to take acknowledgments, personally appeared Joseph Garcia, Chairman and Robert R. Cromwell, Secretary to me known to be the persons described in and who executed the foregoing instrument and who acknowledged before me that they executed the same on behalf of the Tampa Port Authority.

WITNESS my hand and official seal in the County and State last aforesaid this 15th day of August A. D. 1985.

_____
Notary Public

Notary Public, State of Florida
My Commission Expires Sept. 2, 1987
Bonded Thru Troy Fain - Insurance, Inc.

Return to:

Instrument prepared by: Lorin El[illegible]olton, Esq.

Rm. 412, 3900 Commonwe[illegible]
Tallahassee, Florida 32[illegible]

LOUIS 1184 12 5/P
125-7755 104 0996 15AGO5
RECORDED 04/744 B
CK 22.50

PARCEL I

Lands in Section 29, Township 28 South, Range 17 East, Hillsborough County, Florida, being described as follows:

That part of the South 7/8 of said Section 29, lying southwesterly of Hillsborough Avenue (State Road No. 580).

Less a Department of Transportation borrow pit described as follows:

Commence at the intersection of the north boundary of the Southeast 1/4 of the Northwest 1/4 of said Section 29 and the centerline of "New State Road 17"; thence Southeasterly along said centerline, 180.74 feet; thence Southwesterly at right angles to said centerline, 300.00 feet for a Point of Beginning; thence continue along same line, Southwesterly, 800.00 feet; thence Southeasterly at right angles, 300.00 feet; thence Northeasterly at right angles, 800.00 feet; thence Northwesterly at right angles, 300.00 feet to the Point of Beginning.

And Less a tract described as follows:

Begin at the Southwest corner of said Section 29; thence along the west boundary of said Section 29, N00°18'36"E, 4614.04 feet to the Northwest corner of the South 1/2 of the Northwest 1/4 of the Northwest 1/4 of said Section 29; thence along the north boundary of said South 1/2 of the Northwest 1/4 of the Northwest 1/4 of Section 29, S89°59'32"E, 440 feet more or less to the southwesterly right of way boundary of Hillsborough Avenue (State Road No. 580); thence along said right of way boundary, S54°14'00" E, 1400 feet more or less to the northeasterly projection of the above described Borrow Pit; thence along said Borrow Pit boundary and the projection thereof, S35°46'00"W, 1450 feet more or less to the centerline of Double Branch Creek; thence southerly along said centerline to the south boundary of said Section 29; thence along said south boundary, West, 1100 feet more or less to the Southwest corner of said Section 29 and the Point of Beginning.

And Less

That part of said Section 29 contained in the lands hereafter described as Parcel V.

Lands in Section 29, Township 28 South, Range 17 East, Hillsborough County, Florida, being described as follows:

Commence at the intersection of the north boundary of the Southeast 1/4 of the Northwest 1/4 of said Section 29 and the centerline of "New State Road 17"; thence Southeasterly along said centerline, 180.74 feet; thence Southwesterly at right angles to said centerline, 300.00 feet for a Point of Beginning; thence continue along same line, Southwesterly, 800.00 feet; thence Southeasterly at right angles, 300.00 feet; thence Northeasterly at right angles, 800.00 feet; thence Northwesterly at right angles, 300.00 feet to the Point of Beginning.

PARCEL III

Lands in Section 32, Township 28 South, Range 17 East Hillsborough County Florida being described as follows:

The North 1/2 of said Section 32; Less that part lying west of the centerline of Double Branch Creek.

Less that part of said Section 32 contained in the lands hereafter described as Parcel V.

AND

Government Lots 1 and 2 in Section 32.

AND

Government Lots 3 and 4 in said Section 32; less that portion of Government Lots 3 and 4 lying West of the centerline of Double Branch Creek.

PARCEL IV

Lands in Section 33, Township 28 South, Range 17 East, Hillsborough County, Florida, being described as follows:

That part of the West 1/2 of said Section 33, north and westerly of Channel A and the Mean High Water Traverse Line described as

follows: Commence at th point of intersection of the westerly right of way boundary for said Channel A and the southwesterly right of way boundary of Hillsborough Avenue (State Road No. 580); thence along said southwesterly right of way boundary, N54°14'W, 1231.00 feet; thence S35°46'W, to a point on the north boundary of said Section 33; thence westerly along said north boundary of Section 33 to the Northwest corner of said Section 33; thence Southerly along the west boundary of said Section 33, to a point of intersection with the said Mean High Water Traverse Line and a Point of Beginning; thence continue Southerly along said west boundary of Section 33 to the point of intersection with the northwesterly right of way boundary of foresaid Channel A; thence Northeasterly along said northwesterly right of way boundary to a point of intersection with the Mean High Water Traverse Line; thence N21°21'20"W, 229.29 feet; thence N27°19'40"W, 700.00 feet; thence N40°14'15"W, 575.00 feet; thence N33°15'55"W, 567.34 feet more or less to the said west boundary of section 33 and the Point of Beginning.

OFF. REC. 4620 048

AND

PARCEL V

Lands in Sections 28, 29, 32, and 33, Township 28 South, Range 17 East, Hillsborough County, Florida, being more particularly described as follows:

Commence at the East 1/4 corner of Section 33; thence N00°25'40"E., 195.56 feet to a point on the Southerly Right-of-way Line of Hillsborough Avenue (100.00'R/W); thence N54°14'00"W., 4709.46 feet along said Southerly Right-of-way Line of Hillsborough Avenue for a Point-of- Beginning; thence continue along said Southerly Right- of-way Line of Hillsborough Avenue, 2030.12 feet; thence S35°46'00"W., 1387.93 feet to a point on the Mean High Water Traverse Line; thence along said Traverse Line the following courses and distances, S14°53'25"E., 138.88 feet; thence S41°23'05"E., 700.00 feet; thence S47°47'45"E., 400.00 feet; thence S16°12'45"E, 453.30 feet; thence S33°15'55"E, 520.10 feet; thence leaving said Mean High Water Traverse Line N35°46'00"E, 2141.81 feet to the Point of Beginning.

PARCEL VI

Lands in Section 33, Township 28 South, Range 17 East, Hillsborough County, Florida, being described as follows:

and westerly of the Mean High Water Line as follows: Begin at a point of intersection of the south boundary of said Section 33 and the Mean High Water Traverse Line, 3074.47 feet more or less West of the Southeast corner of said Section 33; thence along said Mean High Water Traverse Line the following calls: N40°32'40"W, 476.56 feet; N59°48'W, 400.00 feet; N17°18'20"W, 475.00 feet; N10°18'40"W, 566.70 feet; N02°00'40"W, 403.35 feet; N21°21'20"W, 167.03 feet to a point of intersection with the easterly right of way boundary of Channel A; thence Southerly along said easterly right of way to a point of intersection of the west boundary of the South 1/2 of said Section 33; thence South along said west boundary to the Southwest corner of said Section 33; thence East along the south boundary of said Section 33 to the Point of Beginning.

OFF. REC. 4620 PG 049

PARCEL VII

Lands in Sections 3, 4 and 10, Township 29 South, Range 17 East, Hillsborough County, Florida, being described as follows:

All of fractional Section 4 and the West 1/4 of said Section 3; less Channel G right of way

And Less that part of Section 4 and the West 1/4 of Section 3, north of the following described line: Begin at a point on the east boundary of said West 1/4 of Section 3, 1288.75 feet more or less south of the north boundary of said Section 3; thence N80°08'17"W, 447.78 feet; thence S58°02'03"W, 665.65 feet; thence S39°21'53"W, 445.45 feet; thence S80°31'03"W, 840.07 feet; thence N29°31'27"W, 486.17 feet; thence N66°50'00"W, 218.45 feet; thence N51°32'20"W, 2200.00 feet; thence N40°32'40"W, 282.06 feet more or less to a point on the north boundary of said Section 4 and the end of said line.

AND

All of fractional Section 10.

PARCEL VIII

Lands in Section 33, Township 28 South, Range 17 East, Hillsborough County, Florida, being described as follows:

Commence at the point of intersection of the westerly right of way boundary for Channel A and the southwesterly right of way boundary of Hillsborough Avenue (State Road No. 580); thence along said southwesterly right of way boundary, N54°14'W, 1231.00 feet; thence S35°46'W, to a point on the north boundary of said Section 33; thence westerly along said north boundary of Section 33 to the Northwest corner of said Section 33; thence Southerly along the west boundary of said Section 33, to a point of intersection with the northwesterly right of way boundary of foresaid Channel A and a Point of Beginning; thence Northeasterly along said northwesterly right of way boundary to a point of intersection with the Mean High Water Traverse Line; S21°21'20"E, 201.58 feet more or less to the southeasterly right of way boundary of foresaid Channel A; thence Southwesterly along said southeasterly right of way boundary of Channel A to the intersection with the West boundary of said Section 33; thence northerly along the said west boundary of section 33 to the Point of Beginning.

OFF. REC. 4620 G 050

PARCEL IX

All of fractional Section 5, Township 29 South, Range 17 East, Hillsborough County, Florida;

PARCEL X

All of fractional Section 9, Township 29 South, Range 17 East, Hillsborough County, Florida; less Channel G right of way

PARCEL XI

Lands in Section 4, Township 29 South, Range 17 East, Hillsborough County, Florida, being more particularly described as follows:

Begin at a point of intersection of the South boundary of Section 33, Township 28 South, Range 17 East, Hillsborough County, Florida and the Mean High Water Traverse Line, 3074.47 feet more or less West of the Southeast corner of said Section 33; thence West along said South boundary of Section 33, also being the North boundary of the aforesaid Section 4, 89.16 feet; thence leaving said boundary S. 40°32'40" E., 74.10 feet; thence S. 89°27'39" E., 91.95 feet to a point on the aforesaid Mean High Water Traverse Line; thence along said line, N. 40°32'40" W., 71.72 feet to the Point of Beginning.

Hill Co. future acquisitions

1 message

laura nesmith <lnesmith64@gmail.com> Tue, Jul 11, 2017 at 3:50 PM
To: Lynn Mosura-Bliss <lmosura-bliss@waterandair.com>

Hey Lynn,
Here are the current property searches for the four sites.
The Maps actually have all of the info on them for a screen grab, I just included the search page in case you need it.
Cheers!

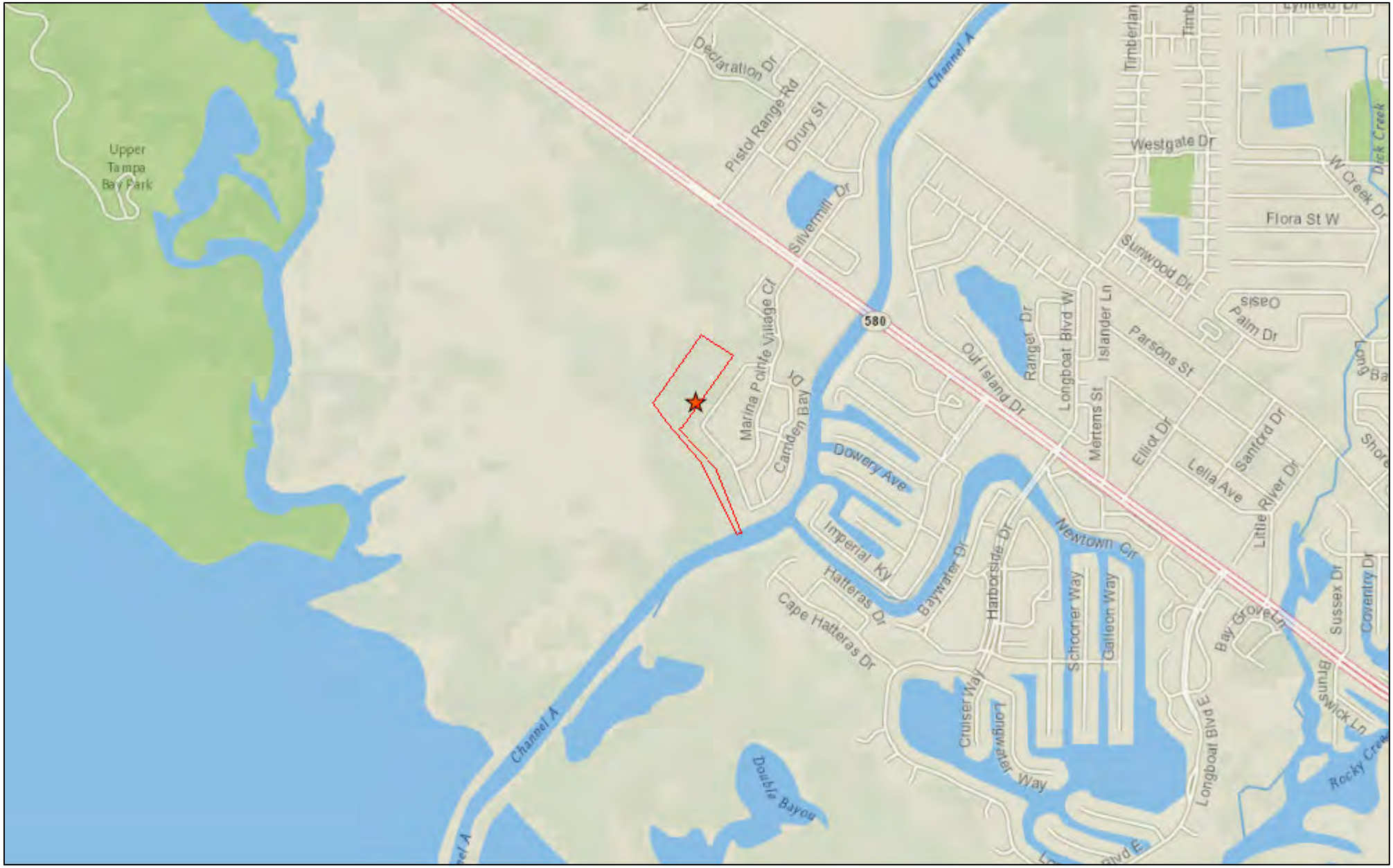
Site 1: http://gis.hcpafl.org/propertysearch/#/search/basic/folio=0055470300
map: http://gis.hcpafl.org/GISSearch/?pin=172833ZZZ000000396000U

Site 2: http://gis.hcpafl.org/propertysearch/#/search/basic/folio=0055472530
Map: http://gis.hcpafl.org/GISSearch/?pin=172833ZZZ000000396000U

Site 3: http://gis.hcpafl.org/propertysearch/#/search/basic/folio=0057555966
Map: http://gis.hcpafl.org/GISSearch/?pin=1728330BL000000000930U

Site 4: http://gis.hcpafl.org/propertysearch/#/search/basic/folio=0057555964
Map: http://gis.hcpafl.org/GISSearch/?pin=1728330BL000000000930U

Site 1



July 24, 2017

0 950 1,900 3,800 ft

Bob Henriquez, CFA
Hillsborough County Property Appraiser
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It is not a survey.

2016 Aerials

Bob Henriquez
Hillsborough County Property Appraiser

https://www.hcpafl.org/
15th Floor County Ctr.
601 E. Kennedy Blvd, Tampa, Florida 33602-4932
Ph: (813) 272-6100

Folio: 005547-0300



Owner Information

Owner Name	CAM-B LLC
Mailing Address	PO BOX 39 APTOS, CA 95001-0039
Site Address	TAMPA
PIN	U-33-28-17-ZZZ-000000-39600.0
Folio	005547-0300
Prior PIN	
Prior Folio	005547-0200
Tax District	U - UNINCORPORATED
Property Use	9900 VACANT ACREAGE
Plat Book/Page	/
Neighborhood	209016.00 | Double Branch/Upper Tampa Bay Area
Subdivision	ZZZ | UNPLATTED

Value Summary

Taxing District	Market Value	Assessed Value	Exemptions	Taxable Value
County	$8,535	$8,535	$0	$8,535
Public Schools	$8,535	$8,535	$0	$8,535
Municipal	$8,535	$8,535	$0	$8,535
Other Districts	$8,535	$8,535	$0	$8,535

Note: This section shows Market Value, Assessed Value, Exemptions, and Taxable Value for taxing districts. Because of changes in Florida Law, it is possible to have different assessed and taxable values on the same property. For example, the additional $25,000 Homestead Exemption and the non-homestead CAP do not apply to public schools, and the Low Income Senior Exemption only applies to countywide and certain municipal millages.

Sales Information

Book	Page	Month	Year	Type Inst	Qualified or Unqualified	Vacant or Improved	Price
19644	0235	12	2009	QC	Unqualified	Vacant	$10,000
4588	1521	06	1985	QC	Unqualified	Vacant	$100

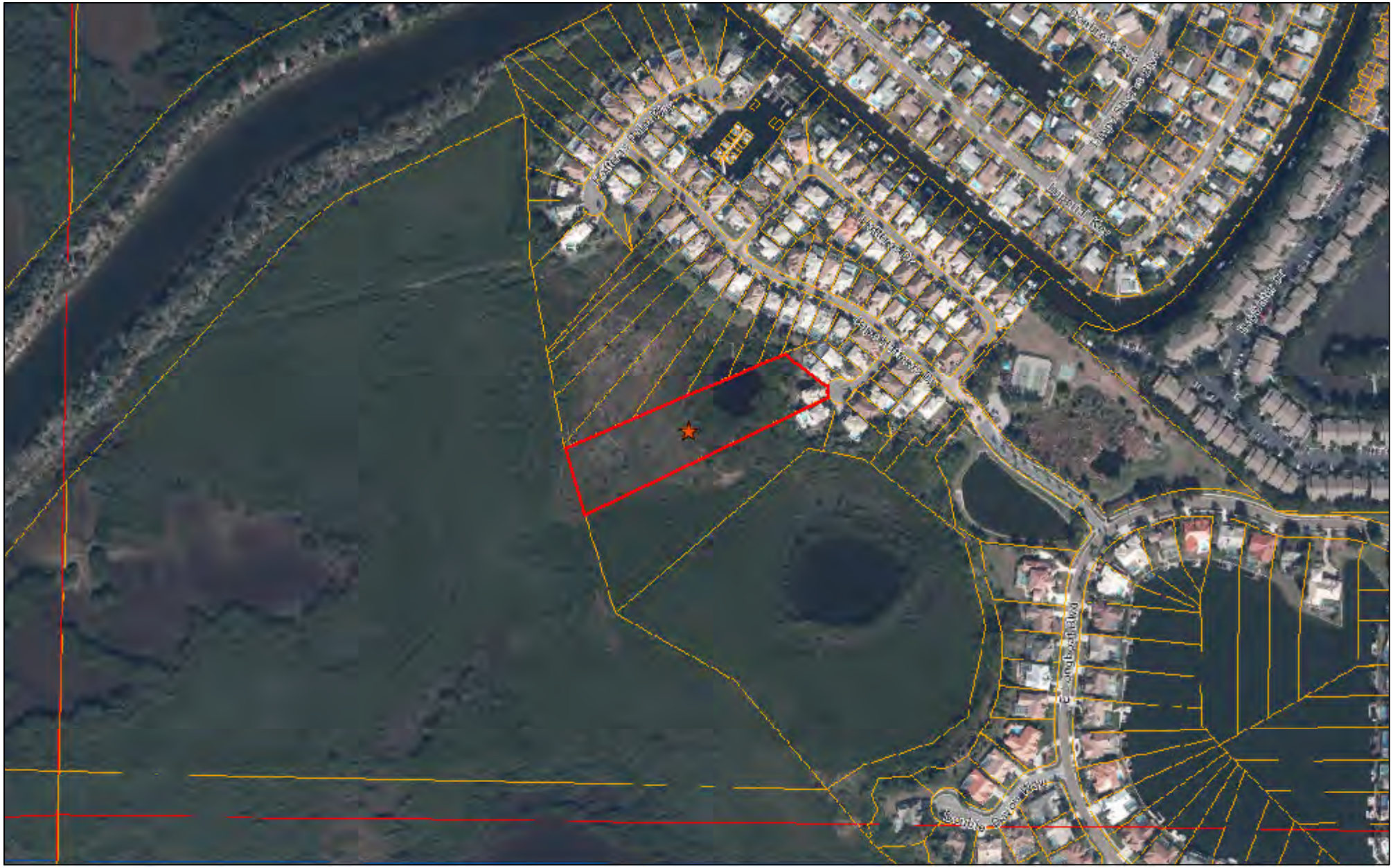
Land Information - Total Acreage: 12.45

Use Code	Description	Zone	Front	Depth	Land Type	Total Land Units	Land Value
9610	LOWLANDS	PD	0.0	0.0	AC | ACREAGE	11.38	$8,535

Legal Description

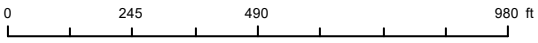
COMM E 1/4 COR OF SEC 33 RUN N 195.56 FT TO SWLY R/W OF HILLSBOROUGH AVE THN RUN N 53 DEG 57 MIN 38 SEC W 3453.81 FT TO PT ON WLY R/W OF CHANNEL A THN ALONG SAID WLY BDRY OF CHANNEL A FOLLOWING SEVEN COURSES: S 35 DEG 45 MIN 14 SEC W 734.46 FT THN S 18 DEG 11 MIN 34 SEC W 504.60 FT THN S 0 DEG 37 MIN 54 SEC W 591.42 FT THN S 18 DEG 48 MIN 32 SEC W 475.09 FT THN S 36 DEG 59 MIN 09 SEC W 24.94 FT THN S 50 DEG 35 MIN 09 SEC W 358.11 FT THN S 64 DEG 11 MIN 09 SEC W 298.47 FT RUN THN N 20 DEG 13 MIN 38 SEC W 786.09 FT THN N 41 DEG 13 MIN 38 SEC W 607.51 FT FOR POB THN N 31 DEG 43 MIN 38 SEC W 453.62 FT THN N 36 DEG 02 MIN 22 SEC E 839.06 FT THN S 56 DEG 43 MIN 38 SEC E 426 FT THN S 35 DEG 46 MIN 22 SEC W 1002.85 FT THN S 55 DEG 55 MIN 46 SEC W 30.23 FT TO POB AND PORTION BEG E 1/4 COR SEC 33 RUN N 195.56 FT TO SWLY R/W HILLSBOROUGH AVE THN N 53 DEG 57 MIN 38 SEC W 3478.46 FT THN S 36 DEG 02 MIN 22 SEC W 756.47 FT THN S 18 DEG 36 MIN 22 DEC W 451.14 FT THN S 01 DEG 10 MIN 22 SEC W 658.02 FT THN S 18 DEG 47 MIN 52 SEC W 418.71 FT THN S 36 DEG 25 MIN 22 SEC W 23.84 FT THN S 50 DEG 29 MIN 05 SEC W 486.97 FT THN S 64 DEG 32 MIN 47 SEC W 180.13 FT FOR POB THN CONT S 64 DEG 32 MIN 47 SEC W 47.66 FT THN N 21 DEG 04 MIN 58 SEC W 229.29 FT THN N 27 DEG 03 MIN 18 SEC W 700 FT THN N 39 DEG 57 MIN 53 SEC W 575 FT THN N 32 DEG 59 MIN 33 SEC W 279.90 FT THN N 36 DEG 02 MIN 22 SEC E 98.58 FT THN S 31 DEG 43 MIN 38 SEC E 453.62 FT THN S 41 DEG 13 MIN 38 SEC E 607.51 FT THN S 20 DEG 13 MIN 38 SEC E 777.23 FT TO THE POB

Site 2



July 24, 2017





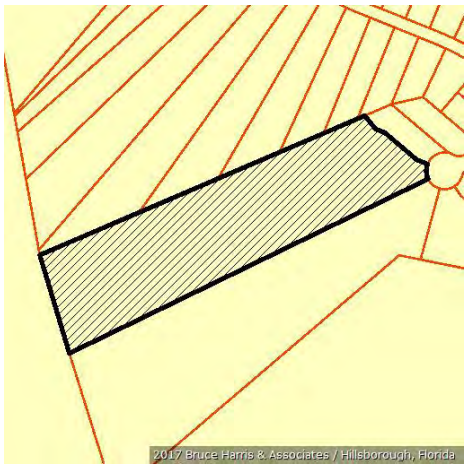
Bob Henriquez, CFA
Hillsborough County Property Appraiser
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2016 Aerials

Bob Henriquez
Hillsborough County Property Appraiser

https://www.hcpafl.org/
15th Floor County Ctr.
601 E. Kennedy Blvd, Tampa, Florida 33602-4932
Ph: (813) 272-6100

Folio: 005755-5964



Owner Information

Owner Name	MURRAY MARK VICTOR
Mailing Address	5802 CAY COVE CT TAMPA, FL 33615-4269
Site Address	5802 CAY COVE CT, TAMPA
PIN	U-33-28-17-0BL-000000-00092.0
Folio	005755-5964
Prior PIN	
Prior Folio	005547-2520
Tax District	U - UNINCORPORATED
Property Use	0100 SINGLE FAMILY R
Plat Book/Page	73/9
Neighborhood	209006.00 | Bayside, Bayport Colony South
Subdivision	0BL | PALM BAY PHASE 1

Value Summary

Taxing District	Market Value	Assessed Value	Exemptions	Taxable Value
County	$324,467	$324,467	$0	$324,467
Public Schools	$324,467	$324,467	$0	$324,467
Municipal	$324,467	$324,467	$0	$324,467
Other Districts	$324,467	$324,467	$0	$324,467

Note: This section shows Market Value, Assessed Value, Exemptions, and Taxable Value for taxing districts. Because of changes in Florida Law, it is possible to have different assessed and taxable values on the same property. For example, the additional $25,000 Homestead Exemption and the non-homestead CAP do not apply to public schools, and the Low Income Senior Exemption only applies to countywide and certain municipal millages.

Sales Information

Book	Page	Month	Year	Type Inst	Qualified or Unqualified	Vacant or Improved	Price
24729	0833	01	2017	CD	Unqualified	Improved	$100
24713	1630	01	2017	WD	Qualified	Improved	$324,500
8551	1161	04	1997	WD	Qualified	Improved	$187,000
8512	0784	03	1997	WD	Qualified	Improved	$175,000
6748	1633	10	1992	WD	Unqualified	Vacant	$600,000

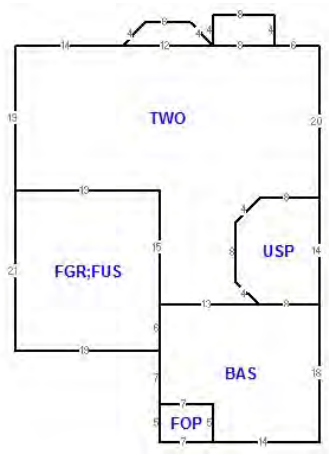
Building Information

Building 1

Type	01 | SINGLE FAMILY
Year Built	1997

Building 1 Construction Details

Element	Code	Construction Detail
Class	C	Masonry or Concrete Frame
Exterior Wall	7	Masonry Frm: Stucco
Exterior Wall	6	Wd/Mtl Frm: Stucco
Roof Structure	3	Gable or Hip
Roof Cover	6	Tile
Interior Walls	5	Drywall
Interior Flooring	8	Carpet
Interior Flooring	7	Tile
Heat/AC	2	Central
Architectural Style	10	Contemporary Multi-Story
Condition	3	Average
Bedrooms	3.0	
Bathrooms	2.5	
Stories	2.0	
Units	1.0	



Building 1 subarea

Area Type	Gross Area	Heated Area	Depreciated Value
TWO	1,860	1,860	$143,763
BAL	32		$407
BAS	27	27	$2,197
FGR	399		$16,272
FUS	399	399	$29,208
BAS	343	343	$27,906
FOP	35		$732
USP	145		$2,929
Totals	**3,240**	**2,629**	**$223,414**

Extra Features

OB/XF Code	Description	Building	Year On Roll	Length	Width	Units	Value
0595	FIREPLACE	1	1997	0	0	2.00	$8,622
0170	PATIO TILE	1	2017	0	0	510.00	$5,442
0050	CONCRETE PATIO	1	2007	0	0	96.00	$372

Land Information - Total Acreage: 2.99

Use Code	Description	Zone	Front	Depth	Land Type	Total Land Units	Land Value
REH3	Res SF Class 8.75	PD	71.00	120.00	SE | SF LOTS W/ EFF SIZE	8,608.80	$84,517
9610	LOWLANDS	PD	0.0	0.0	AC | ACREAGE	2.80	$2,100

Legal Description

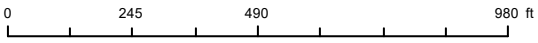
PALM BAY PHASE 1 LOT 92

Site 3



July 24, 2017





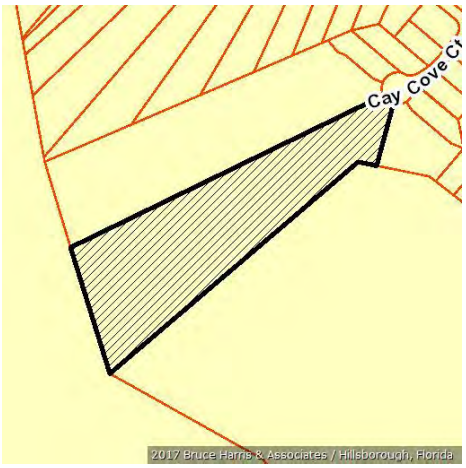
Bob Henriquez, CFA
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https://www.hcpafl.org/
15th Floor County Ctr.
601 E. Kennedy Blvd, Tampa, Florida 33602-4932
Ph: (813) 272-6100

Folio: 005755-5966



Owner Information

Owner Name	ROOT JAMES L ROOT JOY YVETTE
Mailing Address	2707 PINEBEND DR PEARLAND, TX 77584-9105
Site Address	5801 CAY COVE CT, TAMPA
PIN	U-33-28-17-0BL-000000-00093.0
Folio	005755-5966
Prior PIN	
Prior Folio	005547-2520
Tax District	U - UNINCORPORATED
Property Use	0100 SINGLE FAMILY R
Plat Book/Page	73/9
Neighborhood	209006.00 | Bayside, Bayport Colony South
Subdivision	0BL | PALM BAY PHASE 1

Value Summary

Taxing District	Market Value	Assessed Value	Exemptions	Taxable Value
County	$325,805	$325,805	$0	$325,805
Public Schools	$325,805	$325,805	$0	$325,805
Municipal	$325,805	$325,805	$0	$325,805
Other Districts	$325,805	$325,805	$0	$325,805

Note: This section shows Market Value, Assessed Value, Exemptions, and Taxable Value for taxing districts. Because of changes in Florida Law, it is possible to have different assessed and taxable values on the same property. For example, the additional $25,000 Homestead Exemption and the non-homestead CAP do not apply to public schools, and the Low Income Senior Exemption only applies to countywide and certain municipal millages.

Sales Information

Book	Page	Month	Year	Type Inst	Qualified or Unqualified	Vacant or Improved	Price
11738	1420	06	2002	WD	Qualified	Improved	$305,000
10832	0415	05	2001	WD	Qualified	Improved	$279,000
9927	0074	11	1999	WD	Qualified	Improved	$230,000
7477	0259	08	1994	WD	Qualified	Improved	$202,300
6748	1633	10	1992	WD	Unqualified	Vacant	$600,000

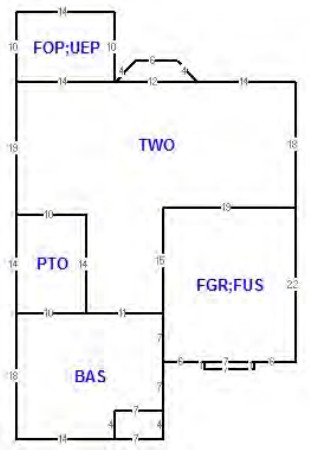
Building Information

Building 1

Type	01 | SINGLE FAMILY
Year Built	1994

Building 1 Construction Details

Element	Code	Construction Detail
Class	C	Masonry or Concrete Frame
Exterior Wall	7	Masonry Frm: Stucco
Exterior Wall	6	Wd/Mtl Frm: Stucco
Roof Structure	3	Gable or Hip
Roof Cover	6	Tile
Interior Walls	5	Drywall
Interior Flooring	7	Tile
Interior Flooring	8	Carpet
Heat/AC	2	Central
Architectural Style	10	Contemporary Multi-Story
Condition	3	Average
Bedrooms	3.0	
Bathrooms	2.5	
Stories	2.0	
Units	1.0	



Building 1 subarea

Area Type	Gross Area	Heated Area	Depreciated Value
TWO	1,790	1,790	$138,883
BAS	27	27	$2,206
FOP	140		$2,859
UEP	140		$6,862
PTO	140		$572
BAS	350	350	$28,594
FOP	28		$572
FGR	418		$17,074
FUS	418	418	$30,718
BAL	7		$82
Totals	**3,458**	**2,585**	**$228,422**

Extra Features

OB/XF Code	Description	Building	Year On Roll	Length	Width	Units	Value
0350	POOL 01 NO ENCL	1	2001	0	0	1.00	$18,522
0651	SHED NOT PERMANENTLY AFFIXED	1	2017	0	0	1.00	$0
0380	SPA 01	1	2001	0	0	1.00	$5,040

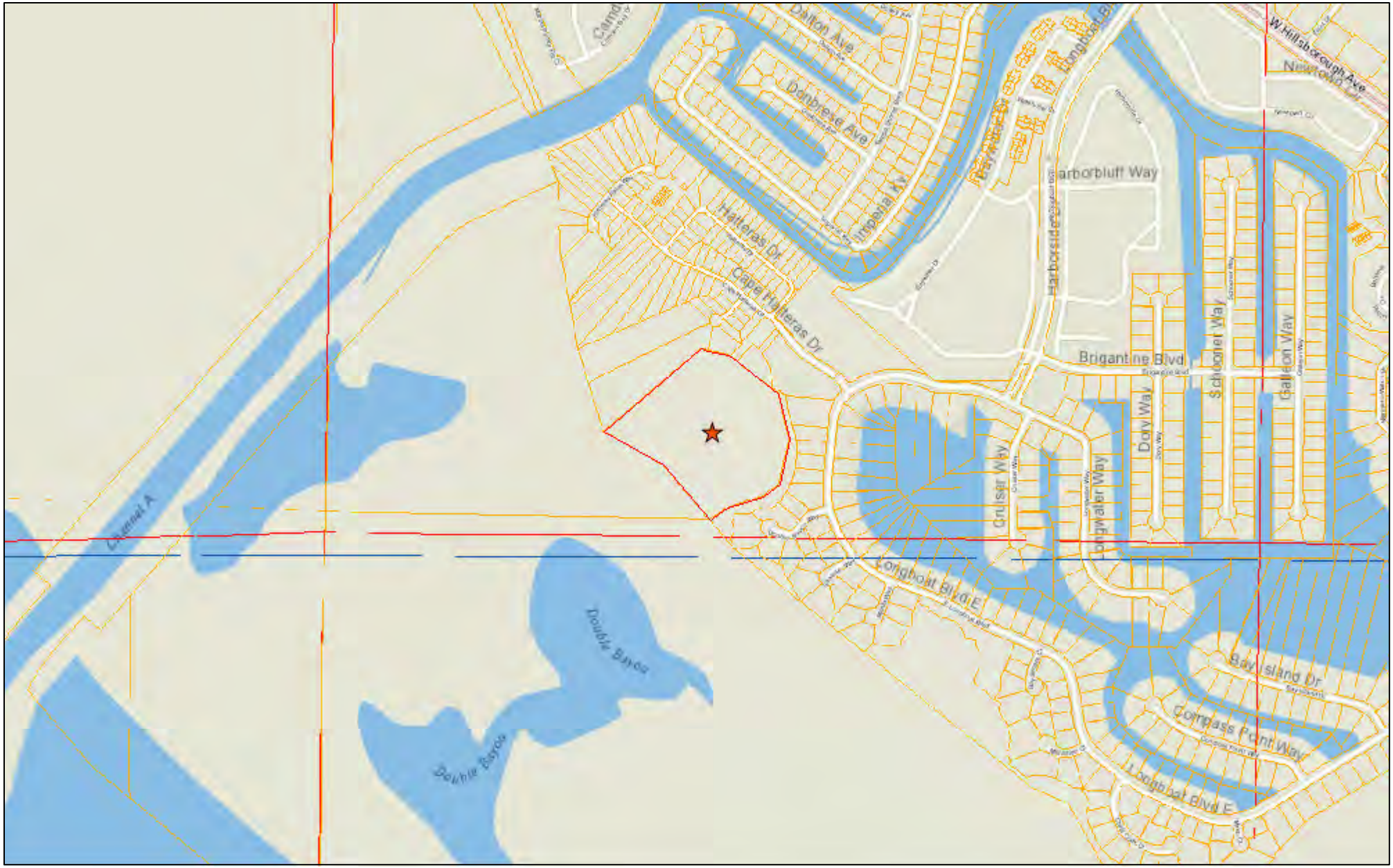
Land Information - Total Acreage: 3.29

Use Code	Description	Zone	Front	Depth	Land Type	Total Land Units	Land Value
REH3	Res SF Class 8.75	PD	62.00	114.00	SE | SF LOTS W/ EFF SIZE	7,140.96	$71,481
9610	LOWLANDS	PD	0.0	0.0	AC | ACREAGE	3.12	$2,340

Legal Description

PALM BAY PHASE 1 LOT 93

Site 4



July 24, 2017

0 495 990 1,980 ft

N W E S

Bob Henriquez, CFA
Hillsborough County Property Appraiser
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2016 Aerials

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https://www.hcpafl.org/
15th Floor County Ctr.
601 E. Kennedy Blvd, Tampa, Florida 33602-4932
Ph: (813) 272-6100

Folio: 005547-2530



Owner Information

Owner Name	CAM-B LLC
Mailing Address	PO BOX 39 APTOS, CA 95001-0039
Site Address	TAMPA
PIN	U-33-28-17-ZZZ-000000-39670.0
Folio	005547-2530
Prior PIN	
Prior Folio	005547-2520
Tax District	U - UNINCORPORATED
Property Use	9900 VACANT ACREAGE
Plat Book/Page	/
Neighborhood	209006.00 | Bayside, Bayport Colony South
Subdivision	ZZZ | UNPLATTED

Value Summary

Taxing District	Market Value	Assessed Value	Exemptions	Taxable Value
County	$9,975	$9,975	$0	$9,975
Public Schools	$9,975	$9,975	$0	$9,975
Municipal	$9,975	$9,975	$0	$9,975
Other Districts	$9,975	$9,975	$0	$9,975

Note: This section shows Market Value, Assessed Value, Exemptions, and Taxable Value for taxing districts. Because of changes in Florida Law, it is possible to have different assessed and taxable values on the same property. For example, the additional $25,000 Homestead Exemption and the non-homestead CAP do not apply to public schools, and the Low Income Senior Exemption only applies to countywide and certain municipal millages.

Sales Information

Book	Page	Month	Year	Type Inst	Qualified or Unqualified	Vacant or Improved	Price
19644	0231	12	2009	QC	Unqualified	Vacant	$8,600
5272	1533	11	1987	QC	Unqualified	Vacant	$100

Land Information - Total Acreage: 13.45

Use Code	Description	Zone	Front	Depth	Land Type	Total Land Units	Land Value
9610	LOWLANDS	PD	0.0	0.0	AC | ACREAGE	13.30	$9,975

Legal Description

FROM INTER OF C/L OF LONGBOAT BLVD & LONGWATER WAY RUN N 63 DEG 50 MIN 49 SEC W 100.85 FT N 76 DEG 38 MIN 59 SEC W 177.28 FT W 98.73 FT N 77 DEG 27 MIN 09 SEC W 103.96 FT N 85 DEG 57 MIN 09 SEC W 294.17 FT S 73 DEG 32 MIN 51 SEC W 60.91 FT S 60 DEG 59 MIN 18 SEC W 113.07 FT N 41 DEG 34 MIN 15 SEC W 72.48 FT N 49 DEG 18 MIN 32 SEC W 87.52 FT N 57 DEG 02 MIN 49 SEC W 150 FT N 44 DEG 32 MIN 49 SEC W 149.34 FT N 36 DEG 22 MIN 38 SEC W 56.63 FT S 39 DEG 21 MIN 30 SEC W 299.07 FT FOR POB THN S 52 DEG 15 MIN 31 SEC E 209.93 FT S 13 DEG 09 MIN 56 SEC E 263.77 FT S 11 DEG 47 MIN 29 SEC W 258.98 FT S 53 DEG 07 MIN 36 SEC W 121.95 FT S 71 DEG 56 MIN 22 SEC W 208.79 FT S 56 DEG 32 MIN 44 SEC W 107.45 FT N 40 DEG 16 MIN 59 SEC W 404.84 FT N 59 DEG 32 MIN 19 SEC W 400 FT N 50 DEG 36 MIN 47 SEC E 704.53 FT S 78 DEG 31 MIN 04 SEC E 160.57 FT & S 52 DEG 15 MIN 31 SEC E 148.22 FT TO POB

APPENDIX B
Summary of Management Plan Reviews

2015 Land Management Review Team Report for Bower Tract Preserve

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1. Introduction

Section 259.036, F.S. requires a periodic on-site review of conservation and recreation lands titled in the name of the Board of Trustees to determine (1) whether the lands are being managed for the purposes for which they were acquired and (2) whether they are being managed in accordance with their land management plan adopted pursuant to s. 259.032, F.S. In case where the managed areas exceed 1,000 acres in size, such a review must be scheduled at least every five years. In conducting this review, a statutorily constructed review team "shall evaluate the extent to which the existing management plan provides sufficient protection to threatened or endangered species, unique or important natural or physical features, geological or hydrological functions or archaeological features. The review shall also evaluate the extent to which the land is being managed for the purposes for which it was acquired and the degree to which actual management practices, including public access, are in compliance with the adopted management plan."

The land management review teams are coordinated by the Division of State Lands and consist of representatives from the Division of Recreation and Parks (DEP), the Florida Forest Service (DACS), the Fish and Wildlife Conservation Commission, the local government in which the property is located, the DEP District in which the parcel is located, the local soil and water conservation district, a conservation organization member, and a local private land manager.

Each Land Management Review Report is divided into three sections. Section 1 provides the details of the property being reviewed as well as the overall results of the report. Section 2 provides details of the Field Review, in which the Review Team inspects the results of management actions on the site. Section 3 provides details of the Land Management Plan Review, in which the team determines the extent to which the Management Plan provides for and documents adequate natural and recreational resource protection.

Finally, each report may also contain an Appendix that lists individual team member comments. This is a compilation of feedback, concerns or other thoughts raised by individual team members, but not necessarily indicative of the final consensus reached by the Land Management Review Team.

1.1. Property Reviewed in this Report

Name of Site: Bower Tract Preserve

Managed by: Hillsborough County

Acres: 1,548.00 **County:** Hillsborough County

Purpose(s) for Acquisition: To be managed for the protection and preservation of natural and cultural resources, and to provide compatible outdoor natural resource based recreational opportunities.

Acquisition Program(s): CARL **Original Acquisition Date:** 07/16/85

Area Reviewed: Entire Property **Last Management Plan Approval Date:** 02/16/07

Review Date: 8/13/15

Agency Manager and Key Staff Present:

- Sheryl Bowman, Manager
- Ross Dickerson

Review Team Members Present (voting)

- DRP: Brett Gorman
- FWC: Chad Allison
- FFS: Walter Mallett
- DEP: Amanda Rotella
- SWCD:
- Local gov't: Robert Irving
- Conservation organization: Joel Jackson
- Private land manager: Stephen Dickman

Other Non-Team Members Present (attending)

- Aric Larson, DEP/DSL
- Michael Sowinski, FWC/IPMS

1.2 Property Map



1.3. Overview of Land Management Review Results

Is the property managed in accordance with the purposes for which it was acquired?

Yes = 7, No = 0

Are the management practices, including public access, in compliance with the management plan?

Yes = 7, No = 0

Table 1 shows the average scores received for each applicable category of review. *Field Review* scores refer to the adequacy of management actions in the field, while *Management Plan Review* scores refer to adequacy of discussion of these topics in the management plan. Scores range from 1 to 5 with 5 signifying excellence. For a more detailed key to the scores, please see *Appendix A*.

Table 1: Results at a glance.

Major Land Management Categories	Field Review	Management Plan Review
Natural Communities / Forest Management	3.07	3.07
Prescribed Fire / Habitat Restoration	3.00	3.72
Hydrology	3.42	3.50
Imperiled Species	3.21	3.40
Exotic / Invasive Species	3.50	3.50
Cultural Resources	3.92	3.92
Public Access / Education / Law Enforcement	3.58	3.41
Infrastructure / Equipment / Staffing	3.49	N/A

Color Code (See Appendix A for detail)

Excellent	Above Average	Below Average	Poor

1.3.1 Consensus Commendations for the Managing Agency

The following commendations resulted from discussion and vote of the review team members:

1. The team commends the preserve staff for outstanding work treating invasive exotics (7+, 0-)

2. The team commends the preserve staff for the addition of more visible signage at major access points, identifying the property as Bower Tract / Double Branch Preserve. (7+, 0-)

3. The team commends the preserve staff for implementing a trail marking system. (7+, 0-)

1.3.2. Consensus Recommendations to the Managing Agency

The following recommendations resulted from a discussion and vote of review team members. The next management plan update should include information about how these recommendations have been addressed:

1. The team recommends that the preserve staff consider the use of timber thinning and / or mechanical applications (roller chopping, Brown's tree cutter) to manage fuel loading within the mesic flatwoods. (7+, 0-)

   Managing Agency Response:

2. Field Review Details

2.1 Field Review Checklist Findings

The following items received high scores on the review team checklist, which indicates that management actions exceeded expectations.

1. **Natural Communities, specifically depression marsh, mangrove swamp, salt marsh, salt flat, seagrass bed, mollusk reef and marine unconsolidated substrate**:
2. **Natural Resources Survey/Monitoring Resources, specifically invasive species survey and monitoring**:
3. **Cultural Resources, specifically cultural resource survey**:
4. **Non-Native, Invasive & Problem Species, specifically control of plants:**
5. **Environmental Education & Outreach, specifically habitat management activities and recreational opportunities**:

2.2. Items Requiring Improvement Actions in the Field

The following items received low scores on the review team checklist, which indicates that management actions noted during the Field Review were not considered sufficient (less than 3.0 score on average). Please note that overall good scores do not preclude specific recommendations by the review team requiring remediation. **The management plan update should include information on how these items have been addressed**:

1. **Listed species, specifically Tampa Vervain (*Glandularia tampensis*), received a below average score. The review team is asked to evaluate, based on their perspective, whether management actions are sufficient for protection and preservation of the species.**

   Managing Agency Response:

2. **Resource Management, Prescribed Fire; specifically area being burned and frequency, received below average scores. The review team is asked to evaluate, based on information provided by the managing agency, to what degree prescribed fire is accomplished according to the objectives for prescribed fire management. The scores range from 1 to 5, with 1 being 0-20% accomplished, 2 being 21-40%, 3 being 41-60%, 4 being 61-80% and 5 being 81-100%.**

   Managing Agency Response:

3. **Forest Management, specifically timber inventory and timber harvesting, received below average scores. The review team is asked to evaluate, based on information provided by the managing agency, whether forest management is sufficient.**

   Managing Agency Response:

4. **Hydro-Alteration, specifically ditches, received a below average score. The review team is asked to evaluate, based on information provided by the managing agency, whether consideration of past and present hydrologic and geologic functions are sufficient.**

   Managing Agency Response:

5. **Adjacent Property Concerns, specifically Hillsborough Avenue Expansion, received a below average score. The review team is asked to evaluate, based on information provided by the managing agency, whether adjacent property concerns are sufficiently addressed.**

   Managing Agency Response:

2.3. Field Review Checklist and Scores

Field Review Item	Reference #	Anonymous Team Members								Average
		1	2	3	4	5	6	7	8	
Natural Communities (I.A)										
Mesic Flatwoods	I.A.1	4	4	3	3	3	3	3		3.29
Depression Marsh	I.A.2	4	4	4	5	4	5	4		4.29
Mangrove Swamp	I.A.3	4	5	5	5	5	5	4		4.71
Salt Marsh	I.A.4	4	5	5	5	4	5	4		4.57
Salt Flat	I.A.5	4	5	5	5	5	5	5		4.86
Seagrass Bed	I.A.6	4	5	5	5	4	5	4		4.57
Mollusk Reef	I.A.7	4	5	5	4	4	5	5		4.57
Marine Unconsolidated Substrate	I.A.8		5	5	5	5	5	5		5.00
									Natural Communities Average Score	4.48
Listed Species: Protection & Preservation (I.B)										
Animals	I.B.1	4	5	3	4	4	4	3		3.86
Plants	I.B.2		4		4	3	4	3		3.60
Tampa Vervain	I.B.2.a		1	1	4	3	2	2		2.17
									Listed Species Average Score	3.21
Natural Resources Survey/Management Resources (I.C)										
Sport fish or their habitat monitoring	I.C.1		3	4	4	4	3	3		3.50
Listed species or their habitat monitoring	I.C.2		3	3	4	3	3	3		3.17
Other non-game species or their habitat monitoring	I.C.3		3	3	4	4	3	3		3.33
Fire effects monitoring	I.C.4		4	3	4	4	4	3		3.67
Other habitat management effects monitoring	I.C.5		4	3	4	4	3	3		3.50
Invasive species survey / monitoring	I.C.6		5	4	4	4	5	5		4.50
Cultural Resources (Archeological & Historic sites) (II.A, II.B)										
Cultural Res. Survey	II.A		5	4	5	5	3	5		4.50

Protection and preservation	II.B		4	3	3	3	4	3		3.33
								Cultural Resources Average Score		3.92
Resource Management, Prescribed Fire (III.A)										
Area Being Burned (no. acres)	III.A1	4	3	3	3	3	2	2		2.86
Frequency	III.A.2	3	2	3	3	3	2	2		2.57
Quality	III.A.3	4	4	4	3	4	2	4		3.57
								Resource Management, Prescribed Fire Average Score		3.00
Restoration (III.B)										
								Restoration Average Score		NA
Forest Management (III.C)										
Timber Inventory	III.C.1		1	1	3	1	1	3		1.67
Timber Harvesting	III.C.2		1	1	3	1	1	3		1.67
								Forest Management Average Score		1.67
Non-Native, Invasive & Problem Species (III.D)										
Prevention										
prevention - plants	III.D.1.a		3	3	3	3	3	3		3.00
prevention - animals	III.D.1.b		4	3	4	3	3	4		3.50
prevention - pests/pathogens	III.D.1.c		X	3	4	4	3	4		3.60
Control										
control - plants	III.D.2.a		5	4	4	4	3	4		4.00
control - animals	III.D.2.b		4	3	4	3	3	4		3.50
control - pest/pathogens	III.D.2.c		X	3	4	4	3	3		3.40
								Non-Native, Invasive & Problem Species Average Score		3.50
Hydrologic/Geologic function Hydro-Alteration (III.E.1)										
Ditches	III.E.1.b		2	3	3	3	4	2		2.83
Hydro-period Alteration	III.E.1.c		3	3	3	3	4	3		3.17
								Hydrologic/Geologic function, Hydro-Alteration Average Score		3.00
Ground Water Monitoring (III.E.2)										
								Ground Water Monitoring Average Score		NA
Surface Water Monitoring (III.E.3)										
Surface water quality	III.E.3.a		4	3	5	4	3	4		3.83
								Surface Water Monitoring Average Score		3.83
Resource Protection (III.F)										
Boundary survey	III.F.1	4	3	4	4	3	3	3		3.43
Gates & fencing	III.F.2	3	5	3	4	3	3	4		3.57
Signage	III.F.3	3	4	3	3	3	3	3		3.14
Law enforcement presence	III.F.4	4	4	3	2	4	3	4		3.43
								Resource Protection Average Score		3.39
Adjacent Property Concerns (III.G)										
Land Use										
Exotics from Adjacent Residential	III.G.1.b			3	2	3	3	4		3.00
Hillsborough Avenue Expansion	III.G.1.c			3	3	3	1			2.50

Inholdings/additions	III.G.2	4	2	4	4	3	3	3		3.29
Public Access & Education (IV.1, IV.2, IV.3, IV.4, IV.5)										
Public Access										
Boat Access	IV.1.c	4	4	3	4	4	4	4		3.86
Environmental Education & Outreach										
Wildlife	IV.2.a	3	3	3	5	4	5			3.83
Invasive Species	IV.2.b	3	4	3	5	4	5	2		3.71
Habitat Management Activities	IV.2.c	3	4	3	5	4	5			4.00
Interpretive facilities and signs	IV.3	3	4	3	4	4	5			3.83
Recreational Opportunities	IV.4	3	4	3	5	4	5	4		4.00
Management of Visitor Impacts	IV.5	3	3	3	3	4	3	3		3.14
								Public Access & Education Average Score		3.77
Management Resources (V.1, V.2, V.3. V.4)										
Maintenance										
Waste disposal	V.1.a		3	3	4	4	3	X		3.40
Sanitary facilities	V.1.b		3	3	4	4	3	X		3.40
Infrastructure										
Buildings	V.2.a		4	3	3	4	3	X		3.40
Equipment	V.2.b		4	3	4	4	3	2		3.33
Staff	V.3	4	4	3	5	3	3	5		3.86
Funding	V.4	4	4	3	5	3	3	3		3.57
								Management Resources Average Score		3.49

Color Code:	Excellent	Above Average	Below Average	Poor	See Appendix A for detail
		Missing Vote	Insufficient Information		

3. Land Management Plan Review Details

3.1 Items Requiring Improvements in the Management Plan

The following items received low scores on the review team checklist, which indicates that the text noted in the Management Plan Review does not sufficiently address this issue (less than 3.0 score on average.). Please note that overall good scores do not preclude specific recommendations by the review team requiring remediation. The next management plan update should address the checklist items identified below:

1. **Listed species: Protection & Preservation, specifically Tampa Vervain (*Glandularia tampensis*), received a below average score. This is an indication that the management plan does not sufficiently address protection and preservation of species.**

   Managing Agency Response:

2. **Forest Management, specifically timber inventory and timber harvesting, received below average scores. This is an indication that the management plan does not sufficiently address a timber inventory.**

   Managing Agency Response:

3. **Adjacent Property Concerns; specifically Hillsborough Avenue Expansion, discussion of potential surplus land determinations and surplus land identified, received below average scores. This is an indication that the management plan does not sufficiently address surplus lands.**

   Managing Agency Response:

3.2 Management Plan Review Checklist and Scores

Plan Review Item	Reference #	Anonymous Team Members								Average
		1	2	3	4	5	6	7	8	
Natural Communities (I.A)										
Mesic Flatwoods	I.A.1		5	4	3	4	5	5		4.33
Depression Marsh	I.A.2		5	4	5	4	5	4		4.50
Mangrove Swamp	I.A.3		5	4	5	4	5	4		4.50
Salt Marsh	I.A.4		5	4	5	4	4	3		4.17
Salt Flat	I.A.5		5	4	5	4	5	4		4.50
Seagrass Bed	I.A.6		5	4	5	4	5	4		4.50
Mollusk Reef	I.A.7		5	4	5	4	1	5		4.00
Marine Unconsolidated Substrate	I.A.8		5	4	5	4	1	5		4.00
									Natural Communities Average Score	4.31
Listed species: Protection & Preservation (I.B)										
Animals	I.B.1		5	3	4	4	5	3		4.00
Plants	I.B.2			3	4	4	3	3		3.40
Tampa Vervain	I.B.2.a			2	4	3	2	3		2.80
									Listed Species Average Score	3.40
Natural Resources Survey/Management Resources (I.C)										
Sport fish or their habitat monitoring	I.C.1		3	3	4	4	3	4		3.50
Listed species or their habitat monitoring	I.C.2		5	3	4	3	2	4		3.50
Other non-game species or their habitat monitoring	I.C.3		2	3	4	4	3	3		3.17
Fire effects monitoring	I.C.4		4	3	4	4	2	4		3.50
Other habitat management effects monitoring	I.C.5		2	3	4	4	2	4		3.17
Invasive species survey / monitoring	I.C.6		5	3	4	4	5	4		4.17
Cultural Resources (Archeological & Historic sites) (II.A,II.B)										
Cultural Res. Survey	II.A		5	4	4	4	3	4		4.00

Protection and preservation	II.B		5	3	4	4	4	3		3.83
									Cultural Resources Average Score	3.92
Resource Management, Prescribed Fire (III.A)										
Area Being Burned (no. acres)	III.A.1		4	3	3	4	4	4		3.67
Frequency	III.A.2		4	3	3	4	4	5		3.83
Quality	III.A.3		4	3	3	4	4	4		3.67
									Resource Management, Prescribed Fire Average Score	3.72
Restoration (III.B)										
									Restoration Average Score	NA
Forest Management (III.C)										
Timber Inventory	III.C.1		2	1	3	1	1	3		1.83
Timber Harvesting	III.C.2		2	1	3	1	1	3		1.83
									Forest Management Average Score	1.83
Non-Native, Invasive & Problem Species (III.D)										
Prevention										
prevention - plants	III.E.1.a		4	3	3	3	3	3		3.17
prevention - animals	III.E.1.b		4	3	4	3	3	4		3.50
prevention - pests/pathogens	III.E.1.c			3	4	4	3	4		3.60
Control										
control - plants	III.E.2.a		4	4	4	4	3	4		3.83
control - animals	III.E.2.b		4	3	4	3	3	4		3.50
control - pest/pathogens	III.E.2.c			3	4	4	3	3		3.40
									Non-Native, Invasive & Problem Species Average Score	3.50
Hydrologic/Geologic function, Hydro-Alteration (III.E.1)										
Ditches	III.F.1.b		3	3	3	3	4	4		3.33
Hydro-period Alteration	III.F.1.c		3	3	3	3	4	4		3.33
									Hydrologic/Geologic function, Hydro-Alteration Average Score	3.33
Ground Water Monitoring (III.E.2)										
									Ground Water Monitoring Average Score	NA
Surface Water Monitoring (III.E.3)										
Surface water quality	III.F.3.a		4	3	5	4	3	3		3.67
									Surface Water Monitoring Average Score	3.67
Resource Protection (III.F)										
Boundary survey	III.G.1		3	3	4	3	3	4		3.33
Gates & fencing	III.G.2		4	3	4	3	3	4		3.50
Signage	III.G.3		4	3	3	3	3	3		3.17
Law enforcement presence	III.G.4		4	3	2	3	3			3.00
									Resource Protection Average Score	3.25
Adjacent Property Concerns (III.G)										
Land Use										
Exotics from Adjacent Residential	III.H.1.b			3	2	3	3	4		3.00
Hillsborough Avenue Expansion	III.H.1.c			3	3	3	1	4		2.80
Inholdings/additions	III.H.2		3	3	4	3	2	5		3.33
Discussion of Potential Surplus Land Determination	III.H.3		3	2	2	3	2	5		2.83

Surplus Lands Identified?	III.H.4		4	4	2		2	2		2.80
Public Access & Education (IV.1, IV.2, IV.3, IV.4, IV.5)										
Public Access										
Boat Access	IV.1.c		4	3	5	3	3	4		3.67
Environmental Education & Outreach										
Wildlife	IV.2.a		4	3	5	3	3			3.60
Invasive Species	IV.2.b		4	3	5	3	3	4		3.67
Habitat Management Activities	IV.2.c		4	3	5	3	3			3.60
Interpretive facilities and signs	IV.3		4	3	4	3	3	2		3.17
Recreational Opportunities	IV.4		4	3	5	4	3	5		4.00
Management of Visitor Impacts	IV.5		4	3	3	3	3	4		3.33
							Public Access & Education Average Score			3.58
Managed Area Uses (VI.A, VI.B)										
Existing Uses										
Fishing	VI.A.1	4	4	5	5	5	5	5		4.71
Boating	VI.A.2	4	3	5	5	4	5	3		4.14
Paddling	VI.A.3	4	5	5	5	5	5	5		4.86
Hiking	VI.A.4	4	3	5	5	4	5	3		4.14
Nature Viewing	VI.A.5	3	4	5	5	5	5	5		4.57
Environmental Education	VI.A.6	3	4	5	5		5	3		4.17
Resource Conservation	VI.A.7			5	5	5	5	5		5.00
Proposed Uses										

Color Code:	Excellent	Above Average	Below Average	Poor	See Appendix A for detail
		Missing Vote	Insufficient Information		

Appendix A: Scoring System Detail

Explanation of Consensus Commendations:

Often, the exceptional condition of some of the property's attributes impress review team members. In those instances, team members are encouraged to offer positive feedback to the managing agency in the form of a commendation. The teams develop commendations generally by standard consensus processes or by majority vote if they cannot obtain a true consensus.

Explanation of Consensus Recommendations:

Subsection 259.036(2), F.S., specifically states that the managing entity shall consider the findings and recommendations of the land management review. We ask team members to provide general recommendations for improving the management or public access and use of the property. The teams discuss these recommendations and develop consensus recommendations as described above. We provide these recommendations to the managing agency to consider when finalizing the required ten-year management plan update. We encourage the manager to respond directly to these recommendations and include their responses in the final report when received in a timely manner.

Explanation of Field Review Checklist and Scores, and Management Plan Review Checklist and Scores:

We provide team members with a checklist to fill out during the evaluation workshop phase of the Land Management Review. The checklist is the uniform tool used to evaluate both the management actions and condition of the managed area, and the sufficiency of the management plan elements. During the evaluation workshop, team members individually provide scores on each issue on the checklist, from their individual perspective. Team members also base their evaluations on information provided by the managing agency staff as well as other team member discussions. Staff averages these scores to evaluate the overall conditions on the ground, and how the management plan addresses the issues. Team members must score each management issue 1 to 5: 1 being the management practices are clearly insufficient, and 5 being that the management practices are excellent. Members may choose to abstain if they have inadequate expertise or information to make a cardinal numeric choice, as indicated by an "X" on the checklist scores, or they may not provide a vote for other unknown reasons, as indicated by a blank. If a majority of members failed to vote on any issue, that issue is determined to be irrelevant to management of that property or it was inadequately reviewed by the team to make an intelligent choice. In either case staff eliminated the issue from the report to the manager.

Average scores are interpreted as follows:

Scores 4.0 to 5.0 are *Excellent*

Scores 3.0 to 3.99 are *Above Average*

Scores 2.0 to 2.99 are *Below Average*

Scores 1.0 to 1.99 are considered *Poor*

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1. Introduction

Section 259.036, F.S. requires a periodic on-site review of conservation and recreation lands titled in the name of the Board of Trustees to determine (1) whether the lands are being managed for the purposes for which they were acquired and (2) whether they are being managed in accordance with their land management plan adopted pursuant to s. 259.032, F.S. In case where the managed areas exceed 1,000 acres in size, such a review must be scheduled at least every five years. In conducting this review, a statutorily constructed review team "shall evaluate the extent to which the existing management plan provides sufficient protection to threatened or endangered species, unique or important natural or physical features, geological or hydrological functions or archaeological features. The review shall also evaluate the extent to which the land is being managed for the purposes for which it was acquired and the degree to which actual management practices, including public access, are in compliance with the adopted management plan."

The land management review teams are coordinated by the Division of State Lands and consist of representatives from the Division of Recreation and Parks (DEP), the Florida Forest Service (DACS), the Fish and Wildlife Conservation Commission, the local government in which the property is located, the DEP District in which the parcel is located, the local soil and water conservation district, a conservation organization member, and a local private land manager.

Each Land Management Review Report is divided into three sections. Section 1 provides the details of the property being reviewed as well as the overall results of the report. Section 2 provides details of the Field Review, in which the Review Team inspects the results of management actions on the site. Section 3 provides details of the Land Management Plan Review, in which the team determines the extent to which the Management Plan provides for and documents adequate natural and recreational resource protection.

Finally, each report may also contain an Appendix that lists individual team member comments. This is a compilation of feedback, concerns or other thoughts raised by individual team members, but not necessarily indicative of the final consensus reached by the Land Management Review Team.

1.1. Property Reviewed in this Report

Name of Site: Bower Tract Preserve

Managed by: Hillsborough County

Acres: 1,548.00 **County:** Hillsborough County

Purpose(s) for Acquisition: To be managed for the protection and preservation of natural and cultural resources, and to provide compatible outdoor natural resource based recreational opportunities.

Acquisition Program(s): CARL **Original Acquisition Date:** 07/16/85

Area Reviewed: Entire Property **Last Management Plan Approval Date:** 02/16/07

Review Date: 8/13/15

Agency Manager and Key Staff Present:

- Sheryl Bowman, Manager
- Ross Dickerson

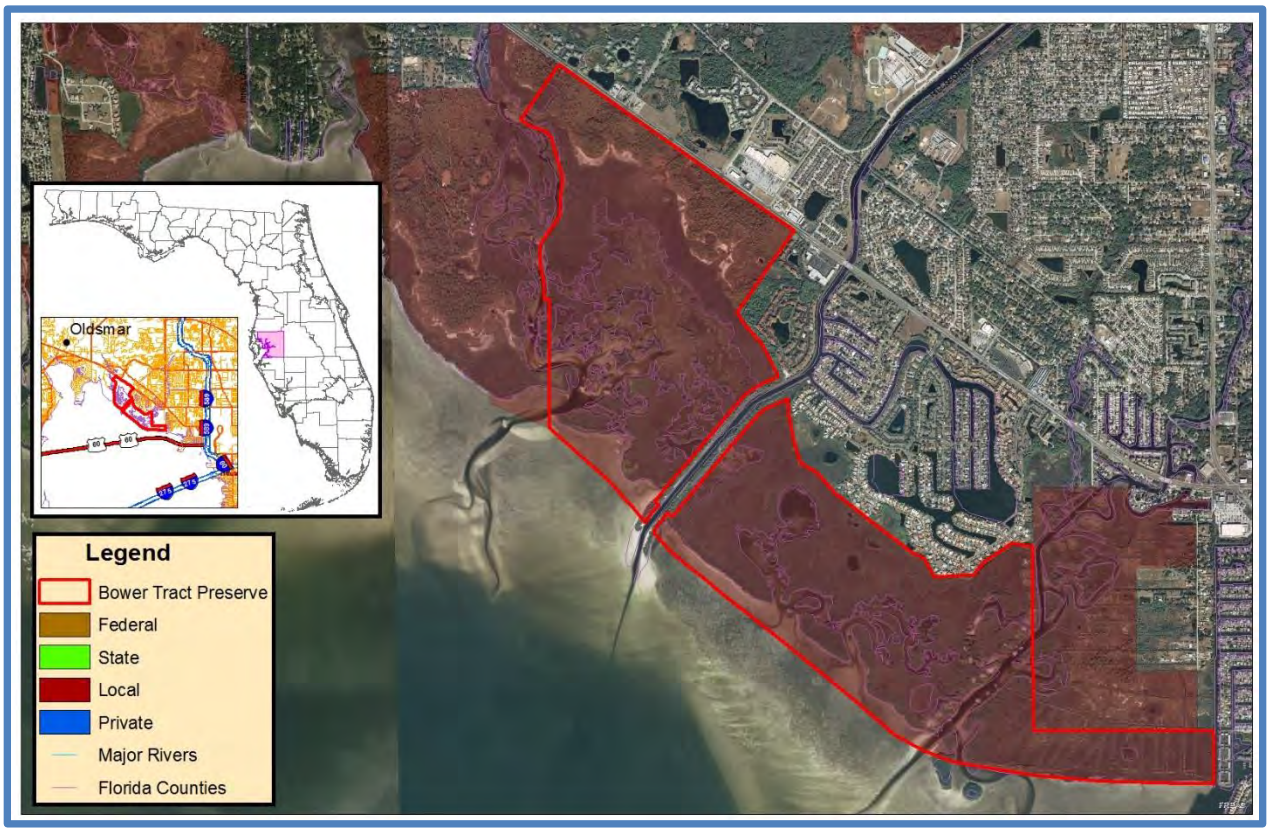
Review Team Members Present (voting)

- DRP: Brett Gorman
- FWC: Chad Allison
- FFS: Walter Mallett
- DEP: Amanda Rotella
- SWCD:
- Local gov't: Robert Irving
- Conservation organization: Joel Jackson
- Private land manager: Stephen Dickman

Other Non-Team Members Present (attending)

- Aric Larson, DEP/DSL
- Michael Sowinski, FWC/IPMS

1.2 Property Map



1.3. Overview of Land Management Review Results

Is the property managed in accordance with the purposes for which it was acquired?

Yes = 7, No = 0

Are the management practices, including public access, in compliance with the management plan?

Yes = 7, No = 0

Table 1 shows the average scores received for each applicable category of review. *Field Review* scores refer to the adequacy of management actions in the field, while *Management Plan Review* scores refer to adequacy of discussion of these topics in the management plan. Scores range from 1 to 5 with 5 signifying excellence. For a more detailed key to the scores, please see *Appendix A*.

Table 1: Results at a glance.

Major Land Management Categories	Field Review	Management Plan Review
Natural Communities / Forest Management	3.07	3.07
Prescribed Fire / Habitat Restoration	3.00	3.72
Hydrology	3.42	3.50
Imperiled Species	3.21	3.40
Exotic / Invasive Species	3.50	3.50
Cultural Resources	3.92	3.92
Public Access / Education / Law Enforcement	3.58	3.41
Infrastructure / Equipment / Staffing	3.49	N/A

Color Code (See Appendix A for detail)

Excellent	Above Average	Below Average	Poor

1.3.1 Consensus Commendations for the Managing Agency

The following commendations resulted from discussion and vote of the review team members:

1. The team commends the preserve staff for outstanding work treating invasive exotics (7+, 0-)

2. The team commends the preserve staff for the addition of more visible signage at major access points, identifying the property as Bower Tract / Double Branch Preserve. (7+, 0-)

3. The team commends the preserve staff for implementing a trail marking system. (7+, 0-)

1.3.2. Consensus Recommendations to the Managing Agency

The following recommendations resulted from a discussion and vote of review team members. The next management plan update should include information about how these recommendations have been addressed:

1. The team recommends that the preserve staff consider the use of timber thinning and / or mechanical applications (roller chopping, Brown's tree cutter) to manage fuel loading within the mesic flatwoods. (7+, 0-)

   Managing Agency Response:

Hillsborough County has an agreement with the Florida Forest Service to market timber and the FFS has managed contracts at a number of County properties including the Lower Green Swamp, Boy Scout, and Brooker Creek Buffer Preserves.

With that said, there is only a small volume of timber in the Bower Tract near Hillsborough Avenue in the coastal flatwoods. The flatwoods itself constitutes only 7% of the entire preserve. Any alternation would impact the coastal pine flatwoods which is predominantly wet for most of the year. This coastal flatwoods is a rare ecosystem in Hillsborough County. Protection and preservation of the ecosystem was a primary reason why the property was nominated to the State.

In addition, there is no safe or practical way for logging vehicles to enter and exit to and from six-lane Hillsborough Avenue. The site lacks a parking or stating area, so management of a logging operation would necessitate clearing portions of native plant communities. Hillsborough Avenue would also need to be partially closed each time a vehicle entered or exited, and this would be difficult given the high volume of traffic in the region, which is in close proximity to Tampa International Airport.

Concerning the request for mechanical applications (roller chopping, Brown's Tree cutter) – these have already been considered and being used in the preserve; the most recently treated area was shown to the committee during the field assessment.

2. Field Review Details

2.1 Field Review Checklist Findings

The following items received high scores on the review team checklist, which indicates that management actions exceeded expectations.

1. **Natural Communities, specifically depression marsh, mangrove swamp, salt marsh, salt flat, seagrass bed, mollusk reef and marine unconsolidated substrate**:
2. **Natural Resources Survey/Monitoring Resources, specifically invasive species survey and monitoring**:
3. **Cultural Resources, specifically cultural resource survey**:
4. **Non-Native, Invasive & Problem Species, specifically control of plants:**
5. **Environmental Education & Outreach, specifically habitat management activities and recreational opportunities**:

2.2. Items Requiring Improvement Actions in the Field

The following items received low scores on the review team checklist, which indicates that management actions noted during the Field Review were not considered sufficient (less than 3.0 score on average). Please note that overall good scores do not preclude specific recommendations by the review team

requiring remediation. **The management plan update should include information on how these items have been addressed**:

1. **Listed species, specifically Tampa Vervain (*Glandularia tampensis*), received a below average score. The review team is asked to evaluate, based on their perspective, whether management actions are sufficient for protection and preservation of the species.**

   Managing Agency Response:

   We feel that management actions are sufficient for overall protection and preservation of listed species. Public access is limited to foot traffic, fencing/access gates have been kept in good repair and a strong program of invasive species control has continued through a partnership with the Southwest Florida Water Management District. Hillsborough County routinely coordinates with other agencies and volunteer organizations that conduct monitoring events and have plans for more agency monitoring in the future.

   Concerning Tampa Vervain, the question was also asked after the 2010 review. At the time it was explained that Tampa Vervain was located in late 2010 along a fence line; most of the population occurred on adjacent private property. Previously the property manager spent over 20 years looking for this particular plant on site, and was pleased to find it. The discovered happened shortly before the field review. Subsequently, actions were taken to let staff and contractors know not to mow or herbicide the fence. For unknown reasons, all Vervain plants have disappeared from both sides of the fence in spite of the fact that little or no disturbance has taken place where the plants were located.

   We worked with Bok Tower Gardens to protect the genetic source and seeds of Tampa Vervain in the Tampa area; in 2004 cuttings and seeds were taken from the Cypress Creek Preserve property and transferred to the Gardens for propagation. An update was obtained from Bok Tower in 2015 concerning the fate of the rescued plant material.

2. **Resource Management, Prescribed Fire; specifically area being burned and frequency, received below average scores. The review team is asked to evaluate, based on information provided by the managing agency, to what degree prescribed fire is accomplished according to the objectives for prescribed fire management. The scores range from 1 to 5, with 1 being 0-20% accomplished, 2 being 21-40%, 3 being 41-60%, 4 being 61-80% and 5 being 81-100%**.

   Managing Agency Response:

   The County acknowledges that it is not meeting the objectives for prescribed burns and frequency in the uplands off of Hillsborough Avenue. The area is exceptionally challenging to burn, with only a very small window of weather conditions and seasonal flooding which typically renders the preserve inaccessible for approximately three to six months of the year. In 2011, the County entered into an agreement with the Florida Forest Service to conduct prescribed burn operations in this preserve, after contracts with two previous parties did not achieve all of

the desired results. The Florida Forest Service has since conducted two prescribed burns (2012 and 2015).

3. **Forest Management, specifically timber inventory and timber harvesting, received below average scores. The review team is asked to evaluate, based on information provided by the managing agency, whether forest management is sufficient.**

   Managing Agency Response:

   We discussed the idea of a timber harvest with Walter Mallet of the Florida Forest Service prior to his retirement in September 2015. This site consists of 1548 acres; the majority is a submerged coastal ecosystem which includes offshore islands dominated by mangroves. There is not enough acreage for an economically feasible timber harvest, the timber process itself will cause damage to the fragile habitat, and access out of the preserve up a hill onto a six-lane highway with logging vehicles is unsafe.

4. **Hydro-Alteration, specifically ditches, received a below average score. The review team is asked to evaluate, based on information provided by the managing agency, whether consideration of past and present hydrologic and geologic functions are sufficient.**

   Managing Agency Response:

   We requested a recommendation about the mosquito ditches in the adjoining Rocky Creek Coastal Preserve in 2011 from Dr. Brandt Henningsen of the Southwest Florida Water Management District. It should be noted that the Rocky Creek Coastal Preserve ditches continue into the Bower Tract. Dr. Henningsen's response, below, does not recommend alteration of the ditches. Thus, our recommendation is to modify the management plan at the next update to include more suitable restoration needs.

Dear Sheryl,

Pursuant to our most recent site visit to the Rocky Creek Preserve with you and Richard Sullivan (09/14/2011), Lizanne Garcia and I have the following recommendations concerning restoration and management strategies for the preserve:

1. Remove and control all non-native and nuisance vegetation from wetland, transitional, and upland habitats.

2. Leave all spoil mounds (adjacent to mosquito ditches) in place. Observations throughout the preserve indicate that spoil mounds do not block sheetflow (neither freshwater nor tidal waters), as spaces between mounds basically form "saddles" that are at marsh elevations that allow sheetflow to occur around the mounds and throughout the wetland areas. In addition, the mounds typically harbor intact viable native upland and transitional plant communities,

thereby increasing the habitat complexity of the preserve. Lastly, due to mound elevations typically rising 2-6' above current wetland grades, the mounds can serve as areas that will accommodate projected sea level rise (3' over next 100 years); accordingly, the spoil mounds should allow the establishment of new persistent estuarine emergent wetland plant communities; current emergent wetland communities are projected to drown, the current intertidal communities eventually becoming subtidal habitats as a result of sea level rise.

3. Current mosquito ditches appear to be providing viable habitats for a variety of estuarine species; current mosquito ditches appear to harbor combinations of soft bottom (silts-clays-some sands) to sandy substratums. Observations within a mosquito ditch at a low spring tide revealed the presence of various fishes, oyster bars, seagrasses, blue crab, and various infauna (as evidenced from burrows within bottom sediments). In addition, discussions with fisheries scientist Bob McMichael (Florida Fish and Wildlife Research Institute [FFWRI] of the Florida Fish and Wildlife Conservation Commission) corroborate that mosquito ditches can provide valuable estuarine habitats. FFWRI fisheries seine sampling within the Rocky Creek Preserve (inclusive of two dredged channels) and adjacent/nearby areas indicate a variety of finfish and invertebrates using available habitats.

4. If possible, debris within mosquito ditches, wetlands, and uplands should be removed; debris includes lumber, furniture, piping, tires, miscellaneous trash, etc.

If you have any questions concerning our restoration and management strategies, please do not hesitate to contact us.

Brandt F. Henningsen, Ph.D., Chief Environmental Scientist

Surface Water and Improvement (SWIM) Program

Southwest Florida Water Management District

7601 Highway 301 North

Tampa, Florida 33637-6759

813-985-7481/800-836-0797 ext. 2202

FAX 813-987-6747

Brandt.Henningsen@watermatters.org

5. **Adjacent Property Concerns, specifically Hillsborough Avenue Expansion, received a below average score. The review team is asked to evaluate, based on information provided by the managing agency, whether adjacent property concerns are sufficiently addressed.**

Managing Agency Response:

We contacted DOT's Kristen Carson, a Public Information Officer for District 7 to verify whether or not there are any pending projects for this portion of Hillsborough Avenue. Ms. Carson confirmed in an email that there are no pending projects in the area in the next five years.

2.3. Field Review Checklist and Scores

Field Review Item	Reference #	Anonymous Team Members								Average
		1	2	3	4	5	6	7	8	
Natural Communities (I.A)										
Mesic Flatwoods	I.A.1	4	4	3	3	3	3	3		3.29
Depression Marsh	I.A.2	4	4	4	5	4	5	4		4.29
Mangrove Swamp	I.A.3	4	5	5	5	5	5	4		4.71
Salt Marsh	I.A.4	4	5	5	5	4	5	4		4.57
Salt Flat	I.A.5	4	5	5	5	5	5	5		4.86
Seagrass Bed	I.A.6	4	5	5	5	4	5	4		4.57
Mollusk Reef	I.A.7	4	5	5	4	4	5	5		4.57
Marine Unconsolidated Substrate	I.A.8		5	5	5	5	5	5		5.00
									Natural Communities Average Score	4.48
Listed Species: Protection & Preservation (I.B)										
Animals	I.B.1	4	5	3	4	4	4	3		3.86
Plants	I.B.2		4		4	3	4	3		3.60
Tampa Vervain	I.B.2.a		1	1	4	3	2	2		2.17
									Listed Species Average Score	3.21
Natural Resources Survey/Management Resources (I.C)										
Sport fish or their habitat monitoring	I.C.1		3	4	4	4	3	3		3.50
Listed species or their habitat monitoring	I.C.2		3	3	4	3	3	3		3.17
Other non-game species or their habitat monitoring	I.C.3		3	3	4	4	3	3		3.33
Fire effects monitoring	I.C.4		4	3	4	4	4	3		3.67
Other habitat management effects monitoring	I.C.5		4	3	4	4	3	3		3.50
Invasive species survey / monitoring	I.C.6		5	4	4	4	5	5		4.50
Cultural Resources (Archeological & Historic sites) (II.A, II.B)										
Cultural Res. Survey	II.A		5	4	5	5	3	5		4.50
Protection and preservation	II.B		4	3	3	3	4	3		3.33
									Cultural Resources Average Score	3.92
Resource Management, Prescribed Fire (III.A)										
Area Being Burned (no. acres)	III.A1	4	3	3	3	3	2	2		2.86
Frequency	III.A.2	3	2	3	3	3	2	2		2.57
Quality	III.A.3	4	4	4	3	4	2	4		3.57
									Resource Management, Prescribed Fire Average Score	3.00

Restoration (III.B)										
								Restoration Average Score		NA
Forest Management (III.C)										
Timber Inventory	III.C.1		1	1	3	1	1	3		1.67
Timber Harvesting	III.C.2		1	1	3	1	1	3		1.67
								Forest Management Average Score		1.67
Non-Native, Invasive & Problem Species (III.D)										
Prevention										
prevention - plants	III.D.1.a		3	3	3	3	3	3		3.00
prevention - animals	III.D.1.b		4	3	4	3	3	4		3.50
prevention - pests/pathogens	III.D.1.c		X	3	4	4	3	4		3.60
Control										
control - plants	III.D.2.a		5	4	4	4	3	4		4.00
control - animals	III.D.2.b		4	3	4	3	3	4		3.50
control - pest/pathogens	III.D.2.c		X	3	4	4	3	3		3.40
								Non-Native, Invasive & Problem Species Average Score		3.50
Hydrologic/Geologic function Hydro-Alteration (III.E.1)										
Ditches	III.E.1.b		2	3	3	3	4	2		2.83
Hydro-period Alteration	III.E.1.c		3	3	3	3	4	3		3.17
								Hydrologic/Geologic function, Hydro-Alteration Average Score		3.00
Ground Water Monitoring (III.E.2)										
								Ground Water Monitoring Average Score		NA
Surface Water Monitoring (III.E.3)										
Surface water quality	III.E.3.a		4	3	5	4	3	4		3.83
								Surface Water Monitoring Average Score		3.83
Resource Protection (III.F)										
Boundary survey	III.F.1	4	3	4	4	3	3	3		3.43
Gates & fencing	III.F.2	3	5	3	4	3	3	4		3.57
Signage	III.F.3	3	4	3	3	3	3	3		3.14
Law enforcement presence	III.F.4	4	4	3	2	4	3	4		3.43
								Resource Protection Average Score		3.39
Adjacent Property Concerns (III.G)										
Land Use										
Exotics from Adjacent Residential	III.G.1.b			3	2	3	3	4		3.00
Hillsborough Avenue Expansion	III.G.1.c			3	3	3	1			2.50
Inholdings/additions	III.G.2	4	2	4	4	3	3	3		3.29
Public Access & Education (IV.1, IV.2, IV.3, IV.4, IV.5)										
Public Access										
Boat Access	IV.1.c	4	4	3	4	4	4	4		3.86
Environmental Education & Outreach										
Wildlife	IV.2.a	3	3	3	5	4	5			3.83
Invasive Species	IV.2.b	3	4	3	5	4	5	2		3.71

Habitat Management Activities	IV.2.c	3	4	3	5	4	5			4.00
Interpretive facilities and signs	IV.3	3	4	3	4	4	5			3.83
Recreational Opportunities	IV.4	3	4	3	5	4	5	4		4.00
Management of Visitor Impacts	IV.5	3	3	3	3	4	3	3		3.14
								Public Access & Education Average Score		3.77
Management Resources (V.1, V.2, V.3. V.4)										
Maintenance										
Waste disposal	V.1.a		3	3	4	4	3	X		3.40
Sanitary facilities	V.1.b		3	3	4	4	3	X		3.40
Infrastructure										
Buildings	V.2.a		4	3	3	4	3	X		3.40
Equipment	V.2.b		4	3	4	4	3	2		3.33
Staff	V.3	4	4	3	5	3	3	5		3.86
Funding	V.4	4	4	3	5	3	3	3		3.57
								Management Resources Average Score		3.49

Color Code:	Excellent	Above Average	Below Average	Poor	See Appendix A for detail
		Missing Vote	Insufficient Information		

3. Land Management Plan Review Details

3.1 Items Requiring Improvements in the Management Plan

The following items received low scores on the review team checklist, which indicates that the text noted in the Management Plan Review does not sufficiently address this issue (less than 3.0 score on average.). Please note that overall good scores do not preclude specific recommendations by the review team requiring remediation. The next management plan update should address the checklist items identified below:

1. **Listed species: Protection & Preservation, specifically Tampa Vervain (*Glandularia tampensis*), received a below average score. This is an indication that the management plan does not sufficiently address protection and preservation of species.**

   Managing Agency Response:

   As explained in the 2011 review, the management plan did not mention Tampa Vervain because it had not been found on site at the time the plan was written. This will be corrected in the plan update, along with any other listed species which has been documented or listed either before or after the plan reviews such as Coastal Prickly Pear Cactus and Sea Turtles.

   The current management plan contains detailed descriptions of 10 listed species known to be in the preserve, as well as management measures for each species. In addition, it describes protection measures for all native species and their habitats. Thus, this management plan clearly addresses protection and preservation of these species.

2. **Forest Management, specifically timber inventory and timber harvesting, received below average scores. This is an indication that the management plan does not sufficiently address a timber inventory.**

   Managing Agency Response:

   The State of Florida potentially has four properties under Hillsborough County management that have the potential need for a timber inventory. These include the Balm-Boyette Scrub Nature Preserve, Golden Aster Scrub Nature Preserve, Alderman's Ford Nature Preserve, and the Bower Tract. In the summer of 2015, a timber assessment was completed for the Alderman's Ford Preserve by Walter Mallet of the Florida Forest Service. This assistance was valuable to Hillsborough County for the update on that Preserve's management plan, which is currently in progress.

   We will continue to work with the Florida Forest Service to make sure that timber resources in Hillsborough County are adequately assessed.

3. **Adjacent Property Concerns; specifically Hillsborough Avenue Expansion, discussion of potential surplus land determinations and surplus land identified, received below average scores. This is an indication that the management plan does not sufficiently address surplus lands.**

   Managing Agency Response:

   The issue of whether lands in the preserve should be declared surplus was addressed in the management plan on page 31. This determination was based on the need to protect valuable coastal wildlife habitat and recreational use in a highly urbanized area.

3.2 Management Plan Review Checklist and Scores

Plan Review Item	Reference #	Anonymous Team Members								Average
		1	2	3	4	5	6	7	8	
Natural Communities (I.A)										
Mesic Flatwoods	I.A.1		5	4	3	4	5	5		4.33
Depression Marsh	I.A.2		5	4	5	4	5	4		4.50
Mangrove Swamp	I.A.3		5	4	5	4	5	4		4.50
Salt Marsh	I.A.4		5	4	5	4	4	3		4.17
Salt Flat	I.A.5		5	4	5	4	5	4		4.50
Seagrass Bed	I.A.6		5	4	5	4	5	4		4.50
Mollusk Reef	I.A.7		5	4	5	4	1	5		4.00
Marine Unconsolidated Substrate	I.A.8		5	4	5	4	1	5		4.00
									Natural Communities Average Score	4.31
Listed species: Protection & Preservation (I.B)										
Animals	I.B.1		5	3	4	4	5	3		4.00
Plants	I.B.2			3	4	4	3	3		3.40

Tampa Vervain	I.B.2.a			2	4	3	2	3		2.80
									Listed Species Average Score	3.40
Natural Resources Survey/Management Resources (I.C)										
Sport fish or their habitat monitoring	I.C.1		3	3	4	4	3	4		3.50
Listed species or their habitat monitoring	I.C.2		5	3	4	3	2	4		3.50
Other non-game species or their habitat monitoring	I.C.3		2	3	4	4	3	3		3.17
Fire effects monitoring	I.C.4		4	3	4	4	2	4		3.50
Other habitat management effects monitoring	I.C.5		2	3	4	4	2	4		3.17
Invasive species survey / monitoring	I.C.6		5	3	4	4	5	4		4.17
Cultural Resources (Archeological & Historic sites) (II.A,II.B)										
Cultural Res. Survey	II.A		5	4	4	4	3	4		4.00
Protection and preservation	II.B		5	3	4	4	4	3		3.83
									Cultural Resources Average Score	3.92
Resource Management, Prescribed Fire (III.A)										
Area Being Burned (no. acres)	III.A.1		4	3	3	4	4	4		3.67
Frequency	III.A.2		4	3	3	4	4	5		3.83
Quality	III.A.3		4	3	3	4	4	4		3.67
									Resource Management, Prescribed Fire Average Score	3.72
Restoration (III.B)										
									Restoration Average Score	NA
Forest Management (III.C)										
Timber Inventory	III.C.1		2	1	3	1	1	3		1.83
Timber Harvesting	III.C.2		2	1	3	1	1	3		1.83
									Forest Management Average Score	1.83
Non-Native, Invasive & Problem Species (III.D)										
Prevention										
prevention - plants	III.E.1.a		4	3	3	3	3	3		3.17
prevention - animals	III.E.1.b		4	3	4	3	3	4		3.50
prevention - pests/pathogens	III.E.1.c			3	4	4	3	4		3.60
Control										
control - plants	III.E.2.a		4	4	4	4	3	4		3.83
control - animals	III.E.2.b		4	3	4	3	3	4		3.50
control - pest/pathogens	III.E.2.c			3	4	4	3	3		3.40
									Non-Native, Invasive & Problem Species Average Score	3.50
Hydrologic/Geologic function, Hydro-Alteration (III.E.1)										
Ditches	III.F.1.b		3	3	3	3	4	4		3.33
Hydro-period Alteration	III.F.1.c		3	3	3	3	4	4		3.33
									Hydrologic/Geologic function, Hydro-Alteration Average Score	3.33
Ground Water Monitoring (III.E.2)										
									Ground Water Monitoring Average Score	NA
Surface Water Monitoring (III.E.3)										
Surface water quality	III.F.3.a		4	3	5	4	3	3		3.67

									Surface Water Monitoring Average Score	3.67
Resource Protection (III.F)										
Boundary survey	III.G.1		3	3	4	3	3	4		3.33
Gates & fencing	III.G.2		4	3	4	3	3	4		3.50
Signage	III.G.3		4	3	3	3	3	3		3.17
Law enforcement presence	III.G.4		4	3	2	3	3			3.00
									Resource Protection Average Score	3.25
Adjacent Property Concerns (III.G)										
Land Use										
Exotics from Adjacent Residential	III.H.1.b			3	2	3	3	4		3.00
Hillsborough Avenue Expansion	III.H.1.c			3	3	3	1	4		2.80
Inholdings/additions	III.H.2		3	3	4	3	2	5		3.33
Discussion of Potential Surplus Land Determination	III.H.3		3	2	2	3	2	5		2.83
Surplus Lands Identified?	III.H.4		4	4	2		2	2		2.80
Public Access & Education (IV.1, IV.2, IV.3, IV.4, IV.5)										
Public Access										
Boat Access	IV.1.c		4	3	5	3	3	4		3.67
Environmental Education & Outreach										
Wildlife	IV.2.a		4	3	5	3	3			3.60
Invasive Species	IV.2.b		4	3	5	3	3	4		3.67
Habitat Management Activities	IV.2.c		4	3	5	3	3			3.60
Interpretive facilities and signs	IV.3		4	3	4	3	3	2		3.17
Recreational Opportunities	IV.4		4	3	5	4	3	5		4.00
Management of Visitor Impacts	IV.5		4	3	3	3	3	4		3.33
									Public Access & Education Average Score	3.58
Managed Area Uses (VI.A, VI.B)										
Existing Uses										
Fishing	VI.A.1	4	4	5	5	5	5	5		4.71
Boating	VI.A.2	4	3	5	5	4	5	3		4.14
Paddling	VI.A.3	4	5	5	5	5	5	5		4.86
Hiking	VI.A.4	4	3	5	5	4	5	3		4.14
Nature Viewing	VI.A.5	3	4	5	5	5	5	5		4.57
Environmental Education	VI.A.6	3	4	5	5		5	3		4.17
Resource Conservation	VI.A.7			5	5	5	5	5		5.00
Proposed Uses										

Color Code: Excellent | Above Average | Below Average | Poor | See Appendix A for detail

Missing Vote | Insufficient Information

Appendix A: Scoring System Detail

Explanation of Consensus Commendations:

Often, the exceptional condition of some of the property's attributes impress review team members. In those instances, team members are encouraged to offer positive feedback to the managing agency in the form of a commendation. The teams develop commendations generally by standard consensus processes or by majority vote if they cannot obtain a true consensus.

Explanation of Consensus Recommendations:

Subsection 259.036(2), F.S., specifically states that the managing entity shall consider the findings and recommendations of the land management review. We ask team members to provide general recommendations for improving the management or public access and use of the property. The teams discuss these recommendations and develop consensus recommendations as described above. We provide these recommendations to the managing agency to consider when finalizing the required ten-year management plan update. We encourage the manager to respond directly to these recommendations and include their responses in the final report when received in a timely manner.

Explanation of Field Review Checklist and Scores, and Management Plan Review Checklist and Scores:

We provide team members with a checklist to fill out during the evaluation workshop phase of the Land Management Review. The checklist is the uniform tool used to evaluate both the management actions and condition of the managed area, and the sufficiency of the management plan elements. During the evaluation workshop, team members individually provide scores on each issue on the checklist, from their individual perspective. Team members also base their evaluations on information provided by the managing agency staff as well as other team member discussions. Staff averages these scores to evaluate the overall conditions on the ground, and how the management plan addresses the issues. Team members must score each management issue 1 to 5: 1 being the management practices are clearly insufficient, and 5 being that the management practices are excellent. Members may choose to abstain if they have inadequate expertise or information to make a cardinal numeric choice, as indicated by an "X" on the checklist scores, or they may not provide a vote for other unknown reasons, as indicated by a blank. If a majority of members failed to vote on any issue, that issue is determined to be irrelevant to management of that property or it was inadequately reviewed by the team to make an intelligent choice. In either case staff eliminated the issue from the report to the manager.

Average scores are interpreted as follows:

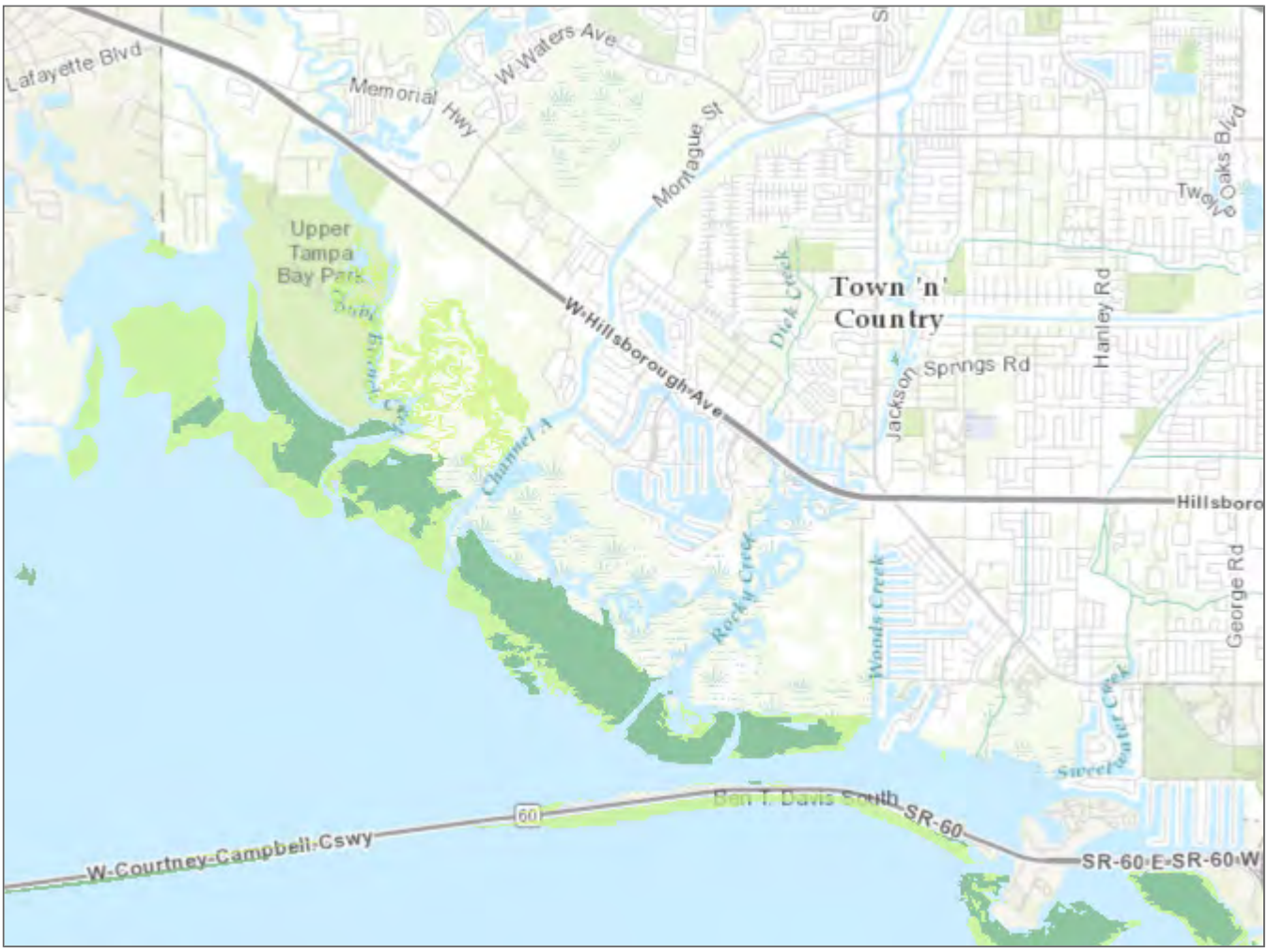
Scores 4.0 to 5.0 are *Excellent*

Scores 3.0 to 3.99 are *Above Average*

Scores 2.0 to 2.99 are *Below Average*

Scores 1.0 to 1.99 are considered *Poor*

My Map


Lafayette Blvd
Memorial Hwy
W Waters Ave
Montague St
Upper Tampa Bay Park
W Hillsborough Ave
Duck Creek
Town 'n' Country
Springs Rd
Jackson
Hanley Rd
Channel A
Rocky Creek
Woods Creek
George Rd
Sweetwater Creek
Ben T. Davis South SR-60
60
W Courtney Campbell Cswy
SR-60 E SR-60 W

Individual Team Member Comments – Bower Tract Preserve 2015 LMR

I.A. Natural Communities

- Due to Hillsborough Avenue, fire management is a challenge… limited to north winds only. Good exotic pest plant management.
- Recommend thinning pines followed by mechanical treatment and fire in mesic flatwoods.
- Mesic flatwoods: increase exotic maintenance, more prescribed fire; salt marsh: needs prescribed fire; delineate seagrass beds; mangroves: remove mosquito ditches.

I.B. Listed Species

- Do not worry about Tampa Vervain.
- Tampa vervain has disappeared from site. Perhaps reintroduced to site?
- Check into habitat needs for Tampa Vervain before attempting reintroduce.
- Listed plants would benefit from regular prescribed burning.
- Reintroduce Tampa Vervain and protect individuals. Manatee signage in grass bed areas.

I.C. Natural Resource Survey/Monitoring Resources

- County's site actively data base may serve as a form of site monitoring.
- Site managers take exotic plant control seriously and have done a good job of leveraging partnerships and funding to address. Keep up the good work!!!
- Database for Rx fire, all land management activities in database. Christmas bird count conducted. Need post-burn monitoring program.

II. Cultural Resources

- County can use (State) help with cultural resource protection.
- Staff try to survey these areas once a year. New signs will show a shovel w/an X through it.
- Site managers work w/local law enforcement to investigate cultural resource looting. Good work!!! Enhanced posting w/signage may help.
- Signage posted. Add signs with specific no dig language and penalties.

III.A. Prescribed Fire

- Burning limited to winter time (north winds) due to development. County may request help from FHP for traffic control during burns.
- Restricted by proximity to Hillsborough Avenue and adjacent developments.
- 8 year cycle now, increasing frequency, limitations on staff, some pine die-off.

III.B. Restoration

III.C. Forest Management

- State Forestry to prepare plan.
- Harvest timber before burning.
- Timber inventory needs to be done.

- Although site is greater than 1000 acres, only small portion is forested upland. With that said, the plan should still include a brief description of how the forest resources will be managed.

III.D. Non-native Invasive & Problem Species

- Cleaning equipment/vehicles will help mitigate exotic spreading.
- Stated that new apartment complexes do not do plant maintenance on invasive species.
- Many invasive plants have been treated recently.
- Sanitation of contractor mower decks (decontamination sites) development sites not being managed, isolated site away from feral hogs, illegal releases at site- reptile. Mosquito control plan calls for larviciding.

III.E.3. Hydrologic/Geologic Function

- SWFMD does not want to remove mosquito ditches for concerns fish habitat (juvenile).

III.F. Resource Protection

- Crab traps?
- Parking and public access remain to be resolved.
- Need better signage at access gate. Limited enforcement for poaching, trapping, digging in cultural site.
- Site managers should continue to employ enhanced signage and law enforcement cooperation to protect boundaries.
- Signage for cultural protection, better access - need parking fee. Review conch dumping and crab traps. Marine patrol - poaching artifacts crab traps.

III.G. Adjacent Property Concerns

- Need to encourage increased non-native plant control on adjacent property.
- Exotic pest plants in adjacent properties is an issue. Future road expansion (Hillsborough Ave.).
- 1.b Outreach to multi-use complexes about exotics maintenance or an agreement made to increase prevention of spread. 3. Provide more information in #19, pg. 31.
- Hillsborough Avenue will almost certainly expand in the future. When it does, the site most likely to be affected. Efforts to mitigate the effects should be considered and filed for future reference; i.e. turning lane for parking.
- FLAPP funding not there yet to purchase addition more explanation of surplus lands provide examples to Sheryl.

IV. Public Access and Education

- Is provided at adjacent park.
- Poaching, trash.
- Tie in Environmental Education/Outreach with upper Tampa Bay Park facility & Personnel.
- Could they put a pedestrian empowered crosswalk to the access gate like the city installed on Fletcher Ave. up near USF.
- It would be nice if there was a place that canoers could pull up to walk the trails, or at least one that was better marked.

- Upper Tampa Bay Park offers excellent public use facilities. W/O the park, Bower Tract along has extremely limited facilities. With the park Bower Tract public Ed. benefits tremendously.
- Pedestrian access and boat access only. Mark hiking trail. No parking. Add kiosk at pedestrian access outreach education to neighbors.

V.4. Infrastructure/Management Resources

- Park staff help.
- Carry-in, carry-out. UTB serves as sanitary facilities and waste disposal. UTB has buildings & equipment. 4 staff $2.5 million with help from Upper Tampa Bay Park.
- Possibly more fire/habitat improvement equipment.
- Staff stated that they are in need of a tractor/machine for mechanical removal or high grass mower. 4 staff members and pull from other offices needed.
- Carry in/carry out policy in place. Sanitary facilities at upper Tampa Bay sufficient.
- Carry in carry out policy. Dump at upper Tampa Bay Park. Equipment for fire management. Prescribed fire agreements with FFS. FWC – working group money.

VI.A. Managed Area Uses

- Valuable for resource conservation.

Management Review Determination

- Because of its location, the Bower Tract presents certain challenges for land management. County staff are doing excellent job given difficulties.

Bower Tract Preserve LMR 8/13/15-Michael Sowinski -FWC IPM Section

- Preserve personnel have succeeded in maintaining satisfactory control of invasive exotics in the areas that were part of the field tour during the LMR.
- In the mouth of Rocky Creek, SWFWMD paid contractors were actively treating Brazilian pepper and observed many dead specimens. Noticed some overspray of previous treatments causing yellow patches of leaves on the red mangroves. SWFWMD has a three year invasive species treatment contract for sections of the Bower Tract (now called Double Branch Bay).
- Observed small amount of Caesarweed and lantana along hiking trails.
- Preserve staff mentioned Brazilian pepper as the major problem species with small areas of cogon grass as minor problem. Staff/contractor also treat individual plants/small populations of carrotwood, melaleuca, and Australian pine.

Recommendations:

- Continue control efforts on all exotic species throughout the Park.
- Work with FWC IPM herbicide bank to help offset exotics control costs and apply for funding on future projects if necessary.


Bower Tract Preserve LMR (8-13-2015)
Treated Brazilian pepper


Caesarweed
Lantana


SWFWMD contractor non-target damage to red mangroves while treating Brazilian pepper

Major Tasks Accomplished Since Last State Review:

1. Rollerchopping – Spring 2012, 12 acres
2. Access Improvement – Walk-through and replacement fence early 2012
3. Prescribed burns – Oct. 2012, Jan. 2015, 35 acres adjacent to Hillsborough
4. Native seeds dispersed in burned area – Nov. 2012
5. Signage – Installed 2012-2013 (including replacement sign after car crash)
6. Invasive species contract – 2013 to present, including widening of firelanes and removal of large earpod trees from Channel A berms.



Tampa Bay Estuary Program
Technical Publication # 03-06

Tampa Bay Oyster Mapping and Assessment

FINAL REPORT

August 2006

FWC/FWRI filecode: F2490-04-06-F

Tampa Bay Oyster Bar Mapping and Assessment

Final Report to Tampa Bay Estuary Program

Submitted by:
Kathleen O'Keife, William Arnold, David Reed

Florida Fish and Wildlife Conservation Commission
Fish & Wildlife Research Institute
February 14, 2006

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Project Summary

The objectives of this mapping exercise were to establish a baseline map layer for the current extent of oysters within Tampa Bay, to assess the accuracy of the mapping effort, and to develop an historic map layer derived from scanned USGS post-1927 T-sheets. These efforts will provide the base data for future mapping projects and enable trend analyses to be performed that will aid scientists in monitoring changes to oyster resources inTampa Bay.

In addition to identifying oysters within the Bay, there was a desire to ascertain if the mapping of this resource is something that can be automated. Currently, maps are most often produced using ground surveys and manual interpretation of aerial photographs. These techniques are time-consuming and labor intensive. An integrated automated mapping method that incorporates high resolution sources (spectral and spatial) at a lower cost would be a useful tool for resource managers in Tampa Bay as well as may other areas. If a remote sensing method can be proven to secure reliable results, it will enable mapping of oysters on a large geographic scale. This would be efficient as well as economical. To this end, two separate semi-automated feature extraction approaches were employed as well as traditional photointerpretation methods.

Staff at the Fish& Wildlife Research Institute (FWRI) performed mapping, field verification and quality assurance on all products. For this effort, hyperspectral imagery collected by the Galileo-Group, Inc.(Galileo) and 2004 digital orthophoto quarter quadrangles (DOQQs) were used. Extensive field reconnaissance was performed to provide training sets as well as to identify errors of commission and omission.

Project Details

Historic Charts

FWRI staff processed two types of digital charts. The first consisted of the scanned 1927 USGS T-Sheets, acquired from the University of Florida's Publication of Archival, Library & Museum Materials. Fourteen T-Sheets were geo-referenced and combined to create one mosaic. The second type of chart is the 1:40,000 scale NOAA nautical charts, acquired from the US Geological Survey. For each year, two nautical charts were combined to make one mosaic. The nautical charts included the following years: 1928, 1930, 1935, 1943, 1959, 1969, 1978, and 1988.

These scanned and geo-referenced images as well as the associated metadata are available via the image server site that FWRI created for the Tampa Bay Estuary Program (TBEP). This site offers the ability to blend and swipe layered images in order to view changes through time. The url for that site is **http://ocean.floridamarine.org/tbep/**

Originally, it was planned to use the historic U.S. Coast and Geodetic Survey T-Sheets and nautical charts to plot a vector layer depicting the location of historic oyster beds and reefs. Unfortunately, a legend corresponding to the charts could not be located. Without a clear legend describing the symbology depicted on the charts, creating a vector layer would have been guesswork. It was determined that the best solution possible was to offer geo-referenced mosaics viewable through the TBEP site. This solution permits overlay by vector datasets and viewing of multiple years simultaneously. Changes over time can be easily evaluated this way.

Mapping Effort

Hyperspectral Approach

Hyperspectral imagery, comprising 128 spectral bands, was collected at low tide for the nearshore of Tampa Bay, and of Boca Ciega Bay from its southern terminus north to the "Narrows" at 1.5 and 2 meter ground resolution.

The Flight Plan is shown as Figure 1 below, while the Flight Log is attached as Attachment 1. The flight was planned to correspond with the low tide cycle so that the intertidal areas of the Bay would be exposed. The Galileo Group flew the area on May 21, 2005 and performed the hyperspectal analyses. In addition, 2004 high resolution ADS40 digital orthophoto quarter quadrangles (DOQQs) were used as an ancillary source of imagery.

Figure 1: Flight Plan



Field reconnaissance was conducted by helicopter on February 9th and July 18th during periods of low tide with clear water conditions. Digital imagery was collected to aid in the identification effort. Ground surveys were accomplished on foot as well as through the use of kayaks and FWRI boats. GPS units were used to acquire location information on points representing homogenous oyster beds as well as locations that were heterogeneous, like oyster/shell mixtures. These field collection points were used to "train" the analyses, to separate clear from confused signatures, and to obtain data points to be used in the accuracy assessment. Figures 2 and 3 provide a visual example of the differences realized by viewing the imagery obliquely and from aerial photography. Field Reconnaissance Notes are attached as Attachment 4.

Figure 2: Tarpon Key Oblique Image

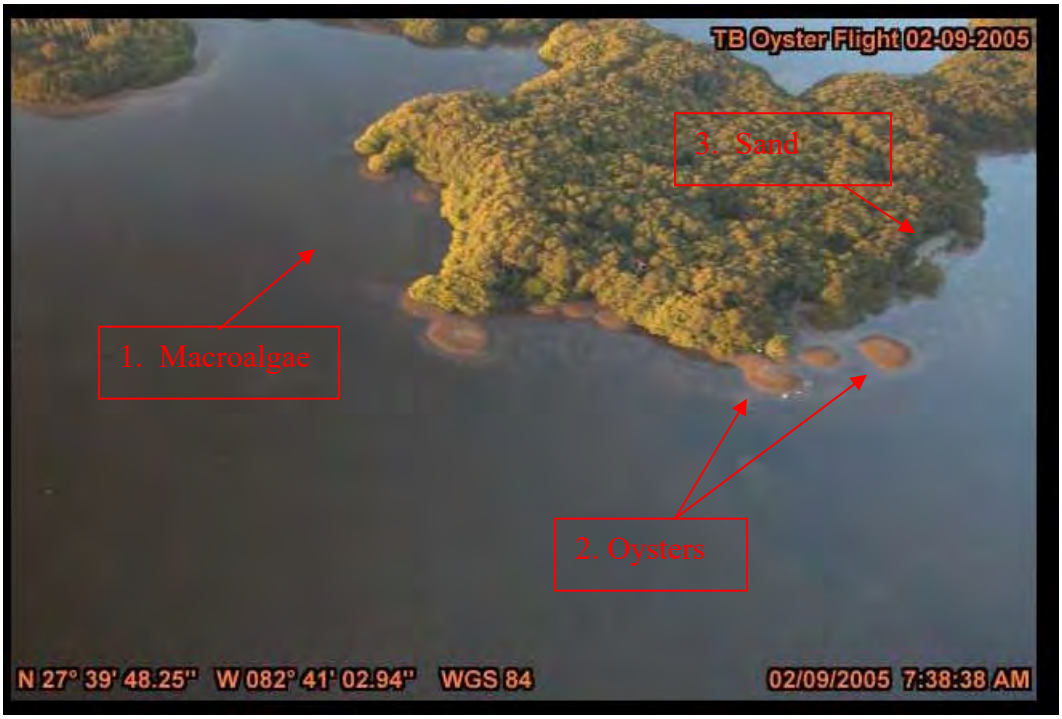
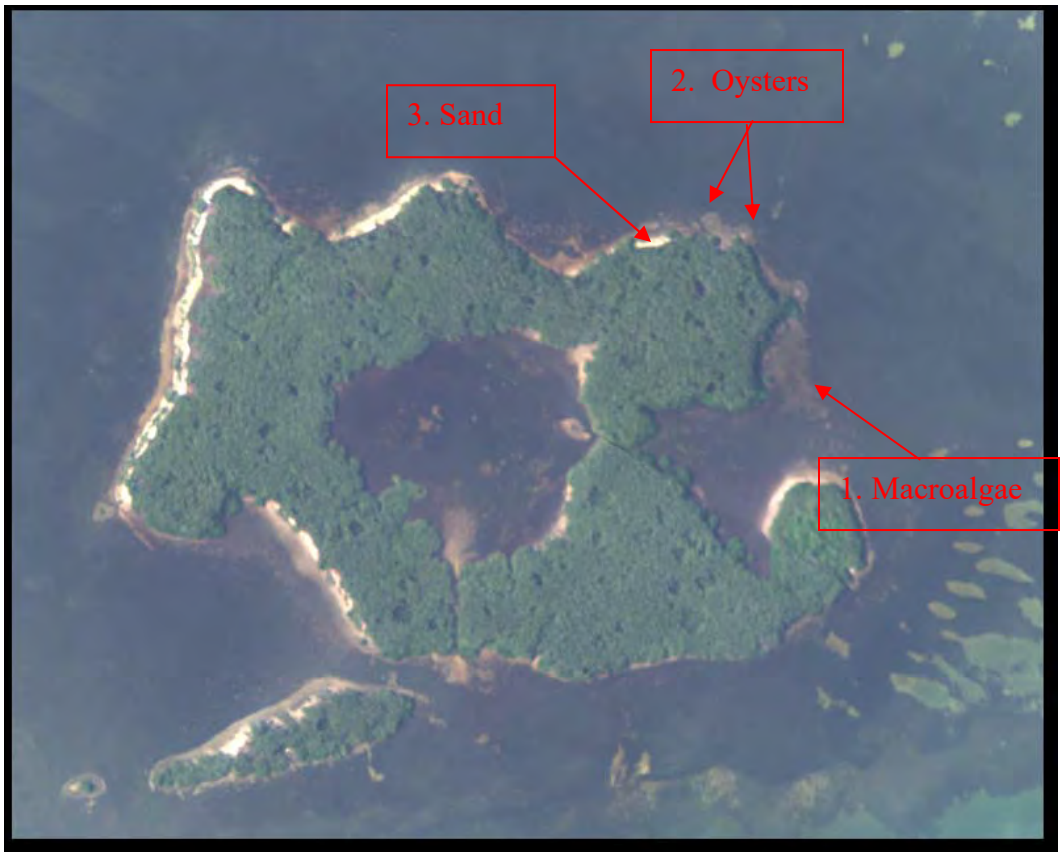


Figure 3: Tarpon Key Aerial Photo



Galileo applied proprietary algorithms to extract the oyster signatures from the hyperspectral imagery. Three iterations of the image processing were performed by Galileo. Through this iterative process, Galileo separated out the digital signatures that corresponded to the oysters anticipated in the field. To generate maps, Galileo used geo-referenced false color highlights against natural color representation from the hyperspectral data. The predicted automated airborne measured ground accuracy for this effort was five meters.

During one field trip, disagreement was noted in two components of the image processing: 1) there was a minor offset in the geographic location information used in the hyperspectral effort; 2) in several instances, sand flats were identified as oyster reefs by the hyperspectral algorithm. The offset was corrected and Galileo attempted to correct the misidentification of sand flats.

Galileo provided a finished map of oyster bed presence and corresponding shape files of mapping results as well as the raw and finished radiance corrected post-processed hyperspectral data. To test the Galileo product, additional field work was conducted. An error matrix was developed using 1229 points that were identified through the field verification phases as being oyster beds or fringing reefs.

Feature Analyst Semi-Automated Approach

Feature Analyst, a software developed by Visual Learning Systems, was used as a secondary method to test the feasibility of automating oyster mapping efforts. This software operates by using a suite of machine learning algorithms that "learn" how to classify the object-specific geographic features. Some of these learning algorithms, like Nearest Neighbor and Neural Networks, are used to extract features that have been specified by the user.

A Nearest Neighbor algorithm was selected and customized with a *Bulls-eye 3* input representation pattern after masking the land and water deeper than 6 feet. FWRI staff used field data points to "train" the software. A minimum of 4 iterations were performed on each output from Feature Analyst at each stage of the process for a total of approximately 30 iterations to test this approach. Feature Analyst used the results of each progressive iteration along with the initial settings for the first training set of a new iteration to "learn" about the feature being extracted from the imagery and to further refine the extraction parameters.

Traditional Photointerpretation Approach

For this effort, Galileo's low tide imagery was used to perform the photointerpretation. The 2004 DOQQs were used as ancillary data and to fill in areas that were obscured in the Galileo imagery. Galileo's imagery provided a much clearer picture at low tide when compared with the DOQQs. 90% of the full field collection data set was used to refine both the signatures and locational characteristics of the oyster habitat around the Bay.

Review

Early on it was decided that only free-standing or fringing reefs would be mapped. No oysters on rubble and seawall were targeted. Attempts were made to map oysters growing with mangroves. These were particularly problematic since the vertical relief of the tree canopy and consequent shadow obscured the oysters.

Vertical relief such as that found with the free-standing pristine reefs in South Carolina is not typical of oyster reefs in Tampa Bay. Additionally, oyster beds in Tampa Bay are often covered with macroalgae and/or mud and sand. This combination caused great confusion in the digital signatures.

After several iterations with the Feature Analyst software it was determined that we had reached a point of diminishing returns. Feature Analyst had a difficult time separating the different pixel values for oyster reefs. Fringing reefs seemed to be the most difficult for Feature Analyst to extract due to the shadows cast by the mangroves. Virtually all shadows were classified as oysters when using the DOQQs. The software also classified too many areas as oysters that were actually mud, sand, or algae. Several different ground truth data sets were used to try to "train" the software to distinguish oyster reefs from sand, mud, algae and mixtures. This problem was experienced with both sources of imagery and all three feature extraction approaches. The low tide imagery supplied by Galileo fared much better overall with fewer mis-classified oyster reefs that were much smaller in area.

There is too little consistency in the digital signature of oysters in Tampa Bay for this automated approach to produce high accuracy. The decision was made to finish the feature extraction by traditional photointerpretation means. The following section describes the methods used to ascertain accuracy and also summarizes the results of the overall mapping effort

Assessment

At each site, we used an xGPS (Xplore Technologies) unit mounted on a Garmin ArcPad digital tablet to provide latitude/longitude location information for each sample point. Positional accuracy of this unit is stated to be 5 m or better. We first defined the perimeter of each selected reef by walking the perimeter and sampling at approximately 5 m intervals. We then randomly sampled a variable number of points within the reef. We also sampled a variable number of points in the surrounding area to test the signature emanating from structures such as seagrass, sand, and rock. Finally, we visited several sites that had been identified from the Galileo algorithm as being oyster reef, but that we knew from previous experience were not reefs, in an effort to determine what habitat features were being mischaracterized by Galileo. At each point within a site, we determined the actual habitat structure at that point. Stochastic tests of the accuracy and precision of our GPS unit indicated that we were able to 1) return during a single sampling event to a selected point within an error of approximately 1 m and 2) return on a subsequent date to that same location with an error of approximately 5m. Thus, some of the inconsistency between the Galileo mapping results and our field tests can be attributed to measurement error.

An error matrix (Table 1) was developed from a comparison of Galileo oyster reef locations versus actual reef locations determined from on-site sampling. This 2x2 matrix included a box containing the count of all points where Galileo predicted that oysters would be located and where we actually found oysters (yes-yes), a box where Galileo predicted that oysters would be located but where we did not find oysters (yes-no), and a box where Galileo did not find oysters but we determined oysters actually did exist (no-yes). The fourth box, describing locations where Galileo predicted that no oysters were located and where we did not find oysters, is not included because this would strongly bias the outcome towards success (an almost infinite number of no-no points could be located within Tampa Bay, thereby greatly increasing the percent agreement between the two methods). The success of the hyperspectral approach for mapping oyster reefs in Tampa Bay was determined from the percent of total points that were predicted to be oyster reef and actually were oyster reef. Since location error is inherent in both the Galileo and GPS approaches, points within 5 m of one another that were consistent in their substrate composition were considered to be in agreement.

Table 1

Hyperspectral Error Matrix

Galileo \ FWRI	Y	N
Y	460 / 1424 32.3%	195 / 1424 13.7%
N	769 / 1424 54.0%	Not Assessed

Note: All points buffered by 5 meters.
In situ information was collected for overall assessment of oysters in Tampa Bay

Hyperspectral Approach

To assess the accuracy of the final hyperspectral product, we selected fourteen sites (Table 2) dispersed throughout the general area of Tampa Bay (including Boca Ciega Bay) to identify habitat features of oyster reefs and surrounding areas. Data acquired from these sites were used for 3 purposes: to ground-truth the oyster extraction algorithm developed from the Galileo overflight and data processing efforts; to acquire data from habitats surrounding each reef; and to identify sites that were designated by the Galileo flight team as oyster reefs but that we knew *a priori* were not oyster reefs. The location of each ground-truth sample site is depicted in Figure 4. The complete summary table is included on the CD. An example of the Filed Data Collection sheets and excerpt of the summary table are provided in Figures 5 and 6 respectively.

Table 2: Sampling Locations

SITE TABLE

Site	Site Key	Points	Coordinate Center Points		Date	Approx. Field Time		Tide		
			Longitude (DMS)	Latitude (DMS)		Start	End			
Madeline Key	MAD	12	-82 42 45	27 38 49	09/01/05	10:05	11:30	6:43 L 1.4ft	13:08 H 2.6ft	
Pinellas Point Reef	PPR	20	-82 39 34	27 42 03	09/01/05	11:40	12:15	6:43 L 1.4ft	13:08 H 2.6ft	
Blackthorn Memorial Park	BTM	51	-82 40 49	27 39 07	09/07/05	8:20	10:15	2:10 H 2.1ft	8:56 L 0.5ft	15:16 H 1.8ft
Pinellas Point Reef	PPR	185	-82 39 34	27 42 03	10/05/05	8:45	11:40	2:47 H 2.4ft	9:59 L 0.2ft	16:36 H 2.0ft
Cockroach Bay	CRB	231	-82 30 12	27 42 29	10/06/05	8:50	14:45	2:09 H 2.5ft	9:55 L 0.1ft	16:34 H 1.7ft
Tarpon Key	TAK	144	-82 41 28	27 39 55	10/27/05	12:06	15:15	8:32 H 1.8ft	15:50 L 0.4ft	
Indian Key	IND	90	-82 41 27	27 42 08	10/27/05	15:25	17:15	8:32 H 1.8ft	15:50 L 0.4ft	22:30 H 1.7ft
The Narrows	NAR	95	-82 50 29	27 51 20	10/28/05	13:00	14:47	9:35 H 2.0ft	16:20 L 0.6ft	
Terra Ceia	TEC	164	-82 35 57	27 35 13	11/01/05	8:45	12:20	6:42 L 0.0ft	13:14 H 1.8ft	
Cross Bayou	CBA	180	-82 45 48	27 49 23	11/02/05	8:15	12:30	6:05 L - 0.2ft	12:52 H 1.7ft	
Upper Tampa Bay Park	UTB	176	-82 37 32	28 00 11	11/03/05	9:55	14:00	1:56 H 3.3ft	10:23 L - 0.4ft	17:10 H 2.1ft
Boca Ciega Bay	BCB	25	-82 47 07	27 48 27	01/31/06	12:00	14:30	7:46 L - 0.7ft	14:03 H 1.2ft	
Upper Tampa Bay Park	UTB	154	-82 37 32	28 00 11	02/01/06	12:00	16:30	11:56 L - 0.6ft	18:06 H 1.6ft	
North Gandy Bridge	NGB	125	-82 36 50	27 52 44	02/07/06	10:30	13:30	5:25 L - 0.6ft	21:03 H 2.2ft	

Figure 4: Hyperspectral Accuracy Sampling Sites

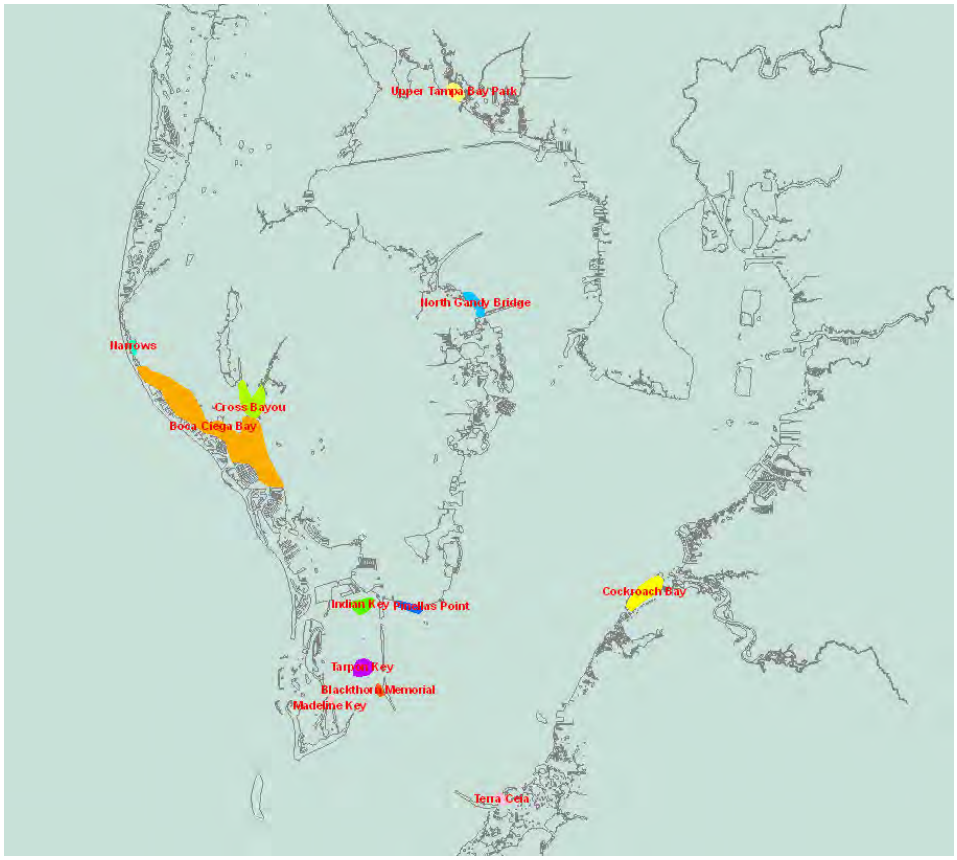


Figure 5: Field Data Collection Sheet

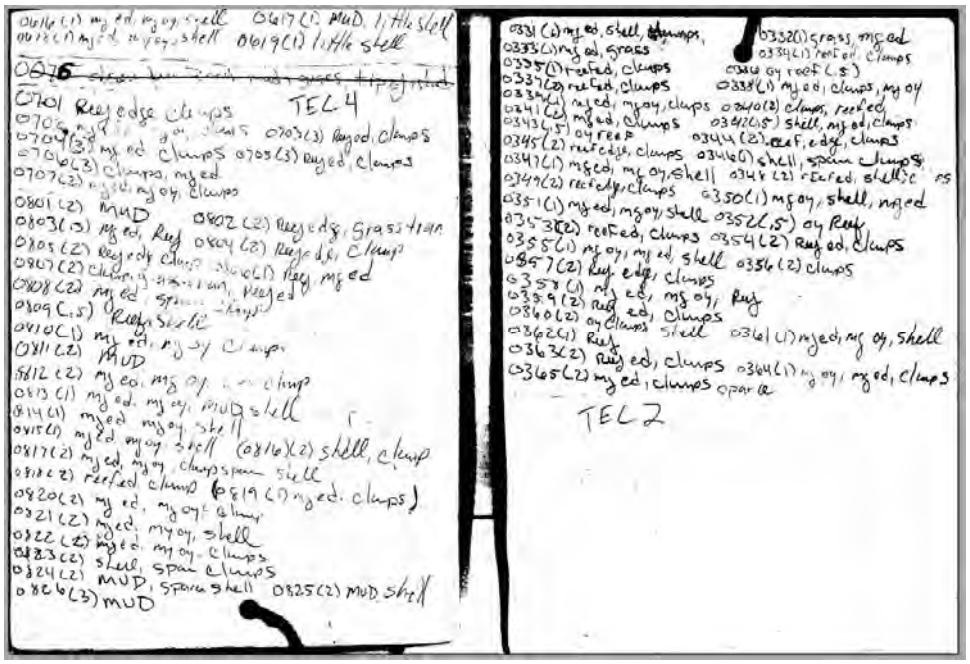


Figure 6: Field Summary Sheet
fieldwork 11-03-05mergek.xls (Excerpt. Entire Document included on CD)

ID	SITE	STATION	REPLICANT	LIVE	DATE	TIME	APROXDEPTH	HABITAT	COMMENTS	DEADSHELL	DRIFTALGAE	OTHERFAUNA	SOURCETHM	TRANSITION
0	MAD	01	01	yes	9/1/05	10:05am	3.5ft	oyster clumps/reef					fieldwork 11-2-05merge.dbf	
0	MAD	01	02	yes	9/1/05		3.5ft	oyster clumps/reef					fieldwork 11-2-05merge.dbf	
0	MAD	02	01	yes	9/1/05		3.5ft	sparse oyster clumps					fieldwork 11-2-05merge.dbf	oyster to mangrove
0	MAD	02	02	yes	9/1/05		3.5ft	oyster clumps/reef					fieldwork 11-2-05merge.dbf	
0	MAD	02	03	yes	9/1/05		3.5ft	oyster clumps/reef					fieldwork 11-2-05merge.dbf	
0	MAD	02	04	yes	9/1/05		3.5ft	oyster clumps/reef					fieldwork 11-2-05merge.dbf	
0	MAD	02	05	yes	9/1/05		3.5ft	oyster clumps/reef					fieldwork 11-2-05merge.dbf	oyster to mangrove
0	MAD	02	06	yes	9/1/05		3.5ft	oyster clumps/reef					fieldwork 11-2-05merge.dbf	oyster to mangrove
0	MAD	00	01		9/1/05		3.5ft	mud/sand					fieldwork 11-2-05merge.dbf	mangrove to mud
0	MAD	01	03	yes	9/1/05		3.5ft	oyster clumps/reef					fieldwork 11-2-05merge.dbf	
0	MAD	00	02		9/1/05		3.5ft	mud/sand					fieldwork 11-2-05merge.dbf	
0	MAD	00	03		9/1/05		3-4ft	seagrass	observed from boat				fieldwork 11-2-05merge.dbf	
0	PPR	01	01	yes	9/1/05	11:40a	3ft	sparse oyster clumps					fieldwork 11-2-05merge.dbf	oyster to seagrass
0	PPR	01	02	yes	9/1/05		2.5ft	oyster reef					fieldwork 11-2-05merge.dbf	
0	PPR	01	03	yes	9/1/05		3ft	sparse oyster clumps					fieldwork 11-2-05merge.dbf	oyster to seagrass
0	PPR	01	04	yes	9/1/05		2.5ft	oyster clumps/reef					fieldwork 11-2-05merge.dbf	oyster to seagrass
0	PPR	00	01		9/1/05		2ft	seagrass					fieldwork 11-2-05merge.dbf	
0	PPR	00	02		9/1/05		2ft	mud/sand					fieldwork 11-2-05merge.dbf	
0	PPR	01	05	yes	9/1/05		2ft	oyster reef					fieldwork 11-2-05merge.dbf	oyster to mud
0	PPR	01	06	yes	9/1/05		2ft	oyster reef					fieldwork 11-2-05merge.dbf	
0	PPR	01	07	yes	9/1/05		2ft	oyster reef					fieldwork 11-2-05merge.dbf	
0	PPR	00	03		9/1/05		3ft	seagrass					fieldwork 11-2-05merge.dbf	
0	PPR	02	01		9/1/05		2.5ft	seagrass					fieldwork 11-2-05merge.dbf	
0	PPR	02	02	yes	9/1/05		2ft	oyster reef					fieldwork 11-2-05merge.dbf	
0	PPR	02	03	yes	9/1/05		2ft	oyster reef					fieldwork 11-2-05merge.dbf	
0	PPR	00	04		9/1/05		2ft	seagrass					fieldwork 11-2-05merge.dbf	
0	PPR	00	05		9/1/05		2ft	seagrass					fieldwork 11-2-05merge.dbf	
0	PPR	00	06		9/1/05		2ft	seagrass					fieldwork 11-2-05merge.dbf	
0	PPR	02	04	yes	9/1/05		2ft	oyster reef					fieldwork 11-2-05merge.dbf	oyster to mud
0	PPR	02	05	yes	9/1/05		2ft	oyster reef					fieldwork 11-2-05merge.dbf	
0	PPR	02	06	yes	9/1/05		2ft	oyster reef					fieldwork 11-2-05merge.dbf	oyster to mud
0	PPR	00	07		9/1/05		2ft	seagrass					fieldwork 11-2-05merge.dbf	
0	BTM	01	01	yes	9/7/05	8:20am	>1ft	oyster reef	length 202ft btm0				fieldwork 11-2-05merge.dbf	oyster to mud
0	BTM	01	02	yes	9/7/05		exposed	oyster reef					fieldwork 11-2-05merge.dbf	
0	BTM	01	03	yes	9/7/05		exposed	oyster reef					fieldwork 11-2-05merge.dbf	
0	BTM	01	04	yes	9/7/05		exposed	oyster reef					fieldwork 11-2-05merge.dbf	oyster to mangrove
0	BTM	00	01		9/7/05		>1ft	mud/sand					fieldwork 11-2-05merge.dbf	
0	BTM	01	05	yes	9/7/05		exposed	oyster clumps					fieldwork 11-2-05merge.dbf	oyster to mangrove
0	BTM	01	06	yes	9/7/05		exposed	oyster clumps					fieldwork 11-2-05merge.dbf	oyster to mangrove
0	BTM	01	07	yes	9/7/05		exposed	oyster reef					fieldwork 11-2-05merge.dbf	
0	BTM	01	08	yes	9/7/05		exposed	oyster reef					fieldwork 11-2-05merge.dbf	
0	BTM	01	09	yes	9/7/05		exposed	oyster reef					fieldwork 11-2-05merge.dbf	
0	BTM	01	10	yes	9/7/05		exposed	oyster reef					fieldwork 11-2-05merge.dbf	oyster to mud
0	BTM	01	11	yes	9/7/05		exposed	oyster reef	width 83ft btm01-				fieldwork 11-2-05merge.dbf	oyster to mud
0	BTM	01	12	yes	9/7/05		exposed	oyster reef					fieldwork 11-2-05merge.dbf	oyster to mud
0	BTM	00	02		9/7/05		exposed	mud/sand					fieldwork 11-2-05merge.dbf	
0	BTM	00	03		9/7/05		exposed	mud/sand					fieldwork 11-2-05merge.dbf	
0	BTM	00	04		9/7/05		>1ft	seagrass					fieldwork 11-2-05merge.dbf	

Feature Analyst Approach

Accuracy of the final dataset was conducted by buffering 1229 known oyster locations by 5 meters (the predicted horizontal accuracy) and intersecting the GIS dataset. Of the 1568 total polygons created by Feature Analyst, 119 of them fell within 5 meters of the known oyster points producing about a 10% correct ratio for this semi-automated approach. At this point, Feature Analyst was abandoned in favor of the traditional photo interpretation approach. The final output from Feature Analyst was used as a starting point for this effort; polygons were removed that were incorrect and polygons added that Feature Analyst missed.

Traditional Approach

Of the 1229 verified oyster location points , 10% (123) were set aside to use as a control set in the quality assessment of the final product. The remainder of the known points was used as a guide to ensure that the proper photographic signature was identified and fell within the parameters of habitats observed in the field. Overall, 1720 polygons representing oysters in Tampa Bay were identified through this traditional method. Of the 123 points in the control set, 58 of these were identified as free-standing reefs, while 65 were identified as fringing. For the free-standing reefs, 84.8% accuracy was attained. As expected, for the fringing reefs, a lower accuracy

was realized and only 72.3% of fringing reefs were identified. Overall accuracy for this method is 78%. The points that were mis-classified or missed have been rectified in the final product and are not part of the overall accuracy percentage.

Conclusions

Due to the generally low relief of the oysters found in Tampa Bay and the prevalence of mangrove islands with their canopy cover and abundant shadow, we experienced less than favorable results using semi-automated mapping techniques. While it is believed that semi-automated feature extraction is of great value in the mapping of natural resources, in this particular case, the resource and geographic locations did not lend themselves to effective use of these methodologies.

Using traditional methods, we have achieved an 85% accuracy for the free-standing reefs and 78% accuracy overall. The error matrix created for the hyperspectral effort indicates errors that are primarily of omission. We believe this is caused by the confusion of the spectral signature with sand, mud and algae due to the low relief observed with these habitats in the Bay. Additionally, as shown by the traditional method, errors of omission may be largely in the area of the fringing reefs.

Extensive field reconnaissance was crucial to this effort in Tampa Bay. Due to the problematic nature of the oysters within the mangrove islands and the prevalence of that form, estimated to be ~30% of total of all oysters observed, we believe that mapping these resources in the oblique may hold some promise. Mapping on the oblique may negate the feature extraction problems experienced due to canopy cover and shadow.

Deliverables

- ARC Shapefile representing the oyster coverage. The data are provided in Albers Equal Area Projection, NAD83, Meters.
- Digital geo-referenced images representing the historic oyster coverage
- Field Summary Sheet: fieldwork 11-03-05mergek.xls
- FWRI has posted these data on the TBEP internet map server http://ocean.floridamarine.org/tbep/
- Final Report
- Due to size constraints, FWRI will store a drive containing the following
    - Hyperspectral imagery of Tampa Bay in Geotiff format
    - Radiance Data in RAW format

Note: Since hyperspectral imagery was collected in 128 bands, a number of analyses can be performed on the imagery by determining appropriate bands for the targeted study. For example, this same imagery can be used to map presence/absence of seagrass. It is possible that some species identification may be determined. Examples of band combinations are included for review and labeled Attachment 2.
True_color.jpg utilizes these values: Red: 641.37nm Green: 551.94nm Blue: 460.95nm
CIR.jpg utilizes these values: R: 861.49nm G: 650.82nm B: 551.94nm

Hyperspectral.jpg is a false color image depicting the probability of oyster bed mapping using rainbow color map. The rainbow color map changes from black->blue->green->yellow->red when the probability increases from 0 to 1.

Attachment 1: Galileo Flight Log

1.5 meter, 128 bands		**2.0 meter, 128 bands**
17 mm		**17 mm**
E:\Oyster\Vectors\T1.evf		E:\Oyster\Vectors\T1.evf
Total flight lines: 22		Total flight lines: 17
Total imaging distance: 39mile / 62km		Total imaging distance: 30mile / 49km
Average flight line length: 1.8mile / 2.9km		Average flight line length: 1.8mile / 2.9km
Median flight line length: 1.8mile / 2.9km		Median flight line length: 1.8mile / 2.9km
Maximum flight line length: 2.1mile / 3.4km		Maximum flight line length: 2.2mile / 3.5km
Minimum flight line length: 1.5mile / 2.4km		Minimum flight line length: 1.5mile / 2.4km
Estimated data size (128 bands, 1.5m): 10GB		Estimated data size (128 bands, 2.0m): 6GB
Individual flight line length:		Individual flight line length:
E:\Oyster\Vectors\T2.evf		E:\Oyster\Vectors\T2.evf
Total flight lines: 9		Total flight lines: 7
Total imaging distance: 19mile / 30km		Total imaging distance: 15mile / 24km
Average flight line length: 2.1mile / 3.4km		Average flight line length: 2.2mile / 3.5km
Median flight line length: 2.1mile / 3.4km		Median flight line length: 2.2mile / 3.5km
Maximum flight line length: 2.2mile / 3.6km		Maximum flight line length: 2.2mile / 3.6km
Minimum flight line length: 2.0mile / 3.3km		Minimum flight line length: 2.1mile / 3.3km
Estimated data size (128 bands, 1.5m): 5GB		Estimated data size (128 bands, 2.0m): 2GB
Individual flight line length:		Individual flight line length:
E:\Oyster\Vectors\T3.evf		E:\Oyster\Vectors\T3.evf
Total flight lines: 16		Total flight lines: 13
Total imaging distance: 42mile / 68km		Total imaging distance: 35mile / 56km
Average flight line length: 2.7mile / 4.3km		Average flight line length: 2.7mile / 4.3km
Median flight line length: 2.9mile / 4.6km		Median flight line length: 3.0mile / 4.8km
Maximum flight line length: 3.6mile / 5.7km		Maximum flight line length: 3.9mile / 6.2km
Minimum flight line length: 0.9mile / 1.4km		Minimum flight line length: 1.1mile / 1.8km
Estimated data size (128 bands, 1.5m): 11GB		Estimated data size (128 bands, 2.0m): 6GB

Individual flight line length:		Individual flight line length:
E:\Oyster\Vectors\T4.evf		E:\Oyster\Vectors\T4.evf
Total flight lines: 13		Total flight lines: 2
Total imaging distance: 22mile / 35km		Total imaging distance: 16mile / 27km
Average flight line length: 1.7mile / 2.7km		Average flight line length: 8.4mile / 13.6km
Median flight line length: 1.7mile / 2.8km		Median flight line length: 8.7mile / 14.0km
Maximum flight line length: 1.8mile / 2.9km		Maximum flight line length: 8.7mile / 14.0km
Minimum flight line length: 1.2mile / 2.0km		Minimum flight line length: 8.2mile / 13.1km
Estimated data size (128 bands, 1.5m): 5GB		Estimated data size (128 bands, 2.0m): 3GB
Individual flight line length:		Individual flight line length:
E:\Oyster\Vectors\T5.evf		E:\Oyster\Vectors\T5.evf
Total flight lines: 3		Total flight lines: 4
Total imaging distance: 8mile / 13km		Total imaging distance: 7mile / 12km
Average flight line length: 2.8mile / 4.5km		Average flight line length: 2.0mile / 3.2km
Median flight line length: 2.8mile / 4.5km		Median flight line length: 2.2mile / 3.5km
Maximum flight line length: 3.0mile / 4.8km		Maximum flight line length: 2.5mile / 4.0km
Minimum flight line length: 2.6mile / 4.2km		Minimum flight line length: 1.5mile / 2.5km
Estimated data size (128 bands, 1.5m): 2GB		Estimated data size (128 bands, 2.0m): 1GB
Individual flight line length:		Individual flight line length:
E:\Oyster\Vectors\T6.evf		E:\Oyster\Vectors\T6.evf
Total flight lines: 27		Total flight lines: 21
Total imaging distance: 68mile / 110km		Total imaging distance: 54mile / 87km
Average flight line length: 2.5mile / 4.1km		Average flight line length: 2.6mile / 4.2km
Median flight line length: 2.7mile / 4.4km		Median flight line length: 2.8mile / 4.5km
Maximum flight line length: 3.7mile / 6.0km		Maximum flight line length: 3.4mile / 5.4km
Minimum flight line length: 1.3mile / 2.1km		Minimum flight line length: 1.1mile / 1.7km
Estimated data size (128 bands, 1.5m): 17GB		Estimated data size (128 bands, 2.0m): 10GB
Individual flight line length:		Individual flight line length:

E:\Oyster\Vectors\T7.evf		E:\Oyster\Vectors\T7.evf
Total flight lines: 10		Total flight lines: 2
Total imaging distance: 18mile / 29km		Total imaging distance: 12mile / 20km
Average flight line length: 1.8mile / 2.9km		Average flight line length: 6.4mile / 10.3km
Median flight line length: 1.8mile / 3.0km		Median flight line length: 6.6mile / 10.6km
Maximum flight line length: 2.2mile / 3.5km		Maximum flight line length: 6.6mile / 10.6km
Minimum flight line length: 1.5mile / 2.5km		Minimum flight line length: 6.2mile / 9.9km
Estimated data size (128 bands, 1.5m): 4GB		Estimated data size (128 bands, 2.0m): 2GB
Individual flight line length:		Individual flight line length:
E:\Oyster\Vectors\T8.evf		E:\Oyster\Vectors\T8.evf
Total flight lines: 17		Total flight lines: 13
Total imaging distance: 44mile / 71km		Total imaging distance: 35mile / 56km
Average flight line length: 2.6mile / 4.2km		Average flight line length: 2.7mile / 4.3km
Median flight line length: 2.6mile / 4.3km		Median flight line length: 2.7mile / 4.4km
Maximum flight line length: 3.1mile / 5.0km		Maximum flight line length: 3.1mile / 5.1km
Minimum flight line length: 1.8mile / 3.0km		Minimum flight line length: 2.1mile / 3.4km
Estimated data size (128 bands, 1.5m): 11GB		Estimated data size (128 bands, 2.0m): 6GB
Individual flight line length:		Individual flight line length:
E:\Oyster\Vectors\T9.evf		E:\Oyster\Vectors\T9.evf
Total flight lines: 5		Total flight lines: 4
Total imaging distance: 9mile / 15km		Total imaging distance: 7mile / 12km
Average flight line length: 1.9mile / 3.1km		Average flight line length: 1.9mile / 3.1km
Median flight line length: 2.0mile / 3.2km		Median flight line length: 2.1mile / 3.4km
Maximum flight line length: 2.2mile / 3.6km		Maximum flight line length: 2.2mile / 3.5km
Minimum flight line length: 1.4mile / 2.3km		Minimum flight line length: 1.5mile / 2.4km
Estimated data size (128 bands, 1.5m): 2GB		Estimated data size (128 bands, 2.0m): 1GB
Individual flight line length:		Individual flight line length:
E:\Oyster\Vectors\T10.evf		E:\Oyster\Vectors\T10.evf
Total flight lines: 21		Total flight lines: 14

Total imaging distance: 54mile / 87km		Total imaging distance: 42mile / 67km
Average flight line length: 2.6mile / 4.1km		Average flight line length: 3.0mile / 4.9km
Median flight line length: 2.6mile / 4.2km		Median flight line length: 2.8mile / 4.5km
Maximum flight line length: 3.9mile / 6.3km		Maximum flight line length: 4.9mile / 8.0km
Minimum flight line length: 1.0mile / 1.6km		Minimum flight line length: 1.4mile / 2.2km
Estimated data size (128 bands, 1.5m): 14GB		Estimated data size (128 bands, 2.0m): 8GB
Individual flight line length:		Individual flight line length:
E:\Oyster\Vectors\T11.evf		E:\Oyster\Vectors\T11.evf
Total flight lines: 26		Total flight lines: 20
Total imaging distance: 109mile / 175km		Total imaging distance: 84mile / 135km
Average flight line length: 4.2mile / 6.8km		Average flight line length: 4.2mile / 6.8km
Median flight line length: 3.3mile / 5.3km		Median flight line length: 3.3mile / 5.3km
Maximum flight line length: 7.6mile / 12.2km		Maximum flight line length: 6.9mile / 11.1km
Minimum flight line length: 0.9mile / 1.4km		Minimum flight line length: 1.4mile / 2.3km
Estimated data size (128 bands, 1.5m): 28GB		Estimated data size (128 bands, 2.0m): 16GB
Individual flight line length:		Individual flight line length:
E:\Oyster\Vectors\T12.evf		E:\Oyster\Vectors\T12.evf
Total flight lines: 9		Total flight lines: 8
Total imaging distance: 28mile / 46km		Total imaging distance: 22mile / 36km
Average flight line length: 3.2mile / 5.2km		Average flight line length: 2.8mile / 4.6km
Median flight line length: 3.2mile / 5.2km		Median flight line length: 2.9mile / 4.6km
Maximum flight line length: 3.6mile / 5.7km		Maximum flight line length: 3.6mile / 5.8km
Minimum flight line length: 2.8mile / 4.6km		Minimum flight line length: 1.9mile / 3.1km
Estimated data size (128 bands, 1.5m): 7GB		Estimated data size (128 bands, 2.0m): 4GB
Individual flight line length:		Individual flight line length:
E:\Oyster\Vectors\T13.evf		E:\Oyster\Vectors\T13.evf
Total flight lines: 29		Total flight lines: 22
Total imaging distance: 137mile /		Total imaging distance: 106mile /

221km		171km
Average flight line length: 4.7mile / 7.6km		Average flight line length: 4.8mile / 7.8km
Median flight line length: 5.2mile / 8.4km		Median flight line length: 5.4mile / 8.7km
Maximum flight line length: 7.1mile / 11.4km		Maximum flight line length: 7.2mile / 11.7km
Minimum flight line length: 1.3mile / 2.1km		Minimum flight line length: 1.4mile / 2.3km
Estimated data size (128 bands, 1.5m): 36GB		Estimated data size (128 bands, 2.0m): 20GB
Individual flight line length:		Individual flight line length:
597 miles		**465 miles**
152 GB		**85 GB**

Attachment 2

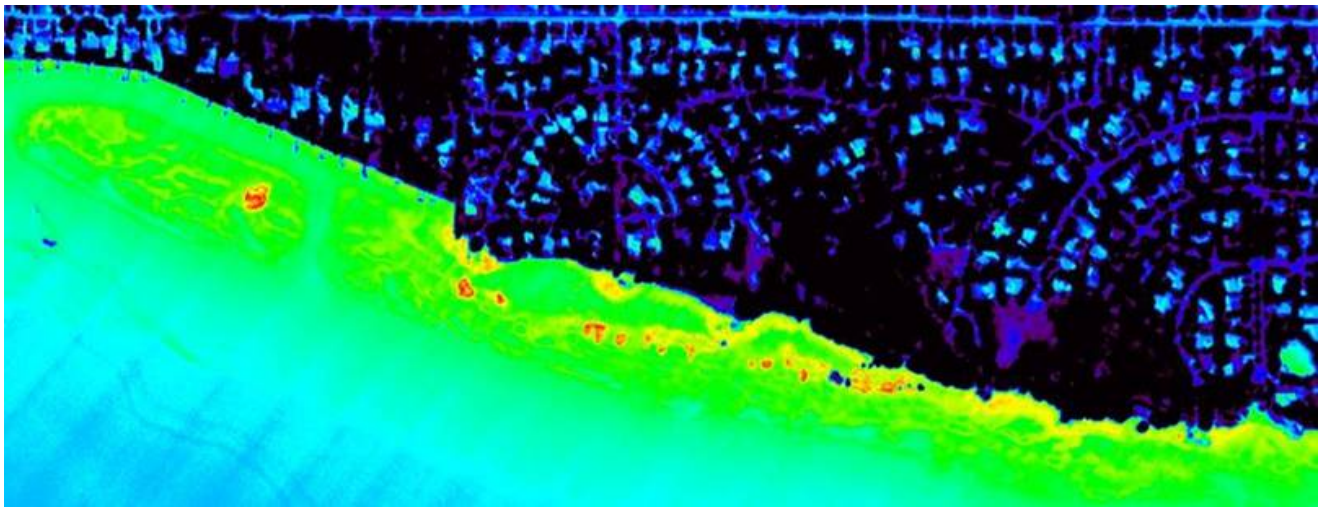
Example 1
Hyperspectral Imagery
(True Color)



Example 2
Hyperspectral Imagery
(Color InfraRed)



Example 3
Hyperspectral Imagery
(False Color)



Attachment 3: Metadata

Galileo GROUP, INC.

Applied Hyperspectral Imaging Services

Hyperspectral Oyster Bed Mapping of Tampa Bay

DATA MANUAL

1. GIS Layer

Projection: Albers DOQQ, meter, NAD83

NEPTUNE II_Oyster Bed_Sites.shp:

- Each mapped oyster bed site is represented by a point
- SITE: oyster bed site number
- FLIGHT: flight number where the oyster bed is located
- SITE1: local site number within one flight

NEPTUNE II_Oyster Bed_Polygons.shp:

- The shape of each oyster bed is represented by one or more polygons
- POLYGON: ordered overall polygon number
- SITE: oyster bed site number
- POLYGON1: ordered polygon number within one site
- FLIGHT: flight number where the oyster bed is located

2. Radiance Data

Directory: Data\20050521\RAD; Data\20050523\RAD; ...

File: 0521-0836_rad.dat & 0521-0836_rad_rgb.dat

- 0521: flight date (May 21, 2005)
- 0836: flight time (08:36 ET)
- _rgb: selected 3 bands data for natural color image

Flight Altitude: 6,600 Feet

Specification: check header file like 0521-0836_rad.hdr

Software: ENVI or ArcGIS with ENVI plug-in for simple processing. For spectral analysis, ENVI is highly recommended.

3. Mosaic Image

Directory: Mosaic

File: Neptune II_Mosaic.tif

Projection: UTM, N17, meter, NAD83 (same as the DOQQ ortho-photo used as reference)

Galileo Group, Inc. • 100 Rialto Place, Suite 737 • Melbourne, Florida 32901
Tel: 321.733.0960 • Fax: 888.283.0061 • Web: galileo-gp.com

4. Geographic Lookup Table (GLT) File

Directory: Data\20050521\GLT; Data\20050523\GLT; …

File: 0521-0836_glt_map.dat

- 0521: flight date (May 21, 2005)
- 0836: flight time (08:36 ET)

Function: Each radiance file has a GLT file. It is used to geo-rectify radiance data or any analysis results based on radiance data to the following projection. Geo-reference using GLT file is supported by ENVI, or other software (may or may not).

Projection: Albers DOQQ, meter, NAD83

Note: The GLT file is generated by Galileo Group for your convenience while the delivered shape and mosaic file are processed by proprietary software from the sensor manufacturer. The difference of these two is 1-2 pixels RMSE. There are also some artifacts in GLT results due to different resampling methods in processing.

GIS Metadata:

0811_NEPTUNE II_Oyster Bed_Polygons

Metadata:

- Identification Information
- Data_Quality_Information
- Spatial_Data_Organization_Information
- Spatial_Reference_Information
- Entity_and_Attribute_Information
- Distribution_Information
- Metadata_Reference_Information

Identification_Information:
Citation:
Citation_Information:
Publication_Date: Unpublished Material
Title: 0811_NEPTUNE II_Oyster Bed_Polygons
Geospatial_Data_Presentation_Form: vector digital data
Description:
Abstract:
This data set represents Hyperspectral Oyster Bed Mapping of Tampa Bay. The Galileo Group, Inc. flew the Tampa Bay coastline at low tide to collect the hyperspectral data as well as RGB photo imagery.
Purpose:
The objective of this mapping exercise was to establish a baseline map layer for the current extent of oysters within Tampa Bay. This effort provides the base data source for future mapping projects and enables trend analyses to be performed to aid scientists in their monitoring efforts. Hyperspectral imagery, comprising 128 spectral bands, was collected at low tide for the near shore of Tampa Bay, Boca Ciega and the Narrows. The flight was planned to correspond with the low tide cycle so that the intertidal areas of the Bay would be exposed. The Galileo Group flew the area and performed the hyperspectal analysis.
Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 9/15/2005
Currentness_Reference: ground condition
Status:
Progress: Complete
Maintenance_and_Update_Frequency: As needed
Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: -82.764659
East_Bounding_Coordinate: -82.383251
North_Bounding_Coordinate: 28.020282

South_Bounding_Coordinate: 27.569306
Keywords:
Theme:
Theme_Keyword: Hyperspectral
Theme_Keyword: Tampa Bay
Theme_Keyword: oyster
Theme_Keyword: oyster reefs
Theme_Keyword: oyster beds
Theme_Keyword: oyster clumps
Place:
Place_Keyword: Tampa Bay
Access_Constraints:
All data must be verified by Principal Investigator or Group Database Analyst prior to release. It is strongly recommended that this data is directly acquired from FWC and not indirectly through other sources which may have changed the data in some way. FWC makes no claims as to the data's suitability for other purposes.
Use_Constraints:
FWC-FWRI must be credited. This is not a survey data set and should not be utilized as such. These data are not to be used for navigation. Acknowledgement of the FWC-FWRI (Florida Fish and Wildlife Conservation Commission-Fish and Wildlife Research Institute) as the data source would be appreciated in any products developed from these data, and such acknowledgment as is standard for citation and legal practices for data source is expected by users of this data. Please cite the original metadata when using portions of the record to create a similar record of slightly altered data, such as reprojection. If any data are modified or adjusted, please share the edited information with FWC. Users should be aware that comparison with other data sets for the same area from other time periods may be inaccurate due to inconsistencies resulting from changes in mapping conventions, data collection, and computer processes over time. FWC shall not be liable for improper or incorrect use of this data. These data are not legal documents and are not to be used as such. This is not a survey data set and should not be utilized as such. These data are not to be used for navigation.
Point_of_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: GIS Data Librarian
Contact_Organization:
FWC-FWRI (Florida Fish and Wildlife Conservation Commission-Fish and Wildlife Research Institute)
Contact_Position: GIS Data Librarian
Contact_Address:
Address_Type: mailing and physical address
Address:
Fish and Wildlife Research Institute 100 Eighth Avenue Southeast
City: St. Petersburg
State_or_Province: Florida
Postal_Code: 33701-5020
Country: USA
Contact_Voice_Telephone: 727-896-8626
Contact_Facsimile_Telephone: 727-893-1679

Contact_Electronic_Mail_Address: GISLibrarian@MyFWC.com
Hours_of_Service: Monday – Friday 8:00 a.m.-5:00 p.m. Eastern time
Security_Information:
Security_Classification_System: FWRI-DC
Security_Classification: Available without restriction
Security_Handling_Description: Available without restriction
Native_Data_Set_Environment:
Microsoft Windows XP Version 5.1 (Build 2600) Service Pack 2; ESRI ArcCatalog 9.1.0.722

Data_Quality_Information:
Attribute_Accuracy:
Attribute_Accuracy_Report: All entities and attributes have been identified.
Lineage:
Process_Step:
Process_Date: Unknown

Spatial_Data_Organization_Information:
Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: G-polygon
Point_and_Vector_Object_Count: 1009

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Map_Projection:
Map_Projection_Name: Albers Conical Equal Area
Albers_Conical_Equal_Area:
Standard_Parallel: 24.000000
Standard_Parallel: 31.500000
Longitude_of_Central_Meridian: -84.000000
Latitude_of_Projection_Origin: 24.000000
False_Easting: 400000.000000
False_Northing: 0.000000
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: coordinate pair
Coordinate_Representation:
Abscissa_Resolution: 0.000128
Ordinate_Resolution: 0.000128
Planar_Distance_Units: meters
Geodetic_Model:
Horizontal_Datum_Name: North American Datum of 1983
Ellipsoid_Name: Geodetic Reference System 80
Semi-major_Axis: 6378137.000000
Denominator_of_Flattening_Ratio: 298.257222

Entity_and_Attribute_Information:

Detailed_Description:
Entity_Type:
Entity_Type_Label: 0811_NEPTUNE II_Oyster Bed_Polygons
Attribute:
Attribute_Label: FID
Attribute_Definition: Internal feature number.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain:
Sequential unique whole numbers that are automatically generated.
Attribute:
Attribute_Label: Shape
Attribute_Definition: Feature geometry.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain: Coordinates defining the features.
Attribute:
Attribute_Label: POLYGON
Attribute_Definition: ordered overall polygon number
Attribute_Definition_Source: Derived from information provided by the Galileo Group
Attribute:
Attribute_Label: SITE
Attribute_Definition: oyster bed site number
Attribute_Definition_Source: Derived from information provided by the Galileo Group
Attribute:
Attribute_Label: POLYGON1
Attribute_Definition: ordered polygon number within one site
Attribute_Definition_Source: Derived from information provided by the Galileo Group
Attribute:
Attribute_Label: FLIGHT
Attribute_Definition: flight number where the oyster bed is located
Attribute_Definition_Source: Derived from information provided by the Galileo Group
Overview_Description:
Entity_and_Attribute_Overview:
This is a detailed description of the attributes for the 0811_NEPTUNE II_Oyster Bed_Polygons. These attributes were obtained from the Galileo Group, Inc. The shape of each oyster bed is represented by one or more polygons.

Distribution_Information:
Distributor:
Contact_Information:
Contact_Person_Primary:
Contact_Person: GIS Data Librarian
Contact_Organization:
FWC-FWRI (Florida Fish and Wildlife Conservation Commission-Fish and Wildlife Research Institute)
Contact_Position: GIS Data Librarian
Contact_Address:

Address_Type: mailing and physical address
Address:
Fish and Wildlife Research Institute 100 Eighth Avenue Southeast
City: St. Petersburg
State_or_Province: Florida
Postal_Code: 33701-5020
Country: USA
Contact_Voice_Telephone: 727-896-8626
Contact_Facsimile_Telephone: 727-893-1679
Contact_Electronic_Mail_Address: GISLibrarian@MyFWC.com
Hours_of_Service: 8:00 a.m.-5:00 p.m. Eastern time
Resource_Description: Downloadable Data
Distribution_Liability:
This data set is in the public domain, and the recipient may not assert any proprietary rights thereto nor represent it to anyone as other than a FWC-FWRI produced data set; it is provided "as-is" without warranty of any kind, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. The user assumes all responsibility for the accuracy and suitability of this data set for a specific application. In no event will the staff of the Fish and Wildlife Research Institute be liable for any damages, including lost profits, lost savings, or other incidental or consequential damages arising from the use of or the inability to use this data set.
Standard_Order_Process:
Non-digital_Form:
Contact GIS Librarian by e-mail, telephone, or letter explaining which products are needed and providing a brief description of how the products will be used. Also, provide name and address of the person or organization requesting the products
Fees:
None. However, persons or organizations requesting information must provide transfer media (CD-ROM only) if FTP is not available and must pay express shipping costs if express shipping is required.
Ordering_Instructions:
Contact GIS Librarian by e-mail, telephone, or letter explaining which products are needed and providing a brief description of how the products will be used. Also, provide name and address of the person or organization requesting the products.
Turnaround:
Usually within 10 business days, although, complex requests may take longer
Custom_Order_Process: Contact GIS Librarian
Available_Time_Period:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 2/14/2006

Metadata_Reference_Information:
Metadata_Date: 20060213
Metadata_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: GIS Data Librarian

Contact_Organization:
FWC-FWRI (Florida Fish and Wildlife Conservation Commission-Fish and Wildlife Research Institute)
Contact_Position: GIS Data Librarian
Contact_Address:
Address_Type: mailing and physical address
Address:
Fish and Wildlife Research Institute 100 Eighth Avenue Southeast
City: St. Petersburg
State_or_Province: Florida
Postal_Code: 33701-5020
Country: USA
Contact_Voice_Telephone: 727-896-8626
Contact_Facsimile_Telephone: 727-893-1679
Contact_Electronic_Mail_Address: GISLibrarian@MyFWC.com
Hours_of_Service: 8:00 a.m.-5:00 p.m. Eastern time
Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998
Metadata_Time_Convention: local time
Metadata_Access_Constraints: No restrictions on metadata.
Metadata_Use_Constraints: Metadata must be distributed with the data set
Metadata_Security_Information:
Metadata_Security_Classification_System: FWRI-MC
Metadata_Security_Classification: Available
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile

FWRI_TB_oysters

Metadata:

- Identification_Information
- Data_Quality_Information
- Spatial_Data_Organization_Information
- Spatial_Reference_Information
- Entity_and_Attribute_Information
- Distribution_Information
- Metadata_Reference_Information

Identification_Information:
Citation:
Citation_Information:
Originator: FWC-FWRI

Publication_Date: Unpublished Material
Publication_Time: 2/14/2006
Title: FA_4_PI
Geospatial_Data_Presentation_Form: vector digital data
Description:
Abstract:
This data set represents oyster reef coverage around Tampa Bay. A combination of methodologies was employed on 2005 low tide true color imagery provided by the Galileo Group, Inc. Visual Learning Systems software, Feature Analyst and photo interperation was used to assertain oyster reef coverage in the Bay area.
Purpose:
The objective of this mapping exercise was to establish a baseline map layer for the current extent of oysters within Tampa Bay. This effort provides the base data source for future mapping projects and enables trend analyses to be performed to aid scientists in their monitoring efforts.
Supplemental_Information:
Prior to July 1, 2004, the Fish and Wildlife Research Institute (FWRI) was known as the Florida Marine Research Institute (FMRI). The institute name has not been changed in historical data sets or references to work completed by the Florida Marine Research Institute. The institute name has been changed in references to ongoing research, new research, and contact information.
Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 2/14/2006
Currentness_Reference: ground condition
Status:
Progress: Complete
Maintenance_and_Update_Frequency: As needed
Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: -82.846493
East_Bounding_Coordinate: -82.385410
North_Bounding_Coordinate: 28.023691
South_Bounding_Coordinate: 27.581787
Keywords:
Theme:
Theme_Keyword: oysters
Theme_Keyword: Tampa Bay
Theme_Keyword: oyster reef mapping
Theme_Keyword: oyster reef
Theme_Keyword: oyster clumps
Theme_Keyword: mangrove root oyster
Theme_Keyword: low tide imagery
Place:
Place_Keyword: Tampa Bay
Access_Constraints:
All data must be verified by Principal Investigator or Group Database Analyst prior to release. It is strongly recommended that this data is directly acquired from FWC and not indirectly through

other sources which may have changed the data in some way. FWC makes no claims as to the data's suitability for other purposes.
Use_Constraints:
FWC-FWRI must be credited. This is not a survey data set and should not be utilized as such. These data are not to be used for navigation. Acknowledgement of the FWC-FWRI (Florida Fish and Wildlife Conservation Commission-Fish and Wildlife Research Institute) as the data source would be appreciated in any products developed from these data, and such acknowledgment as is standard for citation and legal practices for data source is expected by users of this data. Please cite the original metadata when using portions of the record to create a similar record of slightly altered data, such as reprojection. If any data are modified or adjusted, please share the edited information with FWC. Users should be aware that comparison with other data sets for the same area from other time periods may be inaccurate due to inconsistencies resulting from changes in mapping conventions, data collection, and computer processes over time. FWC shall not be liable for improper or incorrect use of this data. These data are not legal documents and are not to be used as such. This is not a survey data set and should not be utilized as such. These data are not to be used for navigation.
Point_of_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: GIS Data Librarian
Contact_Organization:
FWC-FWRI (Florida Fish and Wildlife Conservation Commission-Fish and Wildlife Research Institute)
Contact_Position: GIS Data Librarian
Contact_Address:
Address_Type: mailing and physical address
Address:
Fish and Wildlife Research Institute 100 Eighth Avenue Southeast
City: St. Petersburg
State_or_Province: Florida
Postal_Code: 33701-5020
Country: USA
Contact_Voice_Telephone: 727-896-8626
Contact_Facsimile_Telephone: 727-893-1679
Contact_Electronic_Mail_Address: GISLibrarian@MyFWC.com
Security_Information:
Security_Classification_System: FWRI-DC
Security_Classification: Available without restriction
Security_Handling_Description: Available without restriction
Native_Data_Set_Environment:
Microsoft Windows XP Version 5.1 (Build 2600) Service Pack 2; ESRI ArcCatalog 9.1.0.722

Data_Quality_Information:
Attribute_Accuracy:
Attribute_Accuracy_Report: Attributes are accurate as the source data.
Logical_Consistency_Report: These data are logically consistent.
Completeness_Report: These data are complete for the state of Florida
Positional_Accuracy:

Horizontal_Positional_Accuracy:
Horizontal_Positional_Accuracy_Report:
Positional accuracy has not been determined and varies according to linework source.
Lineage:
Source_Information:
Source_Citation:
Citation_Information:
Originator: Galileo Group, Inc.
Publication_Date: Unpublished Material
Title: NeptuneII_mosaic
Geospatial_Data_Presentation_Form: raster digital data
Source_Scale_Denominator: 6600
Type_of_Source_Media: Digital imagery
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 29/2005
Source_Currentness_Reference: ground condition
Source_Contribution:
Low tide imagery was use for photo interperation of oyster reefs in Tampa Bay
Process_Step:
Process_Description:
Oyster reefs were produced by "heads up" digitizing using the 2005 imagery provided by the Galileo Group, Inc. of Tampa Bay. In specific cases, 2004 digital ortho-photography were used.
Process_Date: 2005
Process_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: GIS Data Librarian
Contact_Organization:
FWC-FWRI (Florida Fish and Wildlife Conservation Commission-Fish and Wildlife Research Institute)
Contact_Position: GIS Data Librarian
Contact_Address:
Address_Type: mailing and physical address
Address:
Fish and Wildlife Research Institute 100 Eighth Avenue Southeast
City: St. Petersburg
State_or_Province: Florida
Postal_Code: 33701-2050
Country: USA
Contact_Voice_Telephone: 727-896-8626
Contact_Facsimile_Telephone: 727-893-1679
Contact_Electronic_Mail_Address: GISLibrarian@MyFWC.com
Hours_of_Service: 8:00 a.m.-5:00 p.m. Eastern time

Spatial_Data_Organization_Information:
Direct_Spatial_Reference_Method: Vector

Point_and_Vector_Object_Information:
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: G-polygon
Point_and_Vector_Object_Count: 1720

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Grid_Coordinate_System:
Grid_Coordinate_System_Name: Universal Transverse Mercator
Universal_Transverse_Mercator:
UTM_Zone_Number: 17
Transverse_Mercator:
Scale_Factor_at_Central_Meridian: 0.999600
Longitude_of_Central_Meridian: -81.000000
Latitude_of_Projection_Origin: 0.000000
False_Easting: 500000.000000
False_Northing: 0.000000
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: coordinate pair
Coordinate_Representation:
Abscissa_Resolution: 0.000128
Ordinate_Resolution: 0.000128
Planar_Distance_Units: meters
Geodetic_Model:
Horizontal_Datum_Name: North American Datum of 1983
Ellipsoid_Name: Geodetic Reference System 80
Semi-major_Axis: 6378137.000000
Denominator_of_Flattening_Ratio: 298.257222

Entity_and_Attribute_Information:
Detailed_Description:
Entity_Type:
Entity_Type_Label: FA_4_PI
Entity_Type_Definition: unknown
Entity_Type_Definition_Source: producer defined
Attribute:
Attribute_Label: FID
Attribute_Definition: Internal feature number.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain:
Sequential unique whole numbers that are automatically generated.
Attribute:
Attribute_Label: Shape
Attribute_Definition: Feature geometry.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:

Unrepresentable_Domain: Coordinates defining the features.
Attribute:
Attribute_Label: CLASS_ID
Attribute_Definition: unknown
Attribute_Definition_Source: producer defined
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: unknown
Enumerated_Domain_Value_Definition: producer defined
Attribute:
Attribute_Label: ID
Attribute_Definition: unknown
Attribute_Definition_Source: producer defined
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: unknown
Enumerated_Domain_Value_Definition: producer defined
Overview_Description:
Entity_and_Attribute_Overview: unknown
Entity_and_Attribute_Detail_Citation: unknown

Distribution_Information:
Distributor:
Contact_Information:
Contact_Person_Primary:
Contact_Person: GIS Data Librarian
Contact_Organization:
FWC-FWRI (Florida Fish and Wildlife Conservation Commission-Fish and Wildlife Research Institute)
Contact_Position: GIS Data Librarian
Contact_Address:
Address_Type: mailing and physical address
Address:
Fish and Wildlife Research Institute 100 Eighth Avenue Southeast
City: St. Petersburg
State_or_Province: Florida
Postal_Code: 33701-5020
Country: USA
Contact_Voice_Telephone: 727-896-8626
Contact_Facsimile_Telephone: 727-893-1679
Contact_Electronic_Mail_Address: GISLibrarian@MyFWC.com
Hours_of_Service: 8:00 a.m.-5:00 p.m. Eastern time
Resource_Description: Downloadable Data
Distribution_Liability:
This data set is in the public domain, and the recipient may not assert any proprietary rights thereto nor represent it to anyone as other than a FWC-FWRI produced data set; it is provided "as-is" without warranty of any kind, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. The user assumes all responsibility for the

accuracy and suitability of this data set for a specific application. In no event will the staff of the Fish and Wildlife Research Institute be liable for any damages, including lost profits, lost savings, or other incidental or consequential damages arising from the use of or the inability to use this data set.
Standard_Order_Process:
Digital_Form:
Digital_Transfer_Information:
Transfer_Size: 0.554
Fees:
None. However, persons or organizations requesting information must provide transfer media if FTP is not available and must pay express shipping costs if express shipping is required.
Ordering_Instructions:
Contact GIS Librarian by e-mail, telephone, or letter explaining which products are needed and providing a brief description of how the products will be used. Also, provide name and address of the person or organization requesting the products.
Turnaround:
Usually within 10 business days, although, complex requests may take longer
Available_Time_Period:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 2/14/2006

Metadata_Reference_Information:
Metadata_Date: 20060213
Metadata_Future_Review_Date: unknown
Metadata_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization:
FWC-FWRI (Florida Fish and Wildlife Conservation Commission-Fish and Wildlife Research Institute)
Contact_Person: GIS Data Librarian
Contact_Position: GIS Data Librarian
Contact_Address:
Address_Type: mailing and physical address
Address:
Fish and Wildlife Research Institute 100 Eighth Avenue Southeast
City: St. Petersburg
State_or_Province: Florida
Postal_Code: 33701-5020
Country: USA
Contact_Voice_Telephone: 727-896-8626
Contact_Facsimile_Telephone: 727-893-1679
Contact_Electronic_Mail_Address: GISLibrarian@MyFWC.com
Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998
Metadata_Time_Convention: local time
Metadata_Access_Constraints: No restrictions on metadata

Metadata_Use_Constraints: Metadata must be distributed with the data set.
Metadata_Security_Information:
Metadata_Security_Classification_System: FWRI-MC
Metadata_Security_Classification: Available
Metadata_Security_Handling_Description: Metadata must be distributed with the data set.
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile

Attachment 4: Galileo Technical Report

Attachment 5: Field Reconnaissance Notes

Green boundaries indicate area targeted fro field review. Oysters actually observed in field noted in dark ink. When scanned, some of these notes are obscured. Comments have been inserted where appropriate to aid in deciphering these.

Attachment 6: Field Sample Maps

Attachment 7: Final Maps

Attachment 8: Historic Maps

APPENDIX C
Observed Species

Appendix Ca. Comprehensive List of Plants Observed at Double Branch Bay

Common Name	Scientific Name	Location	Date
SLENDER THREESEED MERCURY	*Acalypha gracilens*	none recorded	Updated 1, Dec. 2010
RED MAPLE	*Acer rubrum*	none recorded	Updated 1, Dec. 2010
GIANT LEATHER FERN	*Acrostichum danaefolium*	28° 00′ 41″ N, 82° 37′ 01″ W	08/10/2016
GIANT LEATHER FERN	*Acrostichum danaeifolium*	none recorded	Updated 1, Dec. 2010
SHYLEAF	*Aeschynomene americana*	none recorded	Updated 1, Dec. 2010
SALTMARSH FALSE FOXGLOVE	*Agalinis maritima*	28° 00′ 43″ N, 82° 36′ 54″ W	08/10/2016
SALTMARSH FALSE FOXGLOVE	*Agalinis maritima*	none recorded	Updated 1, Dec. 2010
HAMMOCK SNAKEROOT	*Ageratina jucunda*	none recorded	Updated 1, Dec. 2010
COMMON RAGWEED	*Ambrosia artemisiifolia*	none recorded	Updated 1, Dec. 2010
BASTARD INDIGOBUSH	*Amorpha fruticosa*	none recorded	Updated 1, Dec. 2010
CLUSTERSPIKE FALSE INDIGOBUSH	*Amorpha herbacea*	none recorded	Updated 1, Dec. 2010
PEPPERVINE	*Ampelopsis arborea*	none recorded	Updated 1, Dec. 2010
BLUE MAIDENCANE	*Amphicarpum muhlenbergianum*	none recorded	Updated 1, Dec. 2010
BUSHY BLUESTEM	*Andropogon glomeratus*	none recorded	Updated 1, Dec. 2010
PURPLE BLUESTEM	*Andropogon glomeratus var. glaucopsis*	none recorded	Updated 1, Dec. 2010
BROOMSEDGE BLUESTEM	*Andropogon virginicus*	none recorded	Updated 1, Dec. 2010
BROOMSEDGE BLUESTEM	*Andropogon virginicus var. decipiens*	none recorded	Updated 1, Dec. 2010
CHALKY BLUESTEM	*Andropogon virginicus var. glaucus*	none recorded	Updated 1, Dec. 2010
TALL THREEAWN	*Aristida patula•*	28° 00′ 43″ N, 82° 36′ 54″ W	08/10/2016
TALL THREEAWN	*Aristida patula•*	none recorded	Updated 1, Dec. 2010
ARROWFEATHER THREEAWN	*Aristida purpurascens var. virgata*	none recorded	Updated 1, Dec. 2010
BOTTLEBRUSH THREEAWN	*Aristida spiciformis*	none recorded	Updated 1, Dec. 2010
WIREGRASS	*Aristida stricta var. beyrichiana*	none recorded	Updated 1, Dec. 2010
CRESTED SALTBUSH	*Atriplex pentandra*	none recorded	Updated 1, Dec. 2010
BLACK MANGROVE	*Avicennia germinans*	28° 00′ 43″ N, 82° 36′ 54″ W	08/10/2016
BLACK MANGROVE	*Avicennia germinans*	none recorded	Updated 1, Dec. 2010
SALTWATER FALSEWILLOW	*Baccharis angustifolia*	none recorded	Updated 1, Dec. 2010
GROUNDSEL TREE; SEA MYRTLE	*Baccharis halimifolia*	28° 00′ 19″ N, 82° 23′ 53″ W	12/16/2016
GROUNDSEL TREE; SEA MYRTLE	*Baccharis halimifolia*	none recorded	Updated 1, Dec. 2010
TROPICAL WATERHYSSOP	*Bacopa innominata*	none recorded	Updated 1, Dec. 2010
HERB-OF-GRACE	*Bacopa monnieri*	28° 00′ 45″ N, 82° 36′ 52″ W	08/10/2016
HERB-OF-GRACE	*Bacopa monnieri*	none recorded	Updated 1, Dec. 2010
SALTWORT	*Batis maritima*	28° 00′ 41″ N, 82° 37′ 01″ W	08/10/2016
SALTWORT	*Batis maritima*	none recorded	Updated 1, Dec. 2010
RATTAN VINE	*Berchemia scandens*	none recorded	Updated 1, Dec. 2010
BEGGARTICKS	*Bidens alba*	none recorded	Updated 1, Dec. 2010
TOOTHED MIDSORUS FERN	*Blechnum serrulatum*	none recorded	Updated 1, Dec. 2010
SAMPHIRE; SILVERHEAD	*Blutaparon vermiculare*	28° 00′ 26″ N, 82° 24′ 35″ W	12/16/2016
SAMPHIRE; SILVERHEAD	*Blutaparon vermiculare*	none recorded	Updated 1, Dec. 2010
BUSHY SEASIDE OXEYE	*Borrichia frutescens*	none recorded	Updated 1, Dec. 2010
AMERICAN BEAUTYBERRY	*Callicarpa americana*	none recorded	Updated 1, Dec. 2010
BANDANA-OF-THE-EVERGLADES	*Canna flaccida*	none recorded	Updated 1, Dec. 2010
CHESTNUTLEAF FALSECROTON	*Caperonia castaneifolia*	none recorded	03-Jul-17
PENNSYLVANIA BITTERCRESS	*Cardamine pensylvanica*	none recorded	Updated 1, Dec. 2010
SUGARBERRY	*Celtis laevigata*	none recorded	Updated 1, Dec. 2010
SPADELEAF	*Centella asiatica*	none recorded	Updated 1, Dec. 2010
WATER HORN FERN	*Ceratopteris pteridoides*	none recorded	Updated 1, Dec. 2010
PARTRIDGE PEA	*Chamaecrista fasciculata*	none recorded	Updated 1, Dec. 2010
SENSITIVE PEA	*Chamaecrista nictitans*	none recorded	Updated 1, Dec. 2010
CAMPHORTREE	*Cinnamomum camphora** ***(CAT I)***	none recorded	Updated 1, Dec. 2010
PINE-HYACINTH	*Clematis baldwinii*	28° 00′ 48″ N, 82° 36′ 53″ W	08/10/2016
BEAKED PANICUM	*Coleataenia anceps*	28° 00′ 45″ N, 82° 36′ 53″ W	08/10/2016
CILIATE REDTOP PANICUM	*Coleataenia longifolia*	none recorded	Updated 1, Dec. 2010
COMMON DAYFLOWER	*Commelina diffusa var. diffusa*	28° 01′ 19″ N, 82° 37′ 37″ W	12/16/2016
COMMON DAYFLOWER	*Commelina diffusa var. diffusa**	none recorded	Updated 1, Dec. 2010
BUTTONWOOD	*Conocarpus erectus*	28° 00′ 41″ N, 82° 37′ 01″ W	08/10/2016
BUTTONWOOD	*Conocarpus erectus*	none recorded	Updated 1, Dec. 2010
DWARF CANADIAN HORSEWEED	*Conyza canadensis*	none recorded	Updated 1, Dec. 2010
LEAVENWORTH'S TICKSEED	*Coreopsis leavenworthii*	28° 00′ 43″ N, 82° 36′ 54″ W	08/10/2016
LEAVENWORTH'S TICKSEED	*Coreopsis leavenworthii*	none recorded	Updated 1, Dec. 2010
STRING-LILY	*Crinum americanum*	none recorded	Updated 1, Dec. 2010
LANCELEAF RATTLEBOX	*Crotalaria lanceolata**	none recorded	Updated 1, Dec. 2010
COLOMBIAN WAXWEED	*Cuphea carthagenensi**	28° 01′ 19″ N, 82° 37′ 37″ W	12/16/2016
FIVEANGLED DODDER	*Cuscuta pentagona*	28° 00′ 45″ N, 82° 36′ 43″ W	08/10/2016
GULF COAST SWALLOWWORT	*Cynanchum angustifolium*	none recorded	Updated 1, Dec. 2010
BALDWIN'S FLATSEDGE	*Cyperus croceus*	none recorded	Updated 1, Dec. 2010
REDROOT FLATSEDGE	*Cyperus erythrorhizos*	28° 07′ 28″ N, 82° 24′ 40″ W	12/16/2016

Appendix Ca. Comprehensive List of Plants Observed at Double Branch Bay

Common Name	Scientific Name	Location	Date
YELLOW NUTGRASS	*Cyperus esculentus**	none recorded	Updated 1, Dec. 2010
HASPAN FLATSEDGE	*Cyperus haspan*	none recorded	Updated 1, Dec. 2010
SWAMP FLATSEDGE	*Cyperus ligularis*	none recorded	Updated 1, Dec. 2010
FRAGRANT FLATSEDGE	*Cyperus odoratus*	28° 07′ 26″ N, 82° 24′ 35″ W	12/16/2016
FRAGRANT FLATSEDGE	*Cyperus odoratus*	none recorded	Updated 1, Dec. 2010
MANYSPIKE FLATSEDGE	*Cyperus polystachyos*	none recorded	Updated 1, Dec. 2010
PINEBARREN FLATSEDGE	*Cyperus retrorsus*	none recorded	Updated 1, Dec. 2010
TROPICAL FLATSEDGE	*Cyperus surinamensis*	none recorded	Updated 1, Dec. 2010
GREEN FLATSEDGE	*Cyperus virens*	none recorded	Updated 1, Dec. 2010
PANAL	*Cypselea humifusa**	none recorded	Updated 1, Dec. 2010
PANICLED TICKTREFOIL	*Desmodium paniculatum*	none recorded	Updated 1, Dec. 2010
CYPRESS WITCHGRASS	*Dichanthelium ensifolium*	28° 00′ 45″ N, 82° 36′ 53″ W	08/10/2016
CYPRESS WITCHGRASS	*Dichanthelium ensifolium*	none recorded	Updated 1, Dec. 2010
OPENFLOWER WITCHGRASS	*Dichanthelium laxiflorum*	none recorded	Updated 1, Dec. 2010
CAROLINA PONYSFOOT	*Dichondra carolinensis*	none recorded	Updated 1, Dec. 2010
SOUTHERN CRABGRASS	*Digitaria ciliaris*	none recorded	Updated 1, Dec. 2010
POOR JOE	*Diodia teres*	none recorded	Updated 1, Dec. 2010
COMMON PERSIMMON	*Diospyros virginiana*	none recorded	Updated 1, Dec. 2010
SALTGRASS	*Distichlis spicata*	none recorded	Updated 1, Dec. 2010
JUNGLE RICE	*Echinochloa colona*	none recorded	Updated 1, Dec. 2010
COAST COCKSPUR	*Echinochloa walteri*	28° 00′ 49'' N, 82° 36′ 59″ W	08/10/2016
COAST COCKSPUR	*Echinochloa walteri*	none recorded	Updated 1, Dec. 2010
FALSE DAISY	*Eclipta prostrata*	28° 00′ 45″ N, 82° 36′ 53″ W	08/10/2016
FALSE DAISY	*Eclipta prostrata*	none recorded	Updated 1, Dec. 2010
WHITE SPIKERUSH	*Eleocharis albida*	none recorded	Updated 1, Dec. 2010
GULF COAST SPIKERUSH	*Eleocharis cellulosa*	none recorded	Updated 1, Dec. 2010
YELLOW SPIKERUSH	*Eleocharis flavescens*	none recorded	Updated 1, Dec. 2010
LILAC TASSELFLOWER	*Emilia sonchifolia**	none recorded	Updated 1, Dec. 2010
EARPOD TREE	*Enterolobium contortisiliquum**	none recorded	Updated 1, Dec. 2010
ELLIOTT'S LOVEGRASS	*Eragrostis elliottii*	none recorded	Updated 1, Dec. 2010
PURPLE LOVEGRASS	*Eragrostis spectabilis*	none recorded	Updated 1, Dec. 2010
COASTAL LOVEGRASS	*Eragrostis virginica*	none recorded	Updated 1, Dec. 2010
AMERICAN BURNWEED	*Erechtites hieraciifolius*	none recorded	Updated 1, Dec. 2010
EARLY WHITETOP FLEABANE	*Erigeron vernus*	28° 00′ 47″ N, 82° 36′ 50″ W	08/10/2016
BALDWIN'S ERYNGO	*Eryngium baldwinii*	none recorded	Updated 1, Dec. 2010
CORALBEAN	*Erythrina herbacea*	none recorded	Updated 1, Dec. 2010
DOGFENNEL	*Eupatorium capillifolium*	none recorded	Updated 1, Dec. 2010
SEMAPHORE THOROUGHWORT	*Eupatorium mikanioides•*	none recorded	Updated 1, Dec. 2010
SEMAPHORE THOROUGHWORT	*Eupatorium mikanioides•*	28° 00′ 43" N, 82° 36′ 54″ W	08/10/2016
MOHR'S THOROUGHWORT	*Eupatorium mohrii*	none recorded	Updated 1, Dec. 2010
LATEFLOWERING THOROUGHWORT	*Eupatorium serotinum*	28° 00′ 45″ N, 82° 36′ 43″ W	08/10/2016
LATEFLOWERING THOROUGHWORT	*Eupatorium serotinum*	none recorded	Updated 1, Dec. 2010
SALTMARSH FINGERGRASS	*Eustachys glauca*	none recorded	Updated 1, Dec. 2010
PINEWOODS FINGERGRASS	*Eustachys petraea*	none recorded	Updated 1, Dec. 2010
SLENDER FLATTOP GOLDENROD	*Euthamia caroliniana*	none recorded	Updated 1, Dec. 2010
FLATTOP GOLDENROD	*Euthamia graminifolia var. hirtipes*	none recorded	Updated 1, Dec. 2010
SLENDER FIMBRY	*Fimbristylis autumnalis*	none recorded	Updated 1, Dec. 2010
CAROLINA FIMBRY	*Fimbristylis caroliniana*	none recorded	Updated 1, Dec. 2010
HURRICANEGRASS	*Fimbristylis cymosa*	none recorded	Updated 1, Dec. 2010
DITCH FIMBRY	*Fimbristylis schoenoides**	none recorded	Updated 1, Dec. 2010
MARSH FIMBRY	*Fimbristylis spadicea*	28° 00′ 47″ N, 82° 36′ 53″ W	08/10/2016
MARSH FIMBRY	*Fimbristylis spadicea*	none recorded	Updated 1, Dec. 2010
FLORIDA YELLOWTOPS	*Flaveria floridana•*	none recorded	Updated 1, Dec. 2010
SALTMARSH UMBRELLASEDGE	*Fuirena breviseta*	none recorded	Updated 1, Dec. 2010
ELLIOTT'S MILKPEA	*Galactia elliottii*	none recorded	Updated 1, Dec. 2010
SOUTHERN BEEBLOSSOM	*Gaura angustifolia*	none recorded	Updated 1, Dec. 2010
TAMPA MOCK VERVAIN	*Glandularia tampensis•* ***(E)-FL***	none recorded	Updated 1, Dec. 2010
BRANCHED HEDGEHYSSOP	*Gratiola ramosa*	none recorded	Updated 1, Dec. 2010
ROUNDFRUIT HEDGEHYSSOP	*Gratiola virginiana*	none recorded	Updated 1, Dec. 2010
TOOTHPETAL FALSE REINORCHID	*Habenaria floribunda*	28° 08′ 28″ N, 82° 23′ 56″ W	12/16/2016
TOOTHPETAL FALSE REINORCHID	*Habenaria floribunda*	none recorded	Updated 1, Dec. 2010
NARROWLEAF SUNFLOWER	*Helianthus angustifolius*	none recorded	Updated 1, Dec. 2010
INNOCENCE	*Houstonia procumbens*	none recorded	Updated 1, Dec. 2010
WHORLED MARSHPENNYWORT	*Hydrocotyle verticillata var. triradiata*	none recorded	Updated 1, Dec. 2010
ALLIGATORLILY	*Hymenocallis palmeri•*	28° 00′ 47″ N, 82° 36′ 50″ W	08/10/2016
ALLIGATORLILY	*Hymenocallis palmeri•*	none recorded	Updated 1, Dec. 2010

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Common Name	Scientific Name	Location	Date
COASTALPLAIN ST.JOHN'S-WORT	*Hypericum brachyphyllum*	28° 01′ 19″ N, 82° 37′ 37″ W	12/16/2016
ROUNDPOD ST.JOHN'S-WORT	*Hypericum cistifolium*	28° 00′ 48″ N, 82° 37′ 01″ W	08/10/2016
ROUNDPOD ST.JOHN'S-WORT	*Hypericum cistifolium*	none recorded	Updated 1, Dec. 2010
ST.ANDREW'S-CROSS	*Hypericum hypericoides*	none recorded	Updated 1, Dec. 2010
ATLANTIC ST.JOHN'S-WORT	*Hypericum reductum*	none recorded	Updated 1, Dec. 2010
FOURPETAL ST.JOHN'S-WORT	*Hypericum tetrapetalum*	none recorded	Updated 1, Dec. 2010
CLUSTERED BUSHMINT	*Hyptis alata*	none recorded	Updated 1, Dec. 2010
DAHOON	*Ilex cassine*	28° 00′ 45″ N, 82° 36′ 53″ W	08/10/2016
DAHOON	*Ilex cassine*	none recorded	Updated 1, Dec. 2010
INKBERRY; GALLBERRY	*Ilex glabra*	none recorded	Updated 1, Dec. 2010
COGONGRASS	*Imperata cylindrica** ***(CAT I)***	none recorded	Updated 1, Dec. 2010
SALTMARSH MORNING-GLORY	*Ipomoea sagittata*	28° 00′ 45″ N, 82° 36′ 52″ W	08/10/2016
SALTMARSH MORNING-GLORY	*Ipomoea sagittata*	none recorded	Updated 1, Dec. 2010
BIGLEAF SUMPWEED	*Iva frutescens*	none recorded	Updated 1, Dec. 2010
SEACOAST MARSHELDER	*Iva imbricata*	none recorded	Updated 1, Dec. 2010
FORKED RUSH	*Juncus dichotomus*	none recorded	Updated 1, Dec. 2010
SOFT RUSH	*Juncus effusus subsp. solutus*	none recorded	Updated 1, Dec. 2010
GRASSLEAF RUSH	*Juncus marginatus*	none recorded	Updated 1, Dec. 2010
BIGHEAD RUSH	*Juncus megacephalus*	none recorded	Updated 1, Dec. 2010
MANYHEAD RUSH	*Juncus polycephalos*	none recorded	Updated 1, Dec. 2010
BLACK NEEDLE RUSH	*Juncus roemerianus*	none recorded	Updated 1, Dec. 2010
RED CEDAR	*Juniperus virginiana*	none recorded	Updated 1, Dec. 2010
VIRGINIA SALTMARSH MALLOW	*Kosteletzkya pentacarpos*	28° 00′ 45″ N, 82° 36′ 53″ W	08/10/2016
ENGLER'S BOGBUTTON	*Lachnocaulon engleri*	none recorded	Updated 1, Dec. 2010
WHITE MANGROVE	*Laguncularia racemosa*	28° 00′ 43″ N, 82° 36′ 54″ W	08/10/2016
WHITE MANGROVE	*Laguncularia racemosa*	none recorded	Updated 1, Dec. 2010
LANTANA	*Lantana camara** ***(CAT I)***	28° 00′ 43″ N, 82° 36′ 54″ W	08/10/2016
LANTANA	*Lantana camara** ***(CAT I)***	none recorded	Updated 1, Dec. 2010
WHITEGRASS	*Leersia virginica*	none recorded	Updated 1, Dec. 2010
BEARDED SPRANGLETOP	*Leptochloa fusca subsp. fascicularis*	28° 00′ 45″ N, 82° 36′ 53″ W	08/10/2016
BEARDED SPRANGLETOP	*Leptochloa fusca subsp. fascicularis*	none recorded	Updated 1, Dec. 2010
WHITE LEADTREE	*Leucaena leucocephala** ***(CAT II)***	none recorded	Updated 1, Dec. 2010
DENSE GAYFEATHER	*Liatris spicata*	none recorded	Updated 1, Dec. 2010
CAROLINA SEALAVENDER	*Limonium carolinianum*	none recorded	Updated 1, Dec. 2010
CANADIAN TOADFLAX	*Linaria canadensis*	none recorded	Updated 1, Dec. 2010
SAVANNAH FALSE PIMPERNEL	*Lindernia grandiflora*	none recorded	Updated 1, Dec. 2010
WINGED PRIMROSEWILLOW	*Ludwigia alata*	none recorded	Updated 1, Dec. 2010
PIEDMONT PRIMROSEWILLOW	*Ludwigia arcuata*	none recorded	Updated 1, Dec. 2010
WINGLEAF PRIMROSEWILLOW	*Ludwigia decurrens*	none recorded	Updated 1, Dec. 2010
ANGLESTEM PRIMROSEWILLOW	*Ludwigia leptocarpa*	none recorded	Updated 1, Dec. 2010
SMALLFRUIT PRIMROSEWILLOW	*Ludwigia microcarpa*	28° 00′ 45″ N, 82° 36′ 53″ W	08/10/2016
MEXICAN PRIMROSEWILLOW	*Ludwigia octovalvis*	none recorded	Updated 1, Dec. 2010
PERUVIAN PRIMROSEWILLOW	*Ludwigia peruviana** ***(CAT I)***	none recorded	Updated 1, Dec. 2010
CREEPING PRIMROSEWILLOW	*Ludwigia repens*	none recorded	Updated 1, Dec. 2010
CHRISTMASBERRY	*Lycium carolinianum*	none recorded	Updated 1, Dec. 2010
JAPANESE CLIMBING FERN	*Lygodium japonicum** ***(CAT I)***	none recorded	Updated 1, Dec. 2010
SMALL-LEAF CLIMBING FERN	*Lygodium microphyllum** ***(CAT I)***	none recorded	Updated 1, Dec. 2010
RUSTY STAGGERBUSH	*Lyonia ferruginea*	none recorded	Updated 1, Dec. 2010
FETTERBUSH	*Lyonia lucida*	none recorded	Updated 1, Dec. 2010
WINGED LOOSESTRIFE	*Lythrum alatum var. lanceolatum*	none recorded	Updated 1, Dec. 2010
WAND LOOSESTRIFE	*Lythrum lineare*	none recorded	Updated 1, Dec. 2010
WILD BUSHBEAN	*Macroptilium lathyroides**	28° 00′ 48″ N, 82° 37′ 01″ W	08/10/2016
WILD BUSHBEAN	*Macroptilium lathyroides**	none recorded	Updated 1, Dec. 2010
SOUTHERN MAGNOLIA	*Magnolia grandiflora*	none recorded	Updated 1, Dec. 2010
AXILFLOWER	*Mecardonia acuminata subsp. peninsularis•*	none recorded	Updated 1, Dec. 2010
PUNKTREE	*Melaleuca quinquenervia** ***(CAT I)***	none recorded	Updated 1, Dec. 2010
SNOW SQUARESTEM	*Melanthera nivea*	none recorded	Updated 1, Dec. 2010
WHITE SWEETCLOVER	*Melilotus albus**	none recorded	Updated 1, Dec. 2010
ROSENATAL GRASS	*Melinis repens** ***(CAT I)***	none recorded	Updated 1, Dec. 2010
CREEPING CUCUMBER	*Melothria pendula*	28° 00′ 45″ N, 82° 36′ 43″ W	08/10/2016
CREEPING CUCUMBER	*Melothria pendula*	none recorded	Updated 1, Dec. 2010
CLIMBING HEMPVINE	*Mikania scandens*	none recorded	Updated 1, Dec. 2010
BALSAMPEAR	*Momordica charantia**	none recorded	Updated 1, Dec. 2010
SHOREGRASS; KEYGRASS	*Monanthochloe littoralis*	none recorded	Updated 1, Dec. 2010
WAX MYRTLE	*Morella cerifera*	none recorded	Updated 1, Dec. 2010
HAIRAWN MUHLY	*Muhlenbergia capillaris*	none recorded	Updated 1, Dec. 2010

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Common Name	Scientific Name	Location	Date
NAKEDSTEM DEWFLOWER	*Murdannia nudiflora**	none recorded	Updated 1, Dec. 2010
TUBEROUS SWORD FERN	*Nephrolepis cordifolia** ***(CAT I)***	none recorded	Updated 1, Dec. 2010
CLUSTERED MILLE GRAINES	*Oldenlandia uniflora*	28° 07′ 28″ N, 82° 24′ 40″ W	12/16/2016
CLUSTERED MILLE GRAINES	*Oldenlandia uniflora*	none recorded	Updated 1, Dec. 2010
WOODSGRASS; BASKETGRASS	*Oplismenus hirtellus*	none recorded	Updated 1, Dec. 2010
ERECT PRICKLYPEAR	*Opuntia stricta* ***(T)-FL***	none recorded	Updated 1, Dec. 2010
COMMON YELLOW WOODSORREL	*Oxalis corniculata*	none recorded	Updated 1, Dec. 2010
SKUNKVINE	*Paederia foetida** ***(CAT I)***	none recorded	Updated 1, Dec. 2010
BEAKED PANICUM	*Panicum anceps*	none recorded	Updated 1, Dec. 2010
MAIDENCANE	*Panicum hemitomon*	none recorded	Updated 1, Dec. 2010
GAPING PANICUM	*Panicum hians*	none recorded	Updated 1, Dec. 2010
GUINEAGRASS	*Panicum maximum** ***(CAT II)***	none recorded	Updated 1, Dec. 2010
BROOMCORN MILLET	*Panicum miliaceum**	none recorded	Updated 1, Dec. 2010
TORPEDOGRASS	*Panicum repens** ***(CAT I)***	none recorded	Updated 1, Dec. 2010
REDTOP PANICUM	*Panicum rigidulum*	none recorded	Updated 1, Dec. 2010
SWITCHGRASS	*Panicum virgatum*	none recorded	Updated 1, Dec. 2010
VIRGINIA CREEPER	*Parthenocissus quinquefolia*	none recorded	Updated 1, Dec. 2010
KNOTGRASS	*Paspalum distichum*	none recorded	Updated 1, Dec. 2010
BAHIAGRASS	*Paspalum notatum**	none recorded	Updated 1, Dec. 2010
THIN PASPALUM	*Paspalum setaceum*	none recorded	Updated 1, Dec. 2010
VASEYGRASS	*Paspalum urvillei**	none recorded	Updated 1, Dec. 2010
SEASHORE PASPALUM	*Paspalum vaginatum*	none recorded	Updated 1, Dec. 2010
PURPLE PASSIONFLOWER	*Passiflora incarnata*	none recorded	Updated 1, Dec. 2010
CORKYSTEM PASSIONFLOWER	*Passiflora suberosa*	28° 00′ 43″ N, 82° 36′ 54″ W	08/10/2016
CORKYSTEM PASSIONFLOWER	*Passiflora suberosa*	none recorded	Updated 1, Dec. 2010
RED BAY	*Persea borbonia*	none recorded	Updated 1, Dec. 2010
GOLDEN POLYPODY	*Phlebodium aureum*	none recorded	Updated 1, Dec. 2010
TURKEY TANGLE FOGFRUIT	*Phyla nodiflora*	none recorded	Updated 1, Dec. 2010
CHAMBER BITTER*	*Phyllanthus urinaria**	none recorded	Updated 1, Dec. 2010
CUTLEAF GROUNDCHERRY	*Physalis angulata*	none recorded	Updated 1, Dec. 2010
e: COASTAL GROUNDCHERRY	*Physalis angustifolia*	28° 00′ 43″ N, 82° 36′ 54″ W	08/10/2016
WALTER'S GROUNDCHERRY	*Physalis walteri*	none recorded	Updated 1, Dec. 2010
AMERICAN POKEWEED	*Phytolacca americana*	none recorded	Updated 1, Dec. 2010
WILD PENNYROYAL	*Piloblephis rigida*	none recorded	Updated 1, Dec. 2010
SMALL BUTTERWORT	*Pinguicula pumila*	none recorded	Updated 1, Dec. 2010
SLASH PINE	*Pinus elliottii*	none recorded	Updated 1, Dec. 2010
LONGLEAF PINE	*Pinus palustris*	none recorded	Updated 1, Dec. 2010
RESURRECTION FERN	*Pleopeltis polypodioides var. michauxiana*	none recorded	Updated 1, Dec. 2010
ROSY CAMPHORWEED	*Pluchea baccharis*	none recorded	Updated 1, Dec. 2010
SWEETSCENT	*Pluchea odorata*	28° 00′ 40″ N, 82° 37′ 03″ W	08/10/2016
SWEETSCENT	*Pluchea odorata*	none recorded	Updated 1, Dec. 2010
FIDDLER'S SPURGE	*Poinsettia heterophylla*	none recorded	Updated 1, Dec. 2010
SHOWY MILKWORT	*Polygala violacea*	none recorded	Updated 1, Dec. 2010
SWAMP SMARTWEED	*Polygonum hydropiperoides*	none recorded	Updated 1, Dec. 2010
MARSH MERMAIDWEED	*Proserpinaca palustris*	none recorded	Updated 1, Dec. 2010
BLACK CHERRY	*Prunus serotina*	none recorded	Updated 1, Dec. 2010
RABBIT TOBACCO	*Pseudognaphalium obtusifolium*	none recorded	Updated 1, Dec. 2010
WILD COFFEE	*Psychotria nervosa*	none recorded	Updated 1, Dec. 2010
LACY BRACKEN	*Pteridium aquilinum var. caudatum*	none recorded	Updated 1, Dec. 2010
TAILED BRACKEN	*Pteridium aquilinum var. pseudocaudatum*	28° 00′ 48″ N, 82° 36′ 53″ W	08/10/2016
TAILED BRACKEN	*Pteridium aquilinum var. pseudocaudatum*	none recorded	Updated 1, Dec. 2010
BLACKROOT	*Pterocaulon pycnostachyum*	none recorded	Updated 1, Dec. 2010
MOCK BISHOPSWEED	*Ptilimnium capillaceum*	none recorded	Updated 1, Dec. 2010
SAND LIVE OAK	*Quercus geminata*	none recorded	Updated 1, Dec. 2010
LAUREL OAK	*Quercus laurifolia*	none recorded	Updated 1, Dec. 2010
DWARF LIVE OAK	*Quercus minima*	none recorded	Updated 1, Dec. 2010
WATER OAK	*Quercus nigra*	none recorded	Updated 1, Dec. 2010
RUNNING OAK	*Quercus pumila*	none recorded	Updated 1, Dec. 2010
LIVE OAK	*Quercus virginiana*	none recorded	Updated 1, Dec. 2010
RED MANGROVE	*Rhizophora mangle*	none recorded	Updated 1, Dec. 2010
WINGED SUMAC	*Rhus copallinum*	none recorded	Updated 1, Dec. 2010
LEAST SNOUTBEAN	*Rhynchosia minima*	none recorded	Updated 1, Dec. 2010
STARRUSH WHITETOP	*Rhynchospora colorata*	28° 01′ 16″ N, 82° 37′ 34″ W	12/16/2016
STARRUSH WHITETOP	*Rhynchospora colorata*	none recorded	Updated 1, Dec. 2010
THREADLEAF BEAKSEDGE	*Rhynchospora filifolia*	none recorded	Updated 1, Dec. 2010
NARROWFRUIT HORNED BEAKSEDGE	*Rhynchospora inundata*	none recorded	Updated 1, Dec. 2010

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Common Name	Scientific Name	Location	Date
SOUTHERN BEAKSEDGE	*Rhynchospora microcarpa*	none recorded	Updated 1, Dec. 2010
SOUTHERN MARSH YELLOWCRESS	*Rorippa teres*	28° 01′ 19″ N, 82° 37′ 37″ W	12/16/2016
LOWLAND ROTALA	*Rotala ramiosor*	28° 00′ 45″ N, 82° 36′ 53″ W	08/10/2016
LOWLAND ROTALA	*Rotala ramiosor*	none recorded	Updated 1, Dec. 2010
SAWTOOTH BLACKBERRY	*Rubus argutus*	none recorded	Updated 1, Dec. 2010
CABBAGE PALM	*Sabal palmetto*	none recorded	Updated 1, Dec. 2010
SUGARCANE PLUMEGRASS	*Saccharum giganteum*	none recorded	Updated 1, Dec. 2010
INDIAN CUPSCALE	*Sacciolepis indica**	none recorded	Updated 1, Dec. 2010
AMERICAN CUPSCALE	*Sacciolepis striata*	none recorded	Updated 1, Dec. 2010
BULLTONGUE ARROWHEAD	*Sagittaria lancifolia*	28° 00′ 48″ N, 82° 36′ 53″ W	08/10/2016
BULLTONGUE ARROWHEAD	*Sagittaria lancifolia*	none recorded	Updated 1, Dec. 2010
CAROLINA WILLOW	*Salix caroliniana*	none recorded	Updated 1, Dec. 2010
LYRELEAF SAGE	*Salvia lyrata*	none recorded	Updated 1, Dec. 2010
WATER SPANGLES	*Salvinia minima** ***(CAT I)***	none recorded	Updated 1, Dec. 2010
ELDERBERRY	*Sambucus nigra subsp. canadensis*	none recorded	Updated 1, Dec. 2010
WATER PIMPERNEL	*Samolus ebracteatus*	none recorded	Updated 1, Dec. 2010
PINELAND PIMPERNEL	*Samolus valerandi subsp. parviflorus*	none recorded	Updated 1, Dec. 2010
CHINESE TALLOWTREE	*Sapium sebiferum** ***(CAT I)***	none recorded	Updated 1, Dec. 2010
PERENNIAL GLASSWORT	*Sarcocornia ambigua*	none recorded	Updated 1, Dec. 2010
BRAZILIAN PEPPER	*Schinus terebinthifolius** ***(CAT I)***	none recorded	Updated 1, Dec. 2010
LITTLE BLUESTEM	*Schizachyrium scoparium*	none recorded	Updated 1, Dec. 2010
BLACK BOGRUSH	*Schoenus nigricans*	none recorded	03-Jul-17
NETTED NUTRUSH	*Scleria reticularis*	none recorded	Updated 1, Dec. 2010
SWEETBROOM	*Scoparia dulcis*	none recorded	Updated 1, Dec. 2010
HELMET SKULLCAP	*Scutellaria integrifolia*	none recorded	Updated 1, Dec. 2010
SAW PALMETTO	*Serenoa repens*	none recorded	Updated 1, Dec. 2010
DANGLEPOD	*Sesbania herbacea*	none recorded	Updated 1, Dec. 2010
RATTLEBOX	*Sesbania punicea** ***(CAT II)***	none recorded	Updated 1, Dec. 2010
BLADDERPOD	*Sesbania vesicaria*	none recorded	Updated 1, Dec. 2010
SLENDER SEAPURSLANE	*Sesuvium maritimum*	none recorded	Updated 1, Dec. 2010
SHORELINE SEAPURSLANE	*Sesuvium portulacastrum*	28° 00′ 41″ N, 82° 37′ 01″ W	08/10/2016
SHORELINE SEAPURSLANE	*Sesuvium portulacastrum*	none recorded	Updated 1, Dec. 2010
GIANT BRISTLEGRASS	*Setaria magna*	none recorded	Updated 1, Dec. 2010
YELLOW BRISTLEGRASS	*Setaria parviflora*	none recorded	Updated 1, Dec. 2010
GULF COAST SWALLOWWORT	*Seutera angustifolia*	28° 00′ 45″ N, 82° 36′ 52″ W	08/10/2016
CUBAN JUTE; INDIAN HEMP	*Sida rhombifolia*	none recorded	Updated 1, Dec. 2010
MOTH FANPETALS	*Sida santaremensis**	none recorded	Updated 1, Dec. 2010
SAFFRON PLUM	*Sideroxylon celastrinum*	none recorded	Updated 1, Dec. 2010
NARROWLEAF BLUE-EYED GRASS	*Sisyrinchium angustifolium*	none recorded	Updated 1, Dec. 2010
EARLEAF GREENBRIER	*Smilax auriculata*	28° 00′ 19″ N, 82° 23′ 53″ W	12/16/2016
EARLEAF GREENBRIER	*Smilax auriculata*	none recorded	Updated 1, Dec. 2010
SAW GREENBRIER	*Smilax bona-nox*	none recorded	Updated 1, Dec. 2010
AMERICAN BLACK NIGHTSHADE	*Solanum americanum*	28° 01′ 19″ N, 82° 37′ 37″ W	12/16/2016
BLACK NIGHTSHADE	*Solanum chenopodioides*	28° 00′ 45″ N, 82° 36′ 43″ W	08/10/2016
BLACK NIGHTSHADE	*Solanum chenopodioides*	none recorded	Updated 1, Dec. 2010
PINEBARREN GOLDENROD	*Solidago fistulosa*	none recorded	Updated 1, Dec. 2010
CHAPMAN'S GOLDENROD	*Solidago odora var. chapmanii*	none recorded	Updated 1, Dec. 2010
SEASIDE GOLDENROD	*Solidago sempervirens*	none recorded	Updated 1, Dec. 2010
WAND GOLDENROD	*Solidago stricta*	none recorded	Updated 1, Dec. 2010
SALTMARSH CORDGRASS	*Spartina alterniflora*	none recorded	Updated 1, Dec. 2010
SAND CORDGRASS	*Spartina bakeri*	28° 08′ 28″ N, 82° 23′ 56″ W	12/16/2016
SAND CORDGRASS	*Spartina bakeri*	none recorded	Updated 1, Dec. 2010
SALTMEADOW CORDGRASS	*Spartina patens*	none recorded	Updated 1, Dec. 2010
GULF CORDGRASS	*Spartina spartinae*	none recorded	Updated 1, Dec. 2010
SMUTGRASS	*Sporobolus indicus**	none recorded	Updated 1, Dec. 2010
SEASHORE DROPSEED	*Sporobolus virginicus*	none recorded	Updated 1, Dec. 2010
ST. AUGUSTINEGRASS	*Stenotaphrum secundatum*	none recorded	Updated 1, Dec. 2010
QUEENSDELIGHT	*Stillingia sylvatica*	none recorded	Updated 1, Dec. 2010
SEA BLITE; ANNUAL SEEPWEED	*Suaeda linearis*	none recorded	Updated 1, Dec. 2010
CLIMBING ASTER	*Symphyotrichum carolinianum*	28° 08′ 28″ N, 82° 23′ 56″ W	12/16/2016
CLIMBING ASTER	*Symphyotrichum carolinianum*	none recorded	Updated 1, Dec. 2010
ANNUAL SALTMARSH ASTER	*Symphyotrichum subulatus*	none recorded	Updated 1, Dec. 2010
PERENNIAL SALTMARSH ASTER	*Symphyotrichum tenuifolium*	none recorded	Updated 1, Dec. 2010
YELLOW HATPINS	*Syngonanthus flavidulus*	none recorded	Updated 1, Dec. 2010
HOTTENTOT FERN	*Thelypteris interrupta*	none recorded	Updated 1, Dec. 2010
WIDESPREAD MAIDEN FERN	*Thelypteris kunthii*	none recorded	Updated 1, Dec. 2010

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Common Name	Scientific Name	Location	Date
BALLMOSS	*Tillandsia recurvata*	none recorded	Updated 1, Dec. 2010
SPANISH MOSS	*Tillandsia usneoides*	none recorded	Updated 1, Dec. 2010
EASTERN POISON IVY	*Toxicodendron radicans*	none recorded	Updated 1, Dec. 2010
FORKED BLUECURLS	*Trichostema dichotomum*	none recorded	Updated 1, Dec. 2010
ARROWGRASS	*Triglochin striata*	none recorded	03-Jul-17
FAKAHATCHEEGRASS	*Tripsacum dactyloides*	none recorded	Updated 1, Dec. 2010
SOUTHERN CATTAIL	*Typha domingensis*	none recorded	Updated 1, Dec. 2010
AMERICAN ELM	*Ulmus americana*	none recorded	Updated 1, Dec. 2010
CAESARWEED	*Urena lobata** ***(CAT II)***	none recorded	Updated 1, Dec. 2010
ZIGZAG BLADDERWORT	*Utricularia subulata*	none recorded	Updated 1, Dec. 2010
SANDPAPER VERVAIN	*Verbena scabra*	28° 00′ 45″ N, 82° 36′ 43″ W	08/10/2016
SANDPAPER VERVAIN	*Verbena scabra*	none recorded	Updated 1, Dec. 2010
WHITE CROWNBEARD	*Verbesina virginica*	none recorded	Updated 1, Dec. 2010
GIANT IRONWEED	*Vernonia gigantea*	none recorded	Updated 1, Dec. 2010
MUSCADINE	*Vitis rotundifolia*	none recorded	Updated 1, Dec. 2010
SHOESTRING FERN	*Vittaria lineata*	28° 08′ 28″ N, 82° 23′ 56″ W	12/16/2016
WASHINGTON FAN PALM	*Washingtonia robusta** ***(CAT II)***	none recorded	Updated 1, Dec. 2010
VIRGINIA CHAIN FERN	*Woodwardia virginica*	none recorded	Updated 1, Dec. 2010
SPANISH BAYONET	*Yucca aloifolia*	28° 07′ 28″ N, 82° 24′ 28″ W	12/16/2016
SPANISH BAYONET	*Yucca aloifolia*	none recorded	Updated 1, Dec. 2010

Notes:

Hillsborough County, 2017

(E) = Endangered, (T) = Threatened, (▪) = endemic species, (*) = non-native species

(CAT I) and (CAT II) =Categories One and Two, FL. Exotic Pest Plant Council (FLEPPC)

Appendix Cb. Augmented*** List of Mammals, Retiles and Birds Observed at Double Branch Bay

Scientific Name	Common Name
	Mammal Species
Unidentified bat species	Bat
Lynx rufus	Bobcat
Canis latrans	Coyote
*Canis familiaris**	Domesticated dog
Sciurus carolinensis	Eastern gray squirrel
*Sus scrofa**	Feral pig
Urocyon cinereoargenteus	Grey fox
Unidentified mice species	Mice
Dasypus novemcintus	Nine-banded armadillo
Lutra canadensis	North American river otter
Procyon lotor	Northern raccoon
Unidentified rat species	Rat
Vulpes vulpes	Red fox
*Trichechus manatus***	West Indian Manatee (FL - Threatened)
Odocoileus virginianus	White tailed deer
	Bird Species
Haliaeetus leucocephalus	Bald eagle
	Reptile Species
Agkistrodon piscivorus conanti	Florida cottonmouth
Alligator mississippiensis	American alligator

Notes:

Hillsborough, County, 2017

* = exotic species

** = imperiled species

***= this list includes bird, reptile and mammal species not included in the Wildlands Report, E-Brid list or other information in Appendix D

Appendix Cc. Comprehensive List of Marine Animals Observed at Double Branch Bay

Species		Seine Size/Fish Count	
Scientific Name	**Common Name**	**21-m haul seine N=99**	**9.1-m haul seine N=60**
Chloroscombrus chrysurus	Atlantic bumper	1	
Strongylura marina	Atlantic needlefish	3	
Chaetodipterus faber	Atlantic spadefish	22	
Dasyatis sabina	Atlantic stingray	1	
Opisthonema oglinum	Atlantic thread herring	24	
Anchoa mitchilli	Bay anchovy	32,757	6,867
Prionotus tribulus	Bighead searobin	3	
Pogonias cromis	Black drum		
Centropristis striata	Black sea bass		
Symphurus plagiusa	Blackcheek tonguefish	11	
Callinectes sapidus	Blue crab	31	1
Lucania goodei	Bluefin killifish		1
Syngnathus louisianae	Chain pipefish	58	
Cichlidae spp.	Cichlids		6
Microgobius gulosus	Clown goby	879	19
Gobiosoma robustum	Code goby	155	
Farfantepenaeus spp.	Commercial shrimps	2	
Centropomus undecimalis	Common snook		31
Rhinoptera bonasus	Cownose ray	2	
Adinia xenica	Diamond killifish	1	1
Hippocampus zosterae	Dwarf seahorse	31	
Gambusia holbrooki	Eastern mosquito fish		966
Eucinostomus spp.	Eucinostomus	590	8
Hyporhamphus meeki	False silver halfbeak	2	
Mugil gyrans	Fantail mullet	4	
Chasmodes saburrae	Florida blenny	8	
Bagre marinus	Gafftopsail catfish	1	
Gobiosoma spp.	Gobiosoma gobies	279	4
Floridichthys carpio	Goldspotted killifish	1,606	27
Palaemonetes spp.	Grass shrimp		201
Lutjanus griseus	Gray snapper	1	
Paralichthys albigutta	Gulf flounder	3	
Fundulus grandis	Gulf killifish	51	71
Syngnathus scovelli	Gulf pipefish	195	
Opsanus beta	Gulf toadfish	4	
Ariopsis felis	Hardhead catfish	5	
Trinectes maculatus	Hogchoker	2	23
Limulus polyphemus	Horseshoe crab	2	
Synodus foetens	Inshore lizardfish	84	
Elops saurus	Ladyfish		3
Oligoplites saurus	Leatherjacket	93	
Prionotus scitulus	Leopard searobin	12	
Hippocampus erectus	Lined seahorse	1	
Achirus lineatus	Lined sole	44	
Fundulus similis	Longnose killifish	208	
Fundulus confluentus	Marsh killifish		12
Cichlasoma urophthalmus	Mayan cichlid		43

Appendix Cc. Comprehensive List of Marine Animals Observed at Double Branch Bay

Species		Seine Size/Fish Count	
Scientific Name	**Common Name**	**21-m haul seine N=99**	**9.1-m haul seine N=60**
Brevoortia spp.	Menhadens	3	129
Menidia spp.	Menidia silversides	10,556	625
Gobiosoma bosc	Naked goby	1	2
Strongylura spp.	Needlefishes	3	
Penaeidae spp.	Penaeid shrimps	1	
Trachinotus falcatus	Permit	11	
Orthopristis chrysoptera	Pigfish	4	
Lagodon rhomboides	Pinfish	3,062	1
Farfantepenaeus duorarum	Pink shrimp	324	4
Portunus spp.	Portunus crabs	1	
Lucania parva	Rainwater killifish	7,458	1,507
Sciaenops ocellatus	Red drum	112	
Strongylura notata	Redfin needlefish	43	
Membras martinica	Rough silverside	331	
Poecilia latipinna	Sailfin molly	3	1,632
Diplectrum formosum	Sand perch		
Cynoscion arenarius	Sand seatrout	3	
Harengula jaguana	Scaled sardine	452	
Acanthostracion quadricornis	Scrawled cowfish	10	
Archosargus probatocephalus	Sheepshead	27	3
Cyprinodon variegatus	Sheepshead minnow	119	387
Eucinostomus gula	Silver jenny	194	
Bairdiella chrysoura	Silver perch	358	
Cynoscion nothus	Silver trout		
Gobiesox strumosus	Skilletfish	10	
Menticirrhus americanus	Southern kingfish	2	
Sphoeroides nephelus	Southern puffer	46	
Leiostomus xanthurus	Spot	1,515	12
Cynoscion nebulosus	Spotted seatrout	285	1
Anchoa hepsetus	Striped anchovy	93	
Chilomycterus schoepfii	Striped burrfish	5	
Eugerres plumieri	Striped mojarra	1	22
Mugil cephalus	Striped mullet	3	1
Megalops atlanticus	Tarpon		
Eucinostomus harengulus	Tidewater mojarra	214	122
Oreochromis/Sarotherodon spp.	Tilapias		2
Strongylura timucu	Timucu	1	
Menticirrhus littoralis	Whiting		

Notes:

Hillsborough County, 2017

Bower Tract Wildlife Surveys
Summary

2010



Prepared by

Wildlands Conservation

For

Hillsborough County
Attn: Sheryl Bowman
October 6, 2010

Introduction

At the request of Hillsborough County, Wildlands Conservation Inc. conducted wildlife surveys at the Bower Tract towards the objective of documenting the presence of wildlife inhabiting the site, with particular focus on Avian and Anuran species. The site is located on the northern border of Upper Tampa Bay and south of SR-580, Hillsborough Avenue. Natural plant communities supported in this site include: pine flatwoods, mesic hammock, fallow field, and salt marsh/saltern (Myers and Ewel 1991).

For reference, please refer to the accompanying reference document that identifies all species that are likely to utilize Pine Flatwoods, Mesic Hammock, and Salt Marsh/Saltern habitats (Appendix B). These tables were developed upon literature reviews to determine the range, distribution, and habitat requirements of all species indigenous to the region that contains the Project Area.

Methods

Avian

Our methods to date were to conduct opportunistic bird surveys in the early morning on clear, relatively windless mornings. All other species of amphibians, reptiles, birds, and mammals were noted as well.

Anuran

Our methods to date were to conduct opportunistic frog and toad surveys in the late evening when there is little to no wind and when there have been recent rains or rain is expected. Surveys began approximately 20 minutes after dusk and consisted of walking through the site and stopping every 10 minutes to listen for call for 10 minutes. Frogs and Toads documented either visually or through distinct species vocalizations were documented. The presence/absence of invasive exotic species was of particular note. All other species of amphibians, reptiles, birds, and mammals were noted as well.

Results (See Appendix A)

Surveys were conducted between September 22nd and September 28th, 2010. To summarize our findings to date, the following numbers of species were documented within each community on the site.

Table 1: The number of species observed, sorted by plant community and species class. Please note that the *Total Communities* row is not a sum of all the communities as many species were observed in

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more than one community, but counted only once for the total species count. The *Total* column is a sum of all observations within each community. (See Appendix A for full species lists)

Number of Species in each Class and Community						
	Avian	**Anuran(Native)**	**Anuran(Invasive)**	**Mammal**	**Reptile**	**Total**
Pine Flatwoods	14	2	2	1	1	20
Mesic Hammock	12	2	2	1	2	19
Salt Marsh/Saltern	16	0	0	1	0	17
Fallow Field	4	0	2	0	0	6
Total Communities	30	2	2	3	3	40

Interpretation of Results

Avian Surveys

(See Appendix A: Table 1)

Bird surveys revealed species that both migrate and nest in the area. All birds documented are species that are likely to forage in the target habitats. All were documented foraging and/or loafing within the habitats; nesting was not evidenced and is unlikely due to the time of year the surveys were conducted. These surveys resulted in observations of an assemblage of bird species that would be anticipated in the relatively well maintained and protected collection of ecosystems that are present within the site. Our surveys were conducted during the early migratory season, however, no migratory birds were encountered during the course of the survey. All documented species are year round residents or overwinter in this region (palm warbler). It is likely that additional surveys will document additional species (Kale 1990). We recommend implementing both winter/migratory bird surveys as well as nesting bird surveys to document additional species as well as additional site usage (see Appendix B).

Anuran Surveys

(See Appendix A: Table 2)

A total of four anuran species were documented on the site. Two of these species are native to Florida (Green treefrog and Squirrel treefrog) and two of these species are invasive exotics (Greenhouse frog and Cuban treefrog). While abundance estimation is not within the scope of this project, the relative proportion of observed individuals of native to invasive species is of particular note. Throughout the course of this project, 3 Squirrel treefrogs and 2 Green treefrogs were observed, while 26 Cuban treefrogs and 24 Greenhouse frogs were observed. This 10:1 invasive to native ratio is indicative of a high level of invasion by these exotic species. Especially troubling is the fact that all but one Cuban treefrog individual that was encountered was in the subadult life stage. Adult Cuban treefrogs commonly prey on small frog species, including our native Green and Squirrel treefrogs (Johnson 2010). There will also be an expected increase in Cuban treefrogs as these nonreproductive Cuban treefrogs become reproductive adults. Greenhouse frogs are not considered to be predators of our native species, but are likely

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to outcompete them for refuge and prey due to their reduced need for water and high reproductive rate.

The results indicate a high presence of invasive species, but additional surveys are required to document the abundance of individuals of these species as well as others that were not documented, but are expected to inhabit the site (see Appendix B). Anuran surveys are most appropriately conducted during the late spring and early summer in Florida due to the stimulation of reproduction brought on by increased precipitation during those months. Increased reproduction is accompanied by increased vocalization and movement, creating a higher probability of observation. Installation of PVC poles and other trapping methods will also allow for enhanced detection probability, with the added benefit of abundance estimation (Jones 1986).

Other taxa

A total of three mammalian and three reptilian species were documented inhabiting the site, despite our surveys not being tailored to document these species. Therefore, the species that we did document are likely among the most conspicuous species possibly inhabiting ecosystems such as those on the site. The Gopher tortoise (*Gopherus polyphemus*), listed as a threatened species by the state of Florida, was observed on the site. This species is not only threatened, but is considered to be a Keystone Species due to the burrows that it creates. These burrows allow other species, termed commensals, to inhabit ecosystems that may lack other functional refugia. More than 350 species are considered to be commensals, frequently inhabiting Gopher tortoise burrows (FWC 2010). Quantifying the abundance of Gopher tortoises will produce a better picture of which commensal species, some of which are state or federally protected, inhabit the site.

Mammalian and reptilian species were documented inhabiting the site, despite not being the target of these surveys. Opportunistic observations of individuals, tracks, scats, and/or other sign is not expected to fully document the occurrence of individuals of these two classes inhabiting this site. In order to understand the extent to which this site is inhabited by these two taxa, we recommend implementing additional trapping and observational methods. These methods include, but are not limited to, installation of drift fences, live traps, and cover boards (Jones 1986, Greenberg et al 1994, and Enge 1997). Implementation of additional methods will lead to a more-precise determination of the species that inhabit the Bower tract site (see Appendix B).

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APPENDIX A:
WILDLIFE SURVEY RESULTS
2010

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Table 2: Species observed during morning bird/vertebrate surveys conducted 9/24, 9/25, 9/27, and 9/28/2010

Species		Habitats			
Common Name	**Scientific name**	**Saltern/ salt marsh**	**Pine flatwoods**	**Fallow field**	**Mesic Hammock**
Common yellowthroat	*Geothlypis trichas*	x	x		
Carolina wren	*Thryothorus ludovicianus*	x	x		x
House wren	*Troglodytes aedon*		x		
Ruby-crowned kinglet	*Regulus calendula*				x
Northern cardinal	*Cardinalis cardinalis*	x			
Blue jay	*Cyanocitta cristata*	x			
Tufted titmouse	*Baeolophus bicolor*		x		x
Carolina chickadee	*Poecile carolinensis*		x		x
Blue gray gnatcatcher	*Polioptila caerulea*		x		x
Red-bellied woodpecker	*Melanerpes carolinus*		x		x
Downy woodpecker	*Picoides pubescens*	x	x		x
Red-tailed hawk	*Buteo jamaicensis*		x	x	
Red-shouldered hawk	*Buteo lineatus*		x		
Screech owl	*Megascops asio*				x
Osprey	*Pandion haliaetus*	x			
Eastern towhee	*Pipilo erythrophtalmus*		x	x	x
kildeer	*Charadrius vociferus*	x			
White ibis	*Eudocimus albus*	x			
Tri-colored heron	*Egretta tricolor*	x			
Ring-billed gull	*Larus delawarensis*	x			
Belted kindfisher	*Megaceryle alcyon*	x			
Palm warbler	*Dendroica palmarum*	x			
Black and white warbler	*Mniotilta varia*				x
White-eyed vireo	*Vireo griseus*	x	x	x	
Red-eyed vireo	*Vireo olivaceus*				x
tree swallow	*Tachycineta bicolor*	x			
Mourning dove	*Zenaida macroura*			x	x
Ground dove	*Columbina passerina*		x		
Domestic Dog	*Canus familiaris*				x
nine-banded armadillo	*Dasypus novemcintus*		x		x
Squrrel treefrog	*Hyla squirrella*				x
Greenhouse frog	*Eleutherodactylus planirostris*		x		x
Ground skink	*Scincella lateralis*				x
Gopher tortoise	*Gopherus polyphemus*		x		
Black racer	*Coluber constrictor*				x
Green treefrog	*Hyla cinerea*		x		

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Table 3: Species observed during night amphibian/vertebrate surveys conducted 9/22, 9/24, 9/27, and 9/28/10

Species		Habitats (and number observed)			
Common Name (date)	**Scientific name**	**Saltern/ salt marsh**	**Pine flatwoods**	**Fallow field**	**Mesic Hammock**
Cuban Treefrog (9/22)	*Osteopilus septentrionalis*		x (3)	x (1)	x (1)
Green Treefrog (9/22)	*Hyla cinerea*		x (1)		
Greenhouse frog (9/22)	*Eleutherodactylus planirostris*		x (1)		x (1)
Black Crowned Night Heron (9/24)	*Nycticorax nycticorax*	x (1)			
Great Horned Owl (9/24)	*Bubo virginianus*		x (1)		
Grey Fox (9/24)	*Urocyon cinereoargenteus*	x (1)			
Squirrel Treefrog (9/24)	*Hyla squirrella*		x (1)		x (1)
Greenhouse frog (9/24)	*Eleutherodactylus planirostris*		x (3)	x (1)	x (2)
Greenhouse frog (9/24)	*Eleutherodactylus planirostris*		x (2)		x (1)
Cuban Treefrog (9/24)	*Osteopilus septentrionalis*		x (2)		
Cuban Treefrog (9/27)	*Osteopilus septentrionalis*		x (8)	x (3)	x (4)
Greenhouse frog (9/27)	*Eleutherodactylus planirostris*		x (5)	x (2)	x (2)
Cuban Treefrog (9/28)	*Osteopilus septentrionalis*		x (2)	x (1)	
Cuban Treefrog (9/28)	*Osteopilus septentrionalis*				x (1)
Greenhouse frog (9/28)	*Eleutherodactylus planirostris*		x (1)		x (1)

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APPENDIX B:
Wildlife Potentially inhabiting the Bower Tract

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Table 4: Avian species potentially inhabiting ecosystems found in the Bower Tract[4]

			Habitat			
			Mesic	Pine	Salt	Fallow
Common Name[1]	Scientific Name[2]	Season[3]	Hammock	Flatwoods	Marsh	Field
Double-crested Cormorant	*Phalacrocorax auritus*	y			X	
Anhinga	*Anhinga anhinga*	y			X	
Pied-billed grebe	*Podilymbus podiceps*	y			X	
Brown pelican	*Pelecanus occidentalis*	y			X	
Great Blue Heron	*Ardea herodias*	y			X	
Great Egret	*Casmerodius albus*	y			X	
Snowy Egret - P	*Egretta thula*	y			X	
Cattle Egret	*Bubulcus ibis*	y				X
Tricolored Heron - P	*Egretta tricolor*	y			X	
		y			X	
Green Heron	*Butorides striatus*	y			X	
Reddish Egret	*Egretta rufescens*	y			X	
Black-crowned Night-Heron - P	*Nycticorax nycticorax*	y			X	
Yellow-crowned Night-Heron - P	*Nycticorax violacus*	y			X	
American bittern	*Botaurus lentiginosus*	y			X	
Least bittern	*Ixobrychus exilis*	y			X	
Limpkin - P	*Aramus guarauna*	y			X	
Wood Stork - P	*Mycteria americana*	y			X	
White Ibis - P	*Eudocimus albus*	y			X	
Glossy Ibis	*Plegadis falcinellus*	y			X	
Black-bellied Whistling Duck	*Dendrocygna autumnalis*	y			X	
Wood Duck	*Aix sponsa*	y			X	
Muscovy Duck	*Cairina moschata*	y			X	
Mallard	*Anas platyrhynchos*	y			X	
Mottled Duck	*Anas fulvigula*	y			X	
American black duck	*Anas rubripes*	w			X	
Green-winged Teal	*Anas crecca*	w			X	
Blue-winged Teal	*Anas discors*	w			X	
Northern pintail	*Anas acuta*	w			X	
Northern Shoveler	*Anas clypeata*	w			X	
Gadwall	*Anas strepera*	w			X	
American wigeon	*Anas americana*	w			X	

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Redhead	*Aythya americana*	w			X	
Canvasback	*Aythya valisineria*	w			X	
Ring-necked duck	*Aythya collaris*	w			X	
Lesser Scaup	*Aythya affinis*	w			X	
Hooded Merganser	*Lophodytes cucullatus*	w			X	
Red-breasted merganser	*Mergus serrator*	w			X	
Common goldeneye	*Bucephala elangula*	w			X	
Black Vulture	*Coragyps atratus*	y	X	X		X
Turkey Vulture	*Cathartes aura*	y	X	X		X
Northern Harrier	*Circus cyaneus*	w			X	X
Bald Eagle - P	*Haliaeetus leucocephalus*	y		X		
Cooper's Hawk	*Accipiter cooperii*	y	X	X		X
Sharp-shinned Hawk	*Accipiter striatus*	w	X	X		X
American swallow-tailed kite	*Elanoides forficatus*	y	X	X		X
Red-tailed Hawk	*Buteo jamaicensis*	y	X	X		X
Red-shouldered Hawk	*Buteo lineatus*	y	X	X		X
Short-tailed hawk	*Buteo brachyurus*	y	X	X		
Osprey	*Pandion haliaetus*	y			X	
Peregrine falcon	*Falco peregrinus*	w			X	
American kestrel	*Falco sparverius*	y				X
Wild turkey	*Meleagris gallopavo*	y	X			X
Northern Bobwhite	*Colinus virginianus*	y	X	X		X
Sandhill crane - P	*Grus canadensis*	y				X
King Rail	*Rallus elegans*	y			X	
Clapper rail	*Rallus longirostris*	y			X	
Virginia rail	*Rallus limicola*	w			X	
Black rail	*Laterallus jamaicensis*	y			X	
Sora	*Porzana carolina*	w			X	
Common Moorhen	*Gallinula chloropus*	y			X	
American Coot	*Fulica americana*	w			X	
Purple gallinule	*Porphyrula mertinica*	y			X	
American avocet	*Recurvirostra americana*	w			X	
Killdeer	*Charadrius vociferus*	y				X
Black-necked Stilt	*Himantopus mexicanus*	y				
Greater Yellowlegs	*Tringa melanoleuca*	w			X	
Lesser yellowlegs	*Tringa flavipes*	w			X	
Solitary sandpiper	*Tringa solitaria*	w			X	
Spotted Sandpiper	*Actitis macularia*	w			X	
Least Sandpiper	*Calidris minutilla*	w			X	

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Western sandpiper	*Calidris mauri*	w			X	
American Woodcock	*Scolopax minor*	w	X	X		
Ring-billed Gull	*Larus delawarensis*	w			X	
Herring Gull	*Larus argentalus*	w			X	
Laughing Gull	*Larus atricilla*	y			X	
Forster's Tern	*Sterna forsteri*	w			X	
Least Tern	*Sterna antillarum*	s			X	
Mourning Dove	*Zenaida macroura*	y	X	X		X
Common ground-dove	*Columbina passerina*	y		X		X
Mangrove Cuckoo	*Coccyzus minor*	y			X	
Yellow-billed Cuckoo	*Coccyzus americanus*	s	X	X		
Eastern Screech-Owl	*Megascops asio*	y	X	X		
Great Horned Owl	*Bubo virginianus*	y	X	X		
Barn Owl	*Strix varia*	y	X	X		
Barred Owl	*Stix varia*	y	X	X		
Whip-poor-will	*Caprimulgus vociferus*	w	X	X		
Chuck-will's Widow	*Caprimulgus carolinensis*	y	X	X		
Common Nighthawk	*Chordeiles minor*	s	X	X		
Chimney Swift	*Chaetura pelagica*	s	X	X		
Ruby-throated Hummingbird	*Archilochus colubris*	s	X	X		
Belted Kingfisher	*Ceryle alcyon*	w			X	
Pileated Woodpecker	*Dryocopus pileatus*	y	X	X		
Northern Flicker	*Colaptes auratus*	y	X	X		
Red-bellied Woodpecker	*Melanerpes carolinus*	y	X	X		
Yellow-bellied Sapsucker	*Sphyrapicus varius*	w	X	X		
Hairy Woodpecker	*Picoides villosus*	y	X	X		
Downy Woodpecker	*Picoides pubescens*	y	X	X		
Great Crested Flycatcher	*Myiarchus crinitus*	y	X	X		
Eastern Kingbird	*Tyrannus tyrannus*	s	X	X		
Eastern Phoebe	*Sayornis phoebe*	w		X		
Barn Swallow	*Hirundo rustica*	y		X		X
Tree Swallow	*Tachycineta bicolor*	w		X		X
Purple Martin	*Progne subis*	w		X		
Blue Jay	*Cyanocitta cristata*	y	X	X		
American Crow	*Corvus brachyrhynchos*	y	X	X		X
Tufted Titmouse	*Parus bicolor*	y	X	X		
Carolina Chickadee	*Parus carolinensis*	y	X	X		
Brown Thrasher	*Toxostoma rufum*	y	X	X		
Northern Mockingbird	*Mimus polyglottos*	y	X	X		X

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Gray Catbird	*Dumetella carolinensis*	w	X	X		
House Wren	*Troglodytes aedon*	w	X	X		
Carolina Wren	*Thryothorus ludovicianus*	y	X	X		
Hermit Thrush	*Catharus guttatus*	w	X	X		
American Robin	*Turdus migratorius*	w	X	X		X
Ruby-crowned Kinglet	*Regulus calendula*	w	X	X		
Blue-gray Gnatcatcher	*Polioptila caerulea*	y	X	X		
Loggerhead Shrike	*Lanius ludovicianus*	y		X		X
Cedar Waxwing	*Bombycilla cedrorum*	w		X		
Blue-headed Vireo	*Vireo solitarius*	w	X	X		
Yellow-throated Vireo	*Vireo flavifrons*	s	X	X		
Red-eyed Vireo	*Vireo olivaceus*	s	X	X		
White-eyed Vireo	*Vireo griseus*	y	X	X		
Black-and-white Warbler	*Mniotilta varia*	w	X	X		
Yellow-rumped Warbler	*Dendroica coronata*	w	X	X		
Northern Parula	*Parula americana*	s	X	X		
Yellow-throated Warbler	*Dendroica dominica*	s	X	X		
Palm Warbler	*Dendroica palmarum*	w		X		
Pine Warbler	*Dendroica pinus*	y	X	X		
Common Yellowthroat	*Geothlypis trichas*	y		X		
Ovenbird	*Seiurus aurocapillus*	w	X	X		
American Redstart	*Setophaga ruticilla*	w	X	X		
Boat-tailed Grackle	*Quiscalus major*	y	X	X		X
Common Grackle	*Quiscalus quiscula*	y	X	X		X
Summer Tanager	*Piranga rubra*	s	X	X		
Eastern Towhee	*Pipilo erythrophtalmus*	y	X	X		
Northern Cardinal	*Cardinalis cardinalis*	y	X	X		X
White-throated Sparrow	*Zonotrichia albicollis*	w	X	X		
Swamp Sparrow	*Melospiza georgiana*	w	X	X		

[1] Ex = exotic, P = Protected

[2] Kale, II, H.W. and D.S. Maehr. 1990. Florida's birds, a handbook and reference. E. T. Lowe Publishing, Nashville, Tenn.

[3] S = summer, W = winter, and Y = year-round

[4] Species observed during 2010 wildlife surveys are shaded

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Table 5: Amphibian species potentially inhabiting ecosystems found in the Bower Tract[3]

		Habitat			
Common Name[1]	**Scientific Name[2]**	**Mesic Hammock**	**Pine Flatwoods**	**Salt Marsh**	**Fallow Field**
Oak toad	*Bufo quercicus*	X	X		
Southern toad	*Bufo terrestris*	X	X		X
Green treefrog	*Hyla cinerea*	X	X		X
Squirrel treefrog	*Hyla squirella*	X	X		X
Pinewoods treefrog	*Hyla femoralis*	X	X		
Barking treefrog	*Hyla gratiosa*		X		
Cuban treefrog - Ex.	*Osteopilus septentrionalis*	X	X		X
Little grass frog	*Limnaoedus ocularis*	X	X		X
Florida chorus frog	*Pseudacris nigrita verrucosa*		X		
Eastern spadefoot toad	*Scaphiopus holbrooki*	X	X		
Eastern narrowmouth toad	*Gastrophryne carolinensis carolinensis*	X	X		
Pig frog	*Rana grylio*	X			
Southern leopard frog	*Rana utricularia*	X	X		
Gopher frog - P	*Rana capito*		X		
Marine toad - Ex.	*Bufo marinus*	X			
Southern dusky salamander	*Desmognathus auriculatus*	X			
Peninsula newt	*Notopthalmus viridescens piaropicola*	X			
Greenhouse frog - Ex.	*Eleutherodactylus planirostris planirostris*	X	X	X	X

[1] Ex = exotic, P = Protected

[2] Collins, J.T., R. Conant, J.E. Huheey, J.L. Knight, E.M. Rundquist, and H.M. Smith, 1982. Standard common and current scientific names for North American amphibians and reptiles. Society for the Study of Amphibians and Reptiles, Miami Univ., Oxford, Ohio.

[3] Species observed during 2010 wildlife surveys are shaded

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Table 6: Mammalian species potentially inhabiting ecosystems found in the Bower Tract

		Habitat[3]			
Common Name[1]	Scientific Name[2]	Mesic Hammock	Pine Flatwoods	Salt Marsh	Fallow Field
Virginia opossum	*Didelphis virginiana*	X	X		
Southeastern shrew	*Sorex longirostris*	X			X
Least shrew	*Cryptotis parva*		X		X
Southeastern short-tailed shrew	*Blarina carolinensis*	X	X		X
Eastern mole	*Scalopus aquaticus*	X	X		X
Florida black bear - P	*Ursus americanus floridana*	X	X		
Raccoon	*Procyon lotor*	X	X	X	X
Long-tail weasel	*Mustela frenata*	X	X		X
Spotted skunk	*Spilogale putorius*		X		X
Striped skunk	*Mephitis mephitis*		X		X
Coyote	*Canis latrans*	X	X	X	X
Red fox	*Vulpes vulpes*	X	X		X
Gray fox	*Urocyon cinereoargenteus*	X	X		X
Bobcat	*Lynx rufus*	X	X		
Sherman's fox squirrel - P	*Sciurus niger shermanii*	X	X		
Gray squirrel	*Sciurus carolinensis*	X	X		
Southern flying squirrel	*Glauscomys volans*	X	X		
Southeastern pocket gopher	*Gemys pinetis*		X		
Eastern harvest mouse	*Reithrodontomys humulis*		X		X
Oldfield mouse	*Peromyscus poliunotus*				X
Cotton mouse	*Peromyscus gossypinus*		X		X
Florida mouse - P	*Podomys floridanus*		X		
Eastern woodrat	*Neotoma floridana*	X	X		
Hispid cotton rat	*Sigmodon hispidus*		X		X
Eastern cottontail	*Sylvilagus floridanus*		X		X
White-tailed deer	*Odocoilus virginianus*	X	X		X
Feral hog - Ex	*Sus scrufa*	X	X	X	X
Nine-banded armadillo	*Dasypus novemcinctus*	X	X		X

[1] Ex = exotic, P = Protected
[2] Source of scientific and common names: Jones, Jr., J.K., R.S., Hoffman, D.W. Rice, C. Jones, R.J. Baker, and M.D. Engstrom. 1992. Revised Checklist of North American mammals north of Mexico. Occ. Papers Mus. Texas Tech. Univ. No. 146: 1-23., Lubbock Tex.
[3] Species observed during 2010 wildlife surveys are shaded
* Bat species not included

Table 7: Reptilian species potentially inhabiting ecosystems found in the Bower Tract[3]

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		Habitat			
Common Name[1]	Scientific Name[2]	Mesic Hammock	Pine Flatwoods	Salt Marsh	Fallow Field
Eastern slender glass lizard	*Ophisaurus attenuatus longicaudus*		X		X
Eastern glass lizard	*Opisaurus ventralis*	X	X		X
Southeastern five-lined skink	*Eumeces inexpectatus*	X	X		X
Southern fence lizard	*Sceloporus undulatus undulatus*		X		
Ground skink	*Scincella lateralis*	X	X		X
Six-lined racerunner	*Cnemidophorus sexlineatus sexlineatus*		X		
Green anole	*Anolis carolinensis*	X	X		X
Cuban anole	*Anolis sagrei*	X	X		X
Florida box turtle	*Terrapene carolina bauri*	X	X		
Striped mud turtle	*Kinosternon baurii*	X	X		
Florida mud turtle	*Kinosternon subrubrum steindachneri*	X	X		
Stinkpot	*Sternotherus odoratus*	X	X		
Gopher tortoise - P	*Gopherus polyphemus*		X		X
Florida scarlet snake	*Cemophora coccinea coccinea*		X		
Southern black racer	*Coluber constrictor priapus*	X	X		X
Southern ring-necked snake	*Diadophis punctatus punctatus*	X	X		X
Corn snake	*Elaphe guttata guttata*	X	X		X
Yellow rat snake	*Elaphe obsoleta quadrivittata*	X	X		X
Eastern hognose snake	*Heterodon platyrhinos*	X	X		
Southern hognose snake	*Heterodon simus*		X		
Common kingsnake	*Lampropeltis getulus*	X	X		X
Scarlet kingsnake	*Lampropeltis triangulum elapsoides*	X	X		
Mangrove salt marsh snake	*Nerodia fasciata compressicauda*			X	
Rough green snake	*Opheodrys aestivus*	X	X		
Florida pine snake - P	*Pituophis melanoleucus mugitus*		X		
Pine woods snake	*Rhadinaea flavilata*	X	X		
Florida brown snake	*Storeria dekayi victa*	X	X		
Eastern garter snake	*Thamnophis sirtalis sirtalis*	X	X		X
Florida cottonmouth	*Agkistrodon piscivorus conanti*	X	X		
Eastern indigo snake - P	*Drymorchon corais couperi*	X	X		
Dusky pygmy rattlesnake	*Sistrurus miliarius barbouri*	X	X		
Eastern diamondback snake	*Crotalus adamanteus*	X	X		

[1] Ex = exotic, P = Protected; [2] Collins, J.T., R. Conant, J.E. Huheey, J.L. Knight, E.M. Rundquist, and H.M. Smith, 1982. Standard common and current scientific names for North American amphibians and reptiles. Society for the Study of Amphibians and Reptiles, Miami Univ., Oxford, Ohio.; [3] Species observed during 2010 wildlife surveys are shaded

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APPENDIX D
Imperiled Species

Appendix Da. Imperiled Species Observed* and Expected for Double Branch Bay, Hillsborough County, Florida

Species		Ranking*		Habitat Types									
Common Name	Scientific Name	Federal	State	Mesic Flatwoods	Shrub and Brushland	Other Hardwood Wetlands	Freshwater Forested Wetland	Tidally-influenced Stream	Canal	Estuarine	Tidal Flats (likely a Salt Flat)	Salt Marsh	Mangrove Swamp
AMPHIBIANS AND REPTILES													
Loggerhead sea turle	*Caretta caretta*	T											
Green sea turtle	*Chelonia mydas*	**T**											
Eastern indigo snake	*Drymarchon corais couperi*	T		X	X	X	X						X
Hawksbill turtle sea turtle	*Eretmochelys imbricata*	E								X			
Gopher tortoise**	*Gopherus polyphemus*		T	X	X1								
Kemp's ridley sea turtle	*Lepidochelys kempii*	E											
Florida pine snake	*Pituophis melanoleucus mugitus*		T	X									
BIRDS													
Scott's seaside sparrow	*Ammodramus maritimus peninsulae*		T									X	X
Florida sandhill crane	*Antigone canadensis pratensis*		T		X1	X	X	X	X	X	X	X	X
Piping plover	*Charadrius melodus*	T									X		
Snowy plover	*Charadrius nivosus*		T								X	X	
Little blue heron	*Egretta caerulea*		T			X	X	X	X	X	X	X	X
Reddish egret	Egretta rufescens		T					X		X	X	X	X
Tricolored heron*	*Egretta tricolor*		T			X	X	X	X	X	X	X	X
American oystercatcher	*Haematopus palliatus*		T					X		X	X	X	X
Bald eagle	*Haliaeetus leucocephalus*			X				X	X	X		X	
Wood stork	*Mycteria americana*	T				X	X	X	X	X	X	X	X
Roseate spoonbill	*Platalea ajaja*		T					X		X	X	X	X
Black skimmer	*Rynchops niger*		T							X	X	X	X
Least tern	*Sternula antillarum*		T					X	X	X	X		
MAMMALS													
Sherman's fox squirrel	*Sciurus niger shermanii*		SSC	X									
West Indian manatee	*Trichechus manatus*	E						X	X	X			
PLANTS													
Many-flowered grass-pink	*Calopogon multiflorus*		T	X									
Sand Butterfly Pea	*Centrosema arenicola*		E	X									
Butterfly orchid	*Encyclia tampensis*		CE			X	X						
Green-fly orchid	*Epidendrum conopseum*		CE			X	X						
Tampa mock vervain**	*Glandularia tampensis*		E	X	X								
Nodding pinweed	*Lechea cernua*		T	X									
Small's flax	*Linum carteri var. smallii*		E	X									
Florida spiny-pod	*Matelea floridana*		E	X		X	X						
Florida beargrass	*Nolina atopocarpa*		T	X									
Erect pricklypear	*Opuntia stricta*		T		X								
Cinnamon fern	*Osmunda cinnamomea*		CE			X	X						
Royal fern	*Osmunda regalis*		CE			X	X						
Cutthroat grass	*Panicum abscissum*		E	X	X								
Yellow fringeless orchid	*Platanthera integra*		E	X	X								
Giant orchid	*Pteroglossaspis ecristata*		T	X	X								
Coonties, all native species	*Zamia spp*		CE	X	X								

NOTES:

*SSC=Species of Special Concern, T=Threatened, S/A=Similarity of Appearance, E=Endangered, CE=Commerically Exploited

**Observed in the past (2010) but not in 2017

X1 = Listed in Wildlands Report as Fallow Field

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Florida Natural Areas Inventory

Biodiversity Matrix Query Results

UNOFFICIAL REPORT

Created 6/20/2017

(Contact FNAI Data Services Coordinator for an official Standard Data Report)

(Contact the FNAI Data Services Coordinator at 850.224.8207 for information on an official Standard Data Report)

NOTE: The Biodiversity Matrix includes only rare species and natural communities tracked by FNAI.

Report for 10 Matrix Units: 22709 , 22710 , 22955 , 22956 , 22957 , 23202 , 23203 , 23204 , 23450 , 23451

Descriptions

DOCUMENTED - There is a documented occurrence in the FNAI database of the species or community within this Matrix Unit.

DOCUMENTED-HISTORIC - There is a documented occurrence in the FNAI database of the species or community within this Matrix Unit; however the occurrence has not been observed/reported within the last twenty years.

LIKELY - The species or community is *known* to occur in this vicinity, and is considered likely within this Matrix Unit because:

1. documented occurrence overlaps this and adjacent Matrix Units, but the documentation isn't precise enough to indicate which of those Units the species or community is actually located in; *or*
2. there is a documented occurrence in the vicinity and there is suitable habitat for that species or community within this Matrix Unit.

POTENTIAL - This Matrix Unit lies within the known or predicted range of the species or community based on expert knowledge and environmental variables such as climate, soils, topography, and landcover.

Matrix Unit ID: 22709

0 Documented Elements Found

0 Documented-Historic Elements Found

2 Likely Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing

Mycteria americana Wood Stork	G4	S2	LT	FT
Trichechus manatus West Indian Manatee	G2	S2	LE	FE

Matrix Unit ID: 22710

0 Documented Elements Found

0 Documented-Historic Elements Found

4 Likely Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Haliaeetus leucocephalus Bald Eagle	G5	S3	N	N
Mesic flatwoods	G4	S4	N	N
Mycteria americana Wood Stork	G4	S2	LT	FT
Trichechus manatus West Indian Manatee	G2	S2	LE	FE

Matrix Unit ID: 22955

0 Documented Elements Found

0 Documented-Historic Elements Found

5 Likely Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Estuarine unconsolidated substrate	G5	S5	N	N
Mangrove swamp	G5	S4	N	N
Mycteria americana Wood Stork	G4	S2	LT	FT
Salt marsh	G5	S4	N	N
Trichechus manatus West Indian Manatee	G2	S2	LE	FE

Matrix Unit ID: 22956

0 Documented Elements Found

0 Documented-Historic Elements Found

5 Likely Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Estuarine unconsolidated substrate	G5	S5	N	N
Mangrove swamp	G5	S4	N	N
Mycteria americana Wood Stork	G4	S2	LT	FT

Salt marsh	G5	S4	N	N
Trichechus manatus West Indian Manatee	G2	S2	LE	FE

Matrix Unit ID: 22957

1 Documented Element Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Mesic flatwoods	G4	S4	N	N

0 Documented-Historic Elements Found

6 Likely Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Estuarine unconsolidated substrate	G5	S5	N	N
Glandularia tampensis Tampa Vervain	G2	S2	N	E
Mangrove swamp	G5	S4	N	N
Mycteria americana Wood Stork	G4	S2	LT	FT
Salt marsh	G5	S4	N	N
Trichechus manatus West Indian Manatee	G2	S2	LE	FE

Matrix Unit ID: 23202

0 Documented Elements Found

0 Documented-Historic Elements Found

5 Likely Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Estuarine unconsolidated substrate	G5	S5	N	N
Mangrove swamp	G5	S4	N	N
Mycteria americana Wood Stork	G4	S2	LT	FT
Salt marsh	G5	S4	N	N
Trichechus manatus West Indian Manatee	G2	S2	LE	FE

Matrix Unit ID: 23203

1 Documented Element Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Mesic flatwoods	G4	S4	N	N

0 Documented-Historic Elements Found

5 Likely Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Estuarine unconsolidated substrate	G5	S5	N	N
Mangrove swamp	G5	S4	N	N
Mycteria americana Wood Stork	G4	S2	LT	FT
Salt marsh	G5	S4	N	N
Trichechus manatus West Indian Manatee	G2	S2	LE	FE

Matrix Unit ID: 23204

1 Documented Element Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Mesic flatwoods	G4	S4	N	N

0 Documented-Historic Elements Found

5 Likely Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Estuarine unconsolidated substrate	G5	S5	N	N
Mangrove swamp	G5	S4	N	N
Mycteria americana Wood Stork	G4	S2	LT	FT
Salt marsh	G5	S4	N	N
Trichechus manatus West Indian Manatee	G2	S2	LE	FE

Matrix Unit ID: 23450

0 Documented Elements Found

0 Documented-Historic Elements Found

2 Likely Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Mycteria americana Wood Stork	G4	S2	LT	FT
Trichechus manatus West Indian Manatee	G2	S2	LE	FE

Matrix Unit ID: 23451

0 Documented Elements Found

0 Documented-Historic Elements Found

3 Likely Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Glandularia tampensis Tampa Vervain	G2	S2	N	E
Mycteria americana Wood Stork	G4	S2	LT	FT
Trichechus manatus West Indian Manatee	G2	S2	LE	FE

Matrix Unit IDs: 22709 , 22710 , 22955 , 22956 , 22957 , 23202 , 23203 , 23204 , 23450 , 23451

33 Potential Elements Common to Any of the 10 Matrix Units

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Acipenser oxyrinchus desotoi Gulf Sturgeon	G3T2	S2	LT	FT
Ammodramus maritimus peninsulae Scott's Seaside Sparrow	G4T3Q	S3	N	SSC
Athene cunicularia floridana Florida Burrowing Owl	G4T3	S3	N	SSC
Calopogon multiflorus Many-flowered Grass-pink	G2G3	S2S3	N	T
Centrosema arenicola Sand Butterfly Pea	G2Q	S2	N	E
Charadrius melodus Piping Plover	G3	S2	LT	FT
Dermochelys coriacea Leatherback Sea Turtle	G2	S2	LE	FE
Drymarchon couperi Eastern Indigo Snake	G3	S3	LT	FT
Eretmochelys imbricata Hawksbill Sea Turtle	G3	S1	LE	FE
Estuarine composite substrate	G3	S3	N	N
Estuarine consolidated substrate	G3	S3	N	N
Eumops floridanus Florida bonneted bat	G1	S1	LE	FE
Forestiera segregata var. pinetorum Florida Pinewood Privet	G4T2	S2	N	N
Glandularia tampensis Tampa Vervain	G2	S2	N	E
Gopherus polyphemus Gopher Tortoise	G3	S3	C	ST
Grus canadensis pratensis Florida Sandhill Crane	G5T2T3	S2S3	N	ST
Helianthus debilis ssp. vestitus Hairy Beach Sunflower	G5T2	S2	N	N
Lechea cernua Nodding Pinweed	G3	S3	N	T

Linum carteri var. smallii Small's Flax	G2T2	S2	N	E
Lithobates capito Gopher Frog	G3	S3	N	SSC
Matelea floridana Florida Spiny-pod	G2	S2	N	E
Mustela frenata peninsulae Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana Celestial Lily	G2	S2	N	E
Nolina atopocarpa Florida Beargrass	G3	S3	N	T
Panicum abscissum Cutthroat Grass	G3	S3	N	E
Picoides borealis Red-cockaded Woodpecker	G3	S2	LE	FE
Platanthera integra Yellow Fringeless Orchid	G3G4	S3	N	E
Podomys floridanus Florida Mouse	G3	S3	N	SSC
Pteroglossaspis ecristata Giant Orchid	G2G3	S2	N	T
Rallus longirostris scottii Florida Clapper Rail	G5T3?	S3?	N	N
Sciurus niger shermani Sherman's Fox Squirrel	G5T3	S3	N	SSC
Setophaga discolor paludicola Florida Prairie Warbler	G5T3	S3	N	N
Ursus americanus floridanus Florida Black Bear	G5T2	S2	N	N

Disclaimer

The data maintained by the Florida Natural Areas Inventory represent the single most comprehensive source of information available on the locations of rare species and other significant ecological resources statewide. However, the data are not always based on comprehensive or site-specific field surveys. Therefore, this information should not be regarded as a final statement on the biological resources of the site being considered, nor should it be substituted for on-site surveys. FNAI shall not be held liable for the accuracy and completeness of these data, or opinions or conclusions drawn from these data. FNAI is not inviting reliance on these data. Inventory data are designed for the purposes of conservation planning and scientific research and are not intended for use as the primary criteria for regulatory decisions.

Unofficial Report

These results are considered unofficial. FNAI offers a Standard Data Request option for those needing certifiable data.

APPENDIX E
Exotic Species

Appendix Ea. Exotic Species Observed on Double Branch Bay

Species		Plant Ranking*			Habitat Types - Note: habitat listed if available									
Common Name	Scientific Name	FEPPC I	FEPPC II	Not Ranked	Mesic Flatwoods	Shrub and Brushland	Other Hardwood Wetlands	Freshwater Forested Wetland	Tidally-influenced Stream	Canal	Estuarine	Tidal Flats (likely a Salt Flat)	Salt Marsh	Mangrove Swamp
AMPHIBIANS AND REPTILES														
Cuban treefrog	*Osteopilus septentrionalis*				X	X1								
Greenhouse frog	*Eleutherodactylus planirostris planirostris*				X	X1							X	
MAMMALS														
Feral hog	*Sus scrufa*													
Domesticated dog	*Canis familiaris*				X2									
Feral cat	*Felis catus*				X	X	X	X						
Nine-banded armadillo	*Dasypus novemcinctus*				X									
PLANTS														
BAHIAGRASS	*Paspalum notatum*			X										
BALSAMPEAR	*Momordica charantia*			X										
BRAZILIAN PEPPER	*Schinus terebinthifolius*	X												
BROOMCORN MILLET	*Panicum miliaceum*			X										
CAESARWEED	*Urena lobata*		X											
CAMPHORTREE	*Cinnamomum camphora*	X												
CHAMBER BITTER	*Phyllanthus urinaria*			X										
CHINESE TALLOWTREE	*Sapium sebiferum*	X												
COGONGRASS	*Imperata cylindrica*	X												
COLOMBIAN WAXWEED	*Cuphea carthagenensi*			X										
COMMON DAYFLOWER	*Commelina diffusa var. diffusa*			X										
DITCH FIMBRY	*Fimbristylis schoenoides*			X										
EARPOD TREE	*Enterolobium contortisiliquum*			X										
GUINEAGRASS	*Panicum maximum*		X											
INDIAN CUPSCALE	*Sacciolepis indica*			X										
JAPANESE CLIMBING FERN	*Lygodium japonicum*	X												
LANCELEAF RATTLEBOX	*Crotalaria lanceolata*			X										
LANTANA	*Lantana camara*	X												
LILAC TASSELFLOWER	*Emilia sonchifolia*			X										
MOTH FANPETALS	*Sida santaremensis*			X										
NAKEDSTEM DEWFLOWER	*Murdannia nudiflora*			X										
PANAL	*Cypselea humifusa*			X										
PERUVIAN PRIMROSEWILLOW	*Ludwigia peruviana*	X												
PUNKTREE	*Melaleuca quinquenervia*	X												
RATTLEBOX	*Sesbania punicea*		X											
ROSENATAL GRASS	*Melinis repens*	X												
SKUNKVINE	*Paederia foetida*	X												
SMALL-LEAF CLIMBING FERN	*Lygodium microphyllum*	X												
SMUTGRASS	*Sporobolus indicus*			X										
TORPEDOGRASS	*Panicum repens*	X												
TUBEROUS SWORD FERN	*Nephrolepis cordifolia*	X												
VASEYGRASS	*Paspalum urvillei*			X										
WASHINGTON FAN PALM	*Washingtonia robusta*		X											
WATER SPANGLES	*Salvinia minima*	X												
WHITE LEADTREE	*Leucaena leucocephala*		X											
WHITE SWEETCLOVER	*Melilotus albus*			X										
WILD BUSHBEAN	*Macroptilium lathyroides*			X										
YELLOW NUTGRASS	*Cyperus esculentus*			X										

Notes:

X1 = Listed in Wildlands Report as fallow field

X2 = Listed as Wildlands Reports as mesic hammock

*Florida Exotic Pest Plant Council, 2017. Florida 2017 FLEPPC List of Invasive Plant Species. FLEPPC Plant List Committee

APPENDIX F
Conservation & Environmental Land Management Policies

Appendix F

Policies Applicable to Double Branch Bay:

- Gopher Tortoise Relocation Policy 11/30/98
- Habitat Monitoring Policy undated
- Invasive Exotic Plant Policy 07/30/97
- Management Funding Assistance Policy 03/15/99
- Mitigation Policy 11/30/98
- Recreational Use Policy 11/30/98
- Site Security Policy undated
- Habitat Restoration Policy 05/26/00
- Nuisance and Non-native Animal Removal 04/07/16
- Firearms Use Standard undated
- Prescribed Burn Policy 12/21/15

APPENDIX A

Firearms Use Standard
Hillsborough County Conservation and Environmental Lands Management Department

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I. Introduction

The purpose of this standard is to establish guidelines for the safe and effective use of firearms for wildlife management activities within lands managed by Hillsborough County Conservation and Environmental Lands Management ("Department lands"). The direction found within this standard is intended to guide Department staff in the area of firearm use related to the Department's exotic and nuisance wildlife management program. This standard is not meant to provide direction for contractor use of firearms within Department lands. Contractors will be held to the terms and guidelines found in their individual contracts.

While firearms are only one tool used to professionally manage wildlife, they are a critical and essential component of the Department's program to manage non-native wildlife, and must be undertaken in accordance with approved standards and procedures. This document serves as a guideline for firearms use; however, the skill and proficiency of the individual employee play a critical role in achieving the overarching

objectives of safe firearm use in resource management. Employees that utilize firearms for wildlife management must meet specific skill and training requirements, and be approved by the Conservation and Environmental Lands Management Director.

II. Site-Specific Planning

While this document is specific to the use of firearms, an effective exotic and nuisance wildlife management program must address many issues including effective management techniques, timing of management activities, and other considerations which are beyond the scope of this usage standard.

When determining which (or *if*) firearms can be safely utilized in a specific location, the Section Manager must consider the following: size of animals to remove; how an animal would be removed (trapping and/or direct removal-shooting); potential concerns with discharging a firearm in the site, including potential background issues (development and land use both inside and outside the site); time of day; location of firearm discharge; presence of the public within sight or within hearing distance; how a firearm would be transported within the park; where a firearm would be stored in the park; and potentially many other considerations. While there is no perfect method for selecting the best firearm for the job, one or more of these factors will aid in determining the most appropriate selection. It is only after careful consideration that firearm use should be proposed.

III. Types of Firearms and Use

Firearms are primarily utilized to humanely kill feral hogs. Other smaller exotic and nuisance wildlife species are also removed using firearms (e.g., tegus). Three categories of firearms are handguns, shotguns and rifles. The type of firearm utilized varies significantly depending on many circumstances; therefore, the following are general guidelines.

a. Handgun

- Allowable additional equipment: Scopes, suppressors, lasers, and night vision devices.
- Approved calibers: .22 lr (for appropriate sized wildlife, e.g., tegu), .22 wmr, .38 spec
- Action Type: Revolver, semi-automatic
- Purpose: For euthanization of trapped exotic or nuisance wildlife at close distances. The use of handguns is limited to trapped animals. Use on free-ranging feral hogs is not permitted.
- Effective Range: Less than 10 yards.

b. Shotgun

- Allowable additional equipment: Slings, artificial lights, scopes, lasers and night vision equipment.
- Approved gauge: 12 gauge, #00 buckshot for larger animals; 12 gauge, #4 through #8 is useful for smaller animals but should not be used on larger animals; 12-gauge, rifled slug.
- Action Type: Pump action or break action only for simplicity of operation and maintenance.
- Purpose: For humane killing of exotic or nuisance wildlife.

- Effective Range: Buckshot is generally less than 35 yards; slugs are usually fired at targets less than 75 yards and most effective with the use of a rifled barrel.

c. Rifle

- Allowable additional equipment: Slings, scopes, suppressors, artificial light, laser and night vision devices.
- Required additional equipment: Scope or iron sights
- Approved calibers: .22 lr, .22 wmr, .357 mag, .44 rem mag. Note: air rifles of .177 and .22 caliber will also be allowed for appropriate sized wildlife (e.g., tegu).
- Action Type: Bolt action, lever action, semiautomatic (.22 lr and .22 wmr only)
- Purpose: For humane killing of exotic and nuisance wildlife.
- Effective Range: Although effective range may be longer, due to thick vegetation and concerns with background impacts, most shots are less than 100 yards. Because of this, shots should be limited to 75 yards or less; therefore, rifles chambered for lower powered cartridges such as .357 mag or .44 rem mag are preferred.

IV. Special Considerations for Firearm Use

According to the American Veterinary Medical Association's Guidelines for the Euthanasia of Animals: 2013 Edition, "a gunshot is acceptable with conditions for euthanasia of free-ranging, captured or confined wildlife, provided that bullet placement is to the head (targeted to destroy the brain). Gunshot targeted to the heart (chest) or to the neck (vertebrae, with the intent of severing the spinal cord) presents challenges for accurate placement, but may be the best options for free-ranging or other settings where close approach is not possible." For most trapped animals, the brain will be targeted. For free-ranging animals, the shooter must make the decision of targeting the brain or the chest/neck based on site-specific conditions.

V. Firearm Care and Maintenance

Employees are expected to maintain County firearms in a safe operating condition following the recommendations of the firearm manufacturer found in the owner's manual. Note: the owner's manual for most models of firearms can be downloaded from the manufacturer's website.

If a firearm malfunction occurs that cannot be easily corrected in the field or if staff feel the firearm is unsafe for use, the firearm shall be taken to a qualified gunsmith for evaluation and repair.

VI. Personal Firearms

Personally owned firearms are not authorized for official use as part of the Department's exotic and nuisance native animal removal program.

VII. Authorized Use of County-Owned Firearms

As government property, the use of government-issued firearms is not authorized for non-government purposes and outside of an employee's official assigned duties.

VIII. Training

Training will consist of two parts: 1) Classroom and 2) Range Qualification. Successful completion of both training parts is required prior to an employee being approved for firearm use.

a. Classroom Training

All staff seeking approval for firearm use must first complete the required classroom training prior to attempting to qualify on the range. For the use of rifles and/or shotguns, all staff must successfully complete the Florida Fish and Wildlife Conservation Commission (FFWCC) Florida Hunter Safety Course which can be taken online or in a classroom setting followed by a field day or the National Rifle Association (NRA) Basic Firearm Training Program: Rifle.

The second part of the classroom requirement is an in-house training more specific to policies, responsibilities, ethics and specific firearm knowledge. This training program consists of an in-house program led by an instructor or employee knowledgeable in firearm use, County policy, wildlife management needs and state laws.

Classroom training curricula will include:

- State laws
- County policy
- Employee responsibilities associated with firearms
- Firearms-related ethics and liabilities
- When not to shoot
- Ballistics
- AVMA guidelines
- Shot placement
- Firearm accessories, sight systems
- Firearm maintenance and record keeping

b. Range Qualification

This portion of the training includes safety awareness, firearm handling principles, proper and safe shooting techniques, and live fire at a shooting range. Range qualification requires the employee to demonstrate their ability to safely handle a firearm, and to skillfully hit an appropriately sized target at specific distances with the firearm. Possessing this skill ensures that participants know how to safely and effectively handle and discharge the firearm, and that the standard of humane killing as determined by the AVMA can be met under field conditions. All range qualification will take place at a designated off-site shooting range.

Prior to undertaking the firearm training and qualification, the Section Manager will ensure the employee has: 1) successfully completed the FFWCC Florida Hunter Safety Course or NRA Basic Firearm Training Program: Rifle; 2) possesses a valid Concealed Weapons Permit issued by the Florida Department of Agriculture and Consumer Services; and 3) has completed the in-house training requirement.

c. Instructors

For the purposes of teaching firearms safety and qualifying staff under live fire per this standard, instructors must possess current firearm instructor qualifications from any branch of the US Armed Forces; a Federal, State or local law enforcement agency or the National Rifle Association as a certified instructor, Range Safety Officer (RSO) or a certified Range Officer (RO). The instructor may utilize assistants to aid in instructing. Instructors for classroom-only instruction (no live fire) must possess a broad working knowledge of the material to be taught.

IX. Approval and Expiration Cycle

At the Director's discretion, an employee who has been assigned wildlife management duties and meets all established qualifications will be provided with a memorandum (Appendix B of the Nuisance and Non-Native Animal Removal policy) authorizing use of a firearm for nuisance and exotic animal control, including any expiration dates. The employee must maintain a copy of the letter in their possession at all times while possessing a firearm on Department lands for official duty. All approvals expire March 1 of even years (2018, 2020, etc.). Employees must requalify on the range every two years to maintain their approved status.

X. Firearms Safety Guidelines

a. Definitions

- Unloaded firearm – ammunition is completely separated from the firearm, including both the chamber and magazine.
- Complete safe firearm – a firearm that is unloaded, visually inspected, and has the action open and the safety in the on position.
- Secured firearm – a firearm that is unloaded and locked inside a gun safe or locking cabinet.
- Temporarily secured firearm – an unloaded firearm made functionally inoperable by using items such as a trigger lock, action lock, cable lock or some similar device without returning the firearm to a gun safe.

b. General Safety

- Any firearm used by field personnel shall be secured when not under the direct control of the person.
- Never assume or take someone's word that a firearm is unloaded. Treat all firearms as if they are loaded.
- Never handle a firearm without first checking to be sure that it is unloaded (manually and visually); then check it again!
- Never give or receive a firearm with the action closed.
- Never let the firearm muzzle point at anything you are not willing to destroy.
- Keep your finger off the trigger until your sights are on the target.
- Always be sure of your target and the area beyond it.
- Before using any ammunition, make sure it is suitable for the firearm.

c. Vehicle Safety

- Firearms will be unloaded (chamber and magazine empty) while being transported in a vehicle, including boats.

- Firearms temporarily stored in a vehicle (firearm is in the vehicle but no person is in the vehicle) will be secured using a locking device that makes the firearm inoperable such as a trigger lock or an action-locking device. The firearm will be stored out of sight within the vehicle, and the vehicle will be locked. Firearms will not be stored overnight in a vehicle unless specifically approved by the Section Manager.
- Firearms are not to be discharged from a vehicle.
- Never lean the firearm against the side of a vehicle.
- Handguns will not be loaded and will be kept inoperable with a locking mechanism (locking cable or trigger lock) when not in use. While being transported in a vehicle, handguns will be contained within a handgun appropriate case (soft bag, hard case, back pack, etc.) and will only be loaded when it is determined necessary to euthanize an animal.

d. Field Safety

- Avoid carrying a firearm in view of the public. If unavoidable, carry the firearm in a case or with the action open. Do not load it until you are a safe distance from the area.
- Keep the firearm pointed away from the visitors or areas likely to be occupied by visitors.
- After taking a fall, firearms should be made completely safe, then the muzzle be checked for obstructions.
- Frequently and routinely check the safety of the firearm.
- When negotiating obstacles (fences, step ditches, downed trees, etc.), remove the ammunition from the chamber and leave the action open.
- Never shoot until you have positively identified your target (visually) and the area beyond it.
- Staff using firearms in the field must be clearly and easily identifiable in uniform.

e. Public Safety

- If at all possible, avoid transporting and using firearms in use areas or other areas of a site where the public may become alarmed by the sight of a firearm, the sight of a humanely killed animal, the sound of a firearm discharge, etc. In many instances, use of firearms for wildlife management is most appropriate after dark when public access is not allowed.
- A determination of the appropriate use of firearms must be made for each site based on development both within and outside the site, time of day, season, weather conditions, public trails and usage, along with other site-specific issues.
- If necessary, a site may be closed to the public during planned direct-removal events. Signage indicating the closure should be prominently displayed at the site's public access points, and notice of the closure should be announced on the Department's web page(s).
- Always be prepared to professionally explain your activities, and always present yourself in a professional manner as with all official duties.
- Do not let anyone except for other authorized employees to handle the firearm or ammunition.
- Check remote campsites as well as popular illegal campsites before using a firearm in the area.

- Be aware at all times of your location and relationship to campsites, hiking trails, boundaries, and any other area where people may be.
- Never shoot in the direction of a public use area, or near a site boundary.

f. Administration Areas

- Always make a complete safe firearm before entering a building.
- Firearms are to be secured in a locked safe or cabinet.
- When a firearm is secured in a safe, it must be unloaded (magazine and chamber empty).
- Ammunition must be secured when not in the possession of an employee.

XI. Accountability, Security and Storage

a. Inventory

Property inventory and management procedures already in use by the County will be utilized for County-owned firearms. If, by approval of the Department Director, an employee is authorized to temporarily keep a County firearm at his or her residence, the firearm will be secured in a safe or locking cabinet and the location should be noted on property records paperwork. Firearms will only be permitted to be kept at an employee residence if the employee is a site security resident assigned to a property where active nuisance or exotic wildlife management is taking place.

b. Security and Storage

All firearms are to be secured when not under the direct control of an assigned staff member. The purpose of securing is to reduce the likelihood of theft or use by untrained or unauthorized personnel. When firearms are not in use, they, and associated ammunition, will be stored in locked security cabinets or safes. Safe combinations will be shared with the minimum number of staff necessary.

Firearms temporarily stored in a vehicle will be secured using a locking device that makes the firearm inoperable such as a trigger lock or an action locking device. The firearm will be stored out of sight within the vehicle and the vehicle will be locked. Firearms that are stored or secured will be unloaded including chamber and magazines. Firearms will not be stored overnight in a vehicle without direct approval from the Section Manager.

XII. Record Keeping

a. Program Forms and Records

Employee training certificates, qualification records, firearm approval request memos, and authorization memos will be maintained both in electronic format, and in hard copy at the Central office located at the Bell Creek Preserve.

b. Firearms Activity Logs

A Firearm Activity Log will be recorded and maintained for each County-owned firearm (Appendix C of the Nuisance and Non-Native Animal Removal policy). The log will show all firearm activity including which employee the firearm is signed out to and when, all shots fired, the date and employee who cleaned the firearm, any work performed by a gunsmith, etc. The Activity Log will be kept with the firearm at its storage location. Once a log sheet is completely full, the log will be scanned and maintained both in electronic format, and in hard copy at the Central office located at the Bell Creek Preserve.

APPENDIX B

Sample Memorandum of Approval to Use Firearms to Remove Nuisance and Non-native Animals

TO: [*Name and title*]
Hillsborough County Conservation and Environmental Lands Management Department

FROM: [*Department Director (or designee)*]
Hillsborough County Conservation and Environmental Lands Management Department

SUBJECT: Approval to use firearms for land management

In accordance with County policy, you are hereby authorized to possess and use a firearm(s) for the purpose of removing nuisance and non-native animals from specified lands managed by the Hillsborough County Conservation and Environmental Lands Management Department. The lands where you are authorized to possess and use a firearm are listed below.

Personal and public safety must remain paramount at all times. Any and all acts carried out by you while working in this capacity shall be subject to federal, state and local regulations, and to County and Department policy. Failure to adhere to these standards will result in disciplinary action.

This authorization is valid from (*date*) until (*date*).

Approved sites: (*sites in a list*)

Attachments: (*maps*)

APPENDIX C - (Sample) Conservation and Environmental Lands Management Firearm Activity Log

Office Location:____

Firearm Serial Number:___________________________________

Location Firearm is Stored:________________________________

Activity Date:	Activity Type:	Discharged Y/N and #	Comments:	Signature:

INSTRUCTIONS

Office Location: Enter the full name of the location where the firearm is securely stored

Firearm Information: Enter the make, model, caliber and serial number of the firearm (e.g. Ruger Model 77/44, .44 mag caliber, S/N 123456)

Location Firearm is Stored: Record the location where the firearm is securely stored when not in use. Include both the name and number of building (e.g. stored in safe in CELMD Central Office, Bell Creek Preserve)

Activity Date: Enter the date that any activity occurred with the specific firearm

Activity Type: Enter one or more of the following:

F – Used in the Field

C – Cleaned

M – Repair or maintenance was performed (other than cleaning)

S – Firearm removed from storage for Safety Inspection

O – Used for other use (clarify that use in the comments section)

Discharged Y/N and #: If the firearm was discharged, enter a 'Y' followed by the exact number of times the weapon was fired. If it was not fired, enter an 'N'

Comments: Use this space to record the species and number of animal(s) that were humanely killed, other type of activity, or any other comment that should be recorded (firearm needs to be sighted in, firearm needs to be taken to a gunsmith, etc.)

Signature: The staff person who was in possession of the firearm on the specific date signs their name at this location upon returning the firearm to the secure location where it is stored. By signing, the firearm user is attesting the information is accurate.

******This Form shall remain at the location where the firearm is stored******

APPENDIX D

Hillsborough County Conservation and Environmental Lands Management Department Receipt for Donated Hogs Form

NOTE: There is a possibility that these donated animals are carriers of infectious diseases.

Date	Number of Hogs	Charitable Organization

Originating Preserve/Park: _____

I, _____, representing _____,
print name *print name of organization*
a charitable non-profit organization, accept the animals described above to be used as a food source by said organization. Upon acceptance, I hereby relieve Hillsborough County, of any and all claims that may arise as a result of this donation.

Sign _____ Date _____

Witness _____ Date _____

GOPHER TORTOISE RELOCATION POLICY

Hillsborough County Parks and Recreation Department/Resource Management Team

Purpose: To determine whether or not to allow gopher tortoises to be relocated onto preserve lands from unprotected sites, or to be moved from one location to another on preserve lands.

Background: Resource Management staff receive requests from individuals seeking gopher tortoise relocation sites on a regular basis. In most cases, the donor site has been approved for development, and the developer or his representative is attempting to avoid the destruction of the tortoises, as authorized under a "taking permit" issued by the Florida Game and Fresh Water Fish Commission (G&F). Although tortoises are a protected species, and are considered to be both desirable and important elements of the natural environment, the careless relocation of tortoises onto preserve sites may be of little benefit and may actually be harmful to both the animals being moved and any existing population. Potential problems can result in the injury or death of the relocated or resident tortoises due to:

*improper handling during relocation, causing direct injury or stress induced disease
*failure to adapt and survive due to seasonal factors (cold temperatures, high water tables, etc.)
*introduction of Upper Respiratory Tract Disease (URTD)
*exceeding the carrying capacity of the relocation site
*decline of habitat quality at the relocation site due to a lack of site management

In spite of these concerns, the relocation of tortoises onto protected areas can be beneficial to those areas, if the process is properly managed. Known benefits of relocation include:

*increasing the size of a remnant population to a level which is self sustaining
*reestablishing tortoises in suitable habitat where they have been extirpated by poaching or disease
*reintroduction of tortoises to habitat restoration sites, once the new vegetative communities have become established and provide suitable habitat
*relocation of tortoise "associates," if possible, especially protected species which depend on tortoise burrows for habitat
*increasing the amount of burrow habitat available on site for existing associate species
*tortoises appear to play an important role in recycling of nutrients and seed dissemination/germination

The above list reflects an underlying assumption that upland habitats in Hillsborough County which are capable of supporting gopher tortoises cannot be considered to be fully functional or high quality in the absence of gopher tortoises and the burrows which they maintain. Lastly, one of the most compelling reasons may simply be a desire to avoid the unnecessary destruction of this unique and popular native animal.

There are also rare occasions when it may be necessary to relocate tortoises from one on site location to another, or from one preserve site to another. Examples include habitat restoration projects which target the removal of fill material or spoil areas which often harbor tortoise burrows, due to the improved drainage provided by the artificially elevated sites, or restoration of natural hydrology, which could flood burrows in areas where past drainage "improvements" have

lowered the water table. If there is suitable habitat elsewhere on site, and the viability of the tortoise population is not in question, then relocation could be acceptable. On site relocation to accommodate site improvements may also be considered, however, every effort should be made to avoid the necessity by planning and designing facilities properly.

Relocation Criteria: Relocation will not be approved unless all of the following conditions are met.

1) The proposed relocation site must contain permanently protected habitat suitable for gopher tortoises, large enough in extent to support a viable population indefinitely. Determination of these conditions will be based on guidelines provided by the Florida Game and Fresh Water Fish Commission, Nongame Wildlife Program Technical Report No. 4: Ecology and Habitat Protection Needs of Gopher Tortoise (*Gopherus polyphemus*) Populations Found on Lands Slated for Large-Scale Development in Florida.

2) Adequate management capabilities must exist in the foreseeable future, with no serious constraints anticipated, including the ability to conduct prescribed burns, control nuisance exotic species, and provide site security.

3) The proposed site must not contain an existing population of tortoises which is considered viable, or which could recover to viable status with proper site management.

4) All relocated tortoises must be in good health, and must be tested for URTD. If one or more tortoises from a given donor site test positive for URTD, none of the tortoises from the site will be accepted.

5) At any given time, no more than one site will be made available for relocations.

6) The relocation site shall be effectively isolated from other existing tortoise populations, with natural or man-made barriers in place to deter off-site migration of relocated animals.

7) Every effort should be made to relocate native associate species found in the burrows on the donor site.

8) All relocation activities, including site surveys and monitoring of populations, must be conducted in full compliance with both the Florida Game and Fresh Water Fish Commission and the Hillsborough County Planning and Growth Management Department, Natural Resources Section.

9) Post relocation population surveys will be conducted to document the degree of success.

10) In order to be consistent with the policies of the Southwest Florida Water Management District, relocations will not be permitted unless existing, pre-relocation population densities are 0.4 tortoises per acre or less. Post-relocation densities must not exceed 1.0 tortoises per acre.

11) Relocations will not be authorized solely for humanitarian reasons.

12) The Parks and Recreation Department Resource Management Office reserves the right to refuse any gopher tortoise relocation proposal for lands managed by this office.

13) This policy will be continually updated as new information becomes available.

Updated 11/30/98

HABITAT RESTORATION POLICY

Hillsborough County Parks and Recreation Department/Resource Management Section

Purpose: To establish guidelines to define the objectives, techniques and procedures to be followed in the restoration of natural plant communities in disturbed or degraded areas of preserve lands.

Background: In the process of acquiring large tracts of land for natural resource preservation, Hillsborough County occasionally purchases, either unavoidably or by deliberate design, areas which have been altered by past land uses or exotic plant invasion. It is the policy of the Resource Management Section to restore environmentally damaged ecosystems to a more "natural" condition, to the greatest extent possible and practical. The reason for doing so is to maximize the benefits derived from a naturally functioning ecosystem, which include, but are not limited to, the following: wildlife diversity; wildlife carrying capacity; recovery and support of listed plant and animal species; restoration and enhancement of habitat connectivity; improvement of water quality; reduction of storm-water runoff; and enhancement of aesthetic values. Habitat restoration may involve the reintroduction of fire through prescribed burning, removal of invasive exotic vegetation, replanting of areas cleared of native plants, hydrologic restoration, or all of the above. Whatever the techniques employed, the underlying objective of habitat restoration is to direct and facilitate the process of natural succession.

Determination of Target Restoration Habitat: In most cases, restoration attempts to re-create the natural plant community that originally occurred on the site prior to the impacts. Determining that condition involves an analysis of a combination of factors, including soil types, topography, and existing conditions on similar, nearby undisturbed sites, if available.

In some cases, site alterations are too extreme to enable the re-creation of original conditions. Examples include areas which have undergone mining, dredging, landfill, and some forms of agricultural development. In such areas, the objective may be simply to replace exotic species with native, rather than to restore a fully "authentic" natural plant community. Occasionally, highly disturbed areas which are not considered to be priority sites for restoration, may be designated for other uses such as facilities development, agricultural use, storm-water management, etc. However, unless there is a specific reason to do otherwise, or an area of a site has been designated as an "acquisition of convenience" (surplus), the County will attempt to restore such areas to a more natural condition.

Methodology: Since habitat restoration techniques are constantly evolving, no attempt to describe specific methods will be presented as part of this policy. In general, the best available methods, within financial constraints, will be employed. Resource Management staff will keep abreast of new developments by participating in area workshops and regional conferences, maintaining memberships in organizations and societies dedicated to restoration and management, and sharing information with other land management agencies and organizations.

Partnerships: Whenever possible, Resource Management will seek to partner with other agencies and organizations to pursue habitat restoration objectives. To date, restoration partnerships have been formed with the West Coast Regional Water Supply Authority (NKA Tampa Bay Water),

Southwest Florida Water Management District/SWIM Program, Hillsborough County Environmental Protection Commission, Sierra Club, Audubon and others. Partnerships may simply provide a source of additional funds, consist of volunteer participation, or provide actual large scale re-creation of habitat.

Site Evaluation and Prioritization: The first option for restoration of disturbed areas will always be to let natural succession occur on its own. In situations where this is not possible, priority will be given to projects which accomplish the following objectives:

- support the survival or expansion of populations of listed species
- re-create or enhance habitat connections between core parcels
- control infestations of exotic nuisance plants which threaten natural areas
- provide water quality enhancement or reduce storm-water runoff
- replace extremely rare natural plant communities

Other factors affecting site priority include availability of grant funding or the ability to form partnerships. Due to limited resources available for site management in general, restoration of some areas may be delayed indefinitely if it is determined that doing so will not cause continued degradation of other natural resources.

Development of a Restoration Plan: Regardless of a restoration project's priority rating, no site restoration activity should occur until, at the least, a conceptual site restoration plan has been developed and incorporated into the overall management plan for the site. It is essential that habitat restoration activities be fully integrated into other site management activities, in order to avoid conflicting with those activities. For example, an area which is a high priority for prescribed burning, in order to reduce fuels, etc., should nor be re-planted until such burns have been conducted. Also, premature planting in areas previously used for agricultural purposes, such as row crops, may result in native plants becoming overgrown by nuisance exotics or weedy native species.

Summary: Restoration of natural habitat in disturbed or degraded areas of preservation lands is always one of the primary objectives of site management, unless there is a specific reason not to do so. Prior to initiating habitat restoration activity on any site, a conceptual site restoration plan must be developed. The plan will identify restoration objectives and best available methods to be employed, as well as opportunities for partnerships or outside funding. Restoration activities will be integrated into other site management initiatives to avoid conflicting objectives.

Revised 5/26/00

HABITAT MONITORING POLICY

Hillsborough County Parks and Recreation Department/Resource Management Team

Purpose: To establish a set of monitoring guidelines to determine the success of site management efforts in protecting and enhancing the natural resources of preserve lands.

Background: In order to insure that the objectives of the ELAP Program in acquiring natural preserve areas are met, the Resource Management Office conducts management activities on the preserve lands, including site security, prescribed burning, exotic control, listed species management, restoration, and monitoring of recreational uses. In an effort to determine whether or not the various site management techniques are accomplishing the desired objectives of maintaining or increasing habitat quality and wildlife diversity, a monitoring program has been developed to document existing site conditions and demonstrate changes over time. Due to the high number of preserve sites (over 30), and the extensive acreage (over 30,000 acres), a relatively simple and easily repeatable monitoring method is required as a " base level". This method consists of establishing permanent photographic monitoring stations on every site, with the number and location for each site determined on a site specific basis, but as needed to provide a profile of the site's natural environment, or to highlight areas which are expected to change due to restoration or enhancement efforts.

Each photo station is marked with a steel fence post which is capped with a short section of white PVC pipe identified by a sticker as a permanent marker not to be disturbed. The markers indicate the point at which monitoring photographs are taken at least once a year, in each of the four cardinal directions (NSEW). More frequent photographs are taken as needed to document events such as replanting, burns, or exotic removal. All photographs are labeled with site, date, direction and station number, and stored in site management files. Each set of monitoring photos will be accompanied by a brief narrative of site conditions observed during the monitoring event.

In situations that require more than base level monitoring, such as grant funded restoration projects, impacts of recreational facilities, or listed species recovery efforts, specific monitoring methodologies are developed to meet the unique needs of each project. Examples include standard wetland mitigation monitoring for permitted facilities; pre- and post-treatment photographs and mortality estimates for exotic plant control; qualitative vegetative assessments for burn units; habitat quality assessments and population surveys for gopher tortoise relocations; nest box surveys for SE American Kestrel recovery efforts; and water quality sampling for wetland restoration projects or monitoring of cattle grazing impacts. All data collected is compiled and reported to other agencies as needed, and stored in site management files at the Resource Management Office.

INVASIVE EXOTIC PLANT POLICY

Hillsborough County Parks and Recreation Department/Resource Management Team

Purpose: To provide a set of guidelines to define the objectives, techniques, and procedures to be followed in the control and removal of invasive exotic plant species on preserve lands.

Background:
The Hillsborough County Parks and Recreation Department (HCPRD) is charged with management of invasive exotic plants on county-owned preserve lands as required by the Hillsborough County comprehensive plan, as well as through interlocal agreements with state agencies such as the Southwest Florida Water Management District (SWFWMD), the Conservation and Recreational Lands Program (CARL) and the Florida Communities Trust (FCT). While many of these preserve lands are in a predominantly natural condition when purchased, a few have been disturbed by past phosphate mining, agricultural activities, adjacent development and other human activities. Almost all county-owned preserves have problems with exotic plant invasion, the degree of which depends on site location, past disturbance, past management, and many other factors.

The problem with invasive exotic plants
Invasive exotic plants differ from our native plants in that they have few natural enemies (i.e., insects and diseases) in this country, allowing them to out compete native species. In addition, they have various mechanisms for spreading rapidly in undisturbed natural areas as well as altered lands. Invasive exotic plants are capable of producing large amounts of seed and/or spreading vegetatively within a short time frame. The seeds and fruit are spread by air, water, animals and humans. Vegetative parts are often spread by vehicles and land management machinery. Some invasive plants release chemicals that suppress the growth of surrounding vegetation (allelopathy). Others produce extensive root growth that crowds out native species. Invasive exotic vines blanket native trees and plants, eventually shading out or breaking them.

The damage to native ecosystems is extensive, resulting in lowered biodiversity. Invasive exotic plants often form monocultural stands that greatly diminish availability of food sources and habitat for native wildlife. They alter natural fire patterns and interfere with aquatic system functions. Access to natural areas by staff and the public is inhibited by rampant invasive plant growth. Aesthetic beauty of native ecosystems is ruined.

Identification and prioritization for control
Invasive exotic plant species are recognized and recorded by staff and other experts during preliminary site assessment activities, including new and previously unnoticed infestations. When past site activities are conducive to invasion by particular exotic species (i.e., cattle grazing and tropical soda apple) an informal exotic plant survey of the property may be conducted by staff.

Invasive exotic plants are prioritized for control according to their potential for invasion, the control options available, access to the infestation, and the existing quality of the habitat. Timing for plant susceptibility to control methods due to stage of growth and time of year is a primary consideration. Future plans for the infested area, including restoration, are also considered.

Control methods

Invasive exotic plants are controlled using methods that are the least disruptive to the infested ecosystem. For example, while large, isolated stands of cogongrass can be mowed or burned prior to aerial herbicide treatment, small infestations intermingled with native species must be carefully treated by hand to avoid damage of non-target plants.

Manual/mechanical, physical, and chemical methods of controlling invasive exotic plants are commonly used by the HCPRD. Few biological control agents are currently available for species encountered in Hillsborough County, however, development and testing of biological controls on county-owned lands is welcomed by HCPRD.

Manual/mechanical control methods include hand-pulling of small plants, collection of fruits, tree girdling, and mowing to prevent flowering and fruiting. These methods are often used in conjunction with physical and chemical controls for greater effectiveness. For example, skunkvine is sometimes hand-pulled, allowed to resprout, then sprayed with herbicide. Prescribed fire is used as an indirect physical control. Staff can more easily access burned areas to locate and treat invasive exotics such as Brazilian pepper. Burning also consumes dead vegetation that impedes chemical treatment of invasive exotics such as cogongrass.

Chemical controls used by HCPRD include basal bark, foliar, cut stump, and girdle and spray treatments. Methods of application range from hand held quart spray bottles and backpack sprayers to larger sprayers mounted on all terrain vehicles and pick up trucks. Experiments with basal soil treatments of monocultural stands on preserve lands have also been conducted by chemical industry representatives. The Hillsborough County Roadway Maintenance Mosquito Unit uses boats to access aquatic invasive species in waterways, and helicopters to aerially spray large infestations of aquatic and terrestrial invasive plants on county lands.

Herbicides

Chemical herbicides regularly employed by HCPRD include glyphosate and triclopyr. Triclopyr is used in basal bark, cut stump, girdling, and occasional foliar treatments in upland areas. It is most commonly used for basal bark treatments of Brazilian pepper, Australian pine and other invasive exotic trees. Glyphosate is used in basal bark, cut stump, and girdling treatments in wetlands (i.e., Chinese tallow and Brazilian pepper treatments), but is normally used for foliar treatments in both wetlands and uplands.

Chemical company representatives have been given permission to set up temporary herbicide test plots on several county-owned preserves. If test results conclude that certain herbicide practices are more effective than the ones currently in use, this may justify changes in HCPRD's use of herbicides in the future.

Disposal of invasive exotic plant material

When invasive exotic vegetation is cut or pulled the resulting brush is removed so that the area is not reinfested by remaining seeds, roots, or stems. The Florida Department of Environmental Protection (FDEP) regulates the movement of prohibited plants and plant parts. HCPRD uses prescribed fire to dispose of large quantities of cut brush such as Brazilian pepper and Australian

pine. In addition, the wood of Australian pine is acceptable for home fireplaces and has been offered to the public for free pick up. Fruits of tropical soda apple and air potato are collected, bagged, and incinerated. Small seedlings of many species of invasive exotic plants are composted without any threat of reinfestation.

Monitoring and follow-up

Monitoring of invasive exotic plant infestations before and after treatment is an integral part of the management program. Once HCPRD staff is aware of an infestation and it is prioritized for treatment, staff will include visits to the infested area in their routine management activities. Any changes in the population are noted in site activity reports. Monitoring is more formal after treatment, taking place biweekly or monthly when the particular invasive exotic is expected to require further treatment. Invasive exotic plants which spread primarily by sexual reproduction, such as tropical soda apple, may require monitoring for a year or more until staff is satisfied that seed banks are depleted.

Most invasive exotic plants require more than one treatment for eradication, while others can never be totally eradicated. Some species, such as skunkvine, require periodic ongoing treatment for management at acceptable levels. HCPRD has an established herbicide spray crew whose primary responsibility is eradication and management of invasive exotic plants on county preserves. Other HCPRD staff work with the spray crew as needed.

Partnerships

Invasive exotic plants know no boundaries and infestations often cross fence lines into areas beyond HCPRD control. When infestations are treated on one side of the boundary and not the other, reinfestation usually occurs. HCPRD and the Florida Department of Transportation recently formed a partnership for treatment of Brazilian pepper on two preserves and adjacent highway right-of-way.

Volunteer organizations such as the Pepper Patrol work with HCPRD, FDEP and others on an informal partnership basis. These groups work together to eradicate invasive exotic plants on public and private land. They also sponsor seminars and produce pamphlets to educate the public about invasive exotic plants.

Training and education

HCPRD personnel involved in invasive exotic plant management are required to obtain a Restricted Pesticide Applicator license from the Florida Department of Agriculture and Consumer Services (FDACS). Study materials and testing is provided by the Cooperative Extension Service (CES). Periodic updates and advanced training for Continuing Education Units (CEUs) are required by DACS to renew the licenses. Free classes for CEUs are normally provided on a yearly basis by the CES and the chemical industry.

HCPRD is a member of the Exotic Pest Plant Council (EPPC), which provides a yearly conference and periodic newsletters. The EPPC also maintains and distributes a list of Florida's most invasive species. HCPRD has contributed information on numerous invasive exotic plant invasions to EPPC via field reporting forms. Copies of these forms and other educational materials are maintained on file in the HCPRD/Resource Management office. A list of plant species which are targeted for eradication or control on County-owned preserve lands will be

maintained and periodically updated by the Resource Management Office.

References:

Various authors, *Exotic Plant Invasion on Florida's Water Management District Lands: A Cooperative Inter- District Report*, 1997

Revised 7/30/97

MANAGEMENT FUNDING ASSISTANCE POLICY
Hillsborough County Parks and Recreation Department/Resource Management Team

Purpose: To establish a review and approval process for requests for management funds from non-County agencies which manage lands acquired through the ELAP Program.

Background: A number of sites acquired through the ELAP Program are currently being managed by non-County organizations, through either lease agreements or conveyance of ownership. Other managing agencies include Hillsborough River State Park, Hillsborough Community College, the City of Tampa, and the City of Temple Terrace. Since the ordinances which establish and govern the program have designated a portion of the funds collected as available for management and restoration of lands once they are purchased, the lands which are managed by other agencies are also considered eligible for a portion of those funds.

Restoration Funding: The funds available for site restoration through the ordinances are defined as an amount up to 3% of a specific site's acquisition cost to the County. For example, a site which cost the County $1,000,000.00 to acquire would be eligible for up to $30,000.00, which would be obtained from the ELAP Program's acquisition reserve fund. This money could be used for habitat restoration projects such as exotic plant removal, native plantings, etc., but not for recreational facilities or capital improvements such as fencing.

Site Management Funding: Under the ordinances, a total of 2% of all revenues collected through the ELAP Program Ad Valorem tax, including Bond proceeds, is set aside for site management. This is a much more general category of expenditures which can include fencing, capital equipment, and recreational facility development. Unlike the restoration fund, there is no correlation between a site's acquisition cost and the allocation of management funds to specific sites.

Over the life of the program, the management revenue has been used, along with other funds such as grants, leases, Phosphate Severance Tax revenues, and restoration accounts, to support the County's primary preserve management operation, the Parks and Recreation Department's Resource Management Team. Since the efforts of the Resource Management Team are directed by the overall site protection and management objectives of the ELAP Program, the site management resources, and hence the revenues used to support those resources, are allocated on an ever changing basis which is more related to the needs of specific sites than to site cost or acreage.

In spite of this, it may be useful to provide a calculation of how the site management revenues would be allocated annually based on total acreage. Based on an average annual allocation of $100,000.00, and the current inventory of approximately 32,000 acres of land, there is an average of $3.12-1/2 per acre available for site management. The total amount of land currently managed by non-County agencies = 2,874 acres, which would receive a total of $8,983.00/year. The breakdown for each agency is shown below:

Tampa	140 acres=437.50/year
Temple Terrace	69 acres=217.35/year
HCC	256 acres=800.00/year

HRSP	364 acres=1137.00/year
SWFWMD	926 acres=2894.00/year
LMRSP	754 acres=2356.00/year
Plant City	365 acres=1141/year

In general, the amount of money available using this method of allocation would not be significant in terms of the overall annual management costs for these agencies.

County Management of Lands Acquired through Joint Funding: The ELAP Program has been very successful in sharing the cost of land acquisition with other land buying programs, including Florida Communities Trust, the CARL Program, and SWFWMD/Save Our Rivers. The majority of those jointly acquired lands, a total of approximately 17,945 acres, are managed by the County. Since ELAPP funds did not cover the total amount to purchase those lands, the site management revenues provided by ELAPP do not amount to 2% of the cost to acquire those lands. In essence, and additional 8,973 acres of land are being managed by the County without additional funding support. None of the agencies which shared acquisition costs are currently providing management funding to the County (with the exception of grant funding).

In-Kind Services: When considering the subject of providing ELAPP site management support to other agencies, it is much more practical to develop partnerships which take advantage of the different strengths and weaknesses of the managers. In fact, there have been many instances of the County providing In-Kind Services to the various other agencies listed above. For example, Resource Management staff have conducted plant species inventories for the City of Temple Terrace in support of the development of management plans for the two sites which they manage, and prescribed burning and exotic plant control assistance has been provided to HCC at English Creek. The County has been awarded funding by the SWFWMD Alafia River Basin Board to conduct exotic plant control, and has applied for SWFWMD Basin Board Grant Funding in the Hillsborough River and Northwest Hillsborough basins, and has included the ELAPP properties managed by other agencies in the funding request. If approved, this will enable the grant funded County spray crew to include those sites. The County is very receptive to pursuing other partnerships of this type.

Conclusion: Although nothing precludes the County from providing funding support for site management, the following factors should be considered when reviewing requests for restoration and management funding support from other agencies which manage ELAPP lands.

1) Legitimate restoration projects may be funded for an amount not to exceed 3% of a site's County acquisition costs.

2) Restoration funding requests will be reviewed by the Hillsborough County Parks and Recreation Department, and if found to be compatible with the objectives of the ELAP Program, will be presented to the ELAPP General Committee, the Park Board, and HCBOCC for approval.

3) Unless part of a pre-existing agreement entered into by the County, management funding requests will be considered on a case by case basis, and will not be calculated or limited by acquisition costs or site acreage. Any decision to transfer funds to a non-County agency for site

management will be based on the demonstration of a critical need which cannot be met by the managing agency, when failure to meet that need will result in negative impacts to a site's natural resources.

4) The County supports the concept of In-Kind Services partnerships to improve the protection and management of lands acquired through the ELAP Program.

Revised 3/15/99

MITIGATION POLICY

Hillsborough County Parks and Recreation Department/Resource Management Team

Purpose: To establish a review and approval process for requests to conduct habitat creation, restoration, and/or enhancement on preserve sites in order to mitigate for off-site impacts.

Background: Off-site mitigation offers the potential to provide habitat restoration on preserve lands at little or no cost to the County. Those seeking mitigation opportunities would benefit financially by avoiding land acquisition costs, and the mitigation projects are more likely to provide significant and functional benefits to the environment when incorporated into larger preserve lands.

Since off-site mitigation is not always the most desirable option from an environmental standpoint, and mitigation projects are not always entirely successful, proposals must be evaluated on a case by case basis. Preference should be given to proposals from the public sector in order to maximize cost savings to the taxpayer, and it should be demonstrated that the impacts requiring mitigation are unavoidable (as per State Statutes and/or regulatory policies) rather than motivated by economics or other factors. It would be inappropriate for a development proposal involving impacts to protected resources to gain an advantage in the regulatory approval process simply because the mitigation will benefit public lands. The project must be capable of regulatory approval with or without the use of public preserve lands for mitigation.

Examples of previously approved mitigation requests include a wetland restoration/creation project by the West Coast Regional Water Supply Authority at the Dairy Farm ELAPP site to mitigate for water supply pipeline impacts; and the filling in and replanting of a rim ditch adjacent to Brooker Creek at the Clearwater Restoration site by Tampa Electric to mitigate for impacts from the relocation of a transmission tower at the Citrus Mall construction site.

Approval Process:

1) The mitigation candidate contacts Resource Management Staff to request the use of a preserve site for mitigation.

2) Resource Management staff conducts a review of the mitigation requirements, and determines whether or not any existing preserve sites have restoration requirements which would be met by the mitigation proposal. Under no circumstances shall mitigation result in the destruction of natural upland habitat, or other preserve features which are considered to be desirable or beneficial to the overall objectives of the ELAP Program.

3) If Resource Management staff agrees that a mitigation project will meet the restoration objectives of an existing site, the candidate is invited to prepare a conceptual mitigation proposal for further staff review and preliminary approval.

4) The conceptual mitigation proposal is presented to the ELAPP General Committee for approval.

5) If the mitigation proposal is approved by the General Committee, a license agreement is developed by Resource Management staff, to be submitted to the Board of County Commissioners for approval. The license agreement outlines the responsibilities and obligations of the candidate, which usually require the candidate to be responsible for monitoring and maintenance of the mitigation project until all permit conditions are met. The agreement may require the candidate to provide services to the County that exceed permit requirements, such as additional habitat restoration or other site improvements.

Revised 11/30/98

Subject: NUISANCE AND NON-NATIVE ANIMAL REMOVAL

Effective: April 7, 2016

Review Date: Two (2) Years

Supersedes: New

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POLICY/PROCEDURES

1. PURPOSE

To establish policy and procedures for Department staff regarding the management of nuisance and non-native animals whose actions or presence threaten the protection of natural or cultural resources, human safety, or property on lands managed by the Conservation and Environmental Lands Management Department.

2. AUTHORITY

- State or Local Guideline/Statute or Ordinance.
  - Hillsborough County Code of Ordinances and Laws (Municode) Chapter 38
  - Florida Statutes Chapter 790
  - Florida Administrative Code Chapter 68
  - AVMA Guidelines for the Euthanasia of Animals (Current Edition)

- Any County or Clerk Guidelines/Policy/Procedure this reinforces.
  - Hillsborough County Department of Human Resources Policy Number 10.6,

Unauthorized Possession of a Weapon, effective 10/01/2015.

- The Director of the Conservation and Environmental Lands Management Department (CELM) develops, communicates, and monitors policies, procedures, and standards for the department." (Job Description: Hillsborough County Unclassified Positions, dated 06/06/2014).

3. DEFINITIONS

AVMA guidelines – *AVMA Guidelines for the Euthanasia of Animals: 2013 Edition.* Guidelines for the euthanasia of animals prepared by the American Veterinary Medical Association Panel on Euthanasia

Department lands – Lands managed by the Hillsborough County Conservation and Environmental Lands Management Department

Department staff – Hillsborough County staff working in the Conservation and Environmental Lands Management Department

Director – Director of the Hillsborough County Conservation and Environmental Lands Management Department

Euthanasia – Inducing death of an animal with minimal pain or distress

Feral animal – An individual animal from a domesticated species which has returned to an untamed state

Municode – Hillsborough County Code of Ordinances and Laws

Non-native species – A species that is not native to Florida, and was introduced by deliberate or accidental means, or occurs here by human-aided range expansion; exotic species

Nuisance animal – An individual native animal whose actions or presence creates special management issues

Section Manager – The Section Manager of the Environmental Lands Management Section of the Hillsborough County Conservation and Environmental Lands Management Department

4. GENERAL PROCEDURES

a) Safety of the public and Department staff shall be the paramount concern during all facets of decision-making and actions taken concerning management or removal of nuisance and non-native animals.

b) There is the possibility that abnormal mammal behavior could be due to rabies, which can be fatal to humans. Rabies is only transmitted through contact with the saliva or brain tissue of an infected mammal.

Although cases of humans contracting rabies in the U.S. are extremely rare, Department staff involved in mammal removal must be aware of the behaviors exhibited by animals infected with this disease. Animals with rabies often behave abnormally. They may be

either remarkably aggressive or unexpectedly passive. Aggressive animals may attack and bite other animals or humans for no apparent reason. Passive animals may seem unusually tame, and may be active at odd times of the day. The majority of rabies confirmed animals in Florida are raccoons, followed by foxes, bats, and feral cats.

Staff that come into direct contact with mammals should follow these procedures:

1) Do not pet or touch wild or feral mammals (dead or alive) including their blood or tissue with bare hands.
2) Keep a safe distance from a wild or feral mammal, especially if it is acting strangely (e.g., especially aggressive, particularly friendly, active at an unusual time of day, or in a place you would not normally expect it to occur).
3) Use discretion when approaching stray domesticated animals that appear to be unrestrained pets (e.g., dogs and cats).
4) Contact the Hillsborough County Pet Services Department if a mammal is behaving unusually, and be prepared to describe the location and behavior of the animal.

c) When nuisance or non-native animals impact natural or cultural resources, or public safety, action should be taken to correct the problem. This often requires live-trapping, removal and relocation, or euthanization of the animal with preference given to relocation, if possible. Careful consideration should be given to determine if the individual animal(s) is creating an issue that warrants action.

d) In some instances, nuisance wildlife may be trapped and relocated to a more remote area within the same site or to a different site (68A-9.010, FAC). Any trapping or relocation effort must be in accordance with all applicable laws and regulations. When in doubt, staff should contact the Florida Fish and Wildlife Conservation Commission for current wildlife regulations. Releasing into Florida any non-native wild animal, freshwater fish, aquatic invertebrate or marine animal is prohibited unless first permitted by the Florida Fish and Wildlife Conservation Commission (68-5.001 and 68A-9.010, FAC). Listed species may not be relocated except by applicable state and federal permits. Once a non-native animal (as specified in FAC) is captured, it cannot legally be released without authorization from FWC. Problems with, or presence of, stray domesticated animals on Department lands should be reported to the Hillsborough County Pet Services Department.

e) Trapped animals should be exposed to human contact as little as possible in order to minimize stress to the animal. Traps must be checked at least every 24 hours at a minimum. No animal should be left in a trap for more than 24 hours. Traps should be located in areas that are predominately shaded from the sun, not subject to flash flooding, and away from public view and from stinging insect colonies. Portable traps should be removed from the field once they are no longer being actively operated. Semi-permanent traps may remain in the field while in active operation, but must have doors fastened in the open position with an appropriate metal fastener.

f) In order to protect natural or cultural resources, or when in the interest of human safety, euthanization of nuisance or non-native animals on Department lands is authorized when nonlethal methods of removal (e.g., relocation) have failed, are not lawful, effective, or feasible. Any euthanasia of nuisance or non-native animals must be implemented in compliance with the procedures contained in this document.

g) AVMA guidelines recognize that most means of euthanasia recommended for captive animals are not feasible for free-ranging wild and feral animals. In the case of free-ranging animals in field situations (e.g., feral hogs), it is recognized by the AVMA that firearms are often the most appropriate approach to euthanasia. For the purposes set forth in these guidelines, the preferred method for euthanasia of nuisance or non-native animals is by capture in traps, followed by gunshot to the brain, as per AVMA guidelines. When trapping is not possible or practical, removal of free-ranging nuisance or non-native animals by shooting is acceptable when conducted according to the conditions provided within this document and the current AVMA guidelines.

h) The use of firearms to professionally manage wildlife on Hillsborough County Department lands must be undertaken in accordance with the standards and procedures contained in the Firearms Use Standard (Appendix A). All applicable laws and firearm rules of safety must be strictly followed at all times.

The following qualifications are required before using a firearm for land management purposes:

1) Successful completion of the Florida Fish and Wildlife Conservation Commission Florida Hunter Safety Course.
2) Possession of a valid Concealed Weapons Permit issued by the Florida Department of Agriculture and Consumer Services
3) Successful completion of in-house classroom training, including passing a written examination.
4) Successful completion of range qualifications as certified by a qualified firearm instructor.
5) Obtain written permission from the Director (or designee) to use firearms on Department lands for the purpose of nuisance and non-native animal removal (Appendix B).

5. NATIVE ANIMALS

The following steps should be taken to resolve nuisance animal problems on Department lands. They are listed in order of preference.

1) Educate citizens and preserve visitors through appropriate materials to avoid encounters with potential nuisance animals, thereby avoiding exposure to their hazards.
2) Anticipate and resolve nuisance animal situations before they become critical. Proactive management of potential nuisance animal problems such as installing raccoon-proof trash bins, predator excluders on nesting boxes of sensitive wildlife, etc. can help to reduce opportunity for issues to develop.
3) Relocate nuisance animals within the preserve or to another preserve. Individual animals that cause nuisance problems despite the above attempted remedies should be relocated according to the General Procedures of this document.
4) Humane euthanization of the nuisance animal in accordance with this document.

6. NON-NATIVE ANIMALS

The following steps should be taken to remove non-native animals from Department lands.

1) Non-native animals should be eliminated from Department lands by capture and removal, as feasible. Priority should be given to destructive and invasive species. Relocation of non-native animals into the wild in Florida is forbidden by law.
2) Staff should attempt to locate the owner of domestic pets or livestock that appear on Department lands. If the owner cannot be located, or is unwilling to take responsibility for the animal, the Hillsborough County Pet Services Department should be contacted for direction. In the case of livestock, it may be necessary to contact the Agricultural unit of the Hillsborough County Sherriff's office for assistance in locating the owner.
3) Non-native wildlife may be euthanized in accordance with this document. The feral hog (*Sus scrofa*) is a species that warrants special attention on Department lands, and is addressed specifically in Section 7 of this policy.

7. FERAL HOGS

a) The feral hog (*Sus scrofa*) is descended from the wild boar of Europe, and were first introduced to Florida by early Spanish explorers. Feral hogs are the most prolific large mammal in the United States; a sow can have two litters per year with an average of six pigs per litter. Their feeding habits create significant disturbances to soils of natural biological communities, and pose a serious threat to rare and endangered plants. Frequently, these impacts cause economic harm to the County by facilitating the spread of exotic plants, ruining portions of ecological restoration areas, and by wasting resources required to repair damaged roads that are important for management access and emergency personnel. The presence of feral hogs and their disturbances cause significant economic harm to agricultural and other private interests, and create risks to public safety.

b) The Department considers the occurrence of feral hogs on Department lands to be incompatible with its basic land management objectives. To protect important natural features and public property, considerable action shall be taken to reduce or eliminate feral hogs from Department lands.

c) Feral hogs should be prevented from entering Department lands, or portions thereof, by appropriate fencing in critical places, where feasible. In most instances, this method of avoiding hog related impacts is not feasible and does not address the underlying cause; however, it may be applicable in some cases. The most effective and feasible means of reducing hog related impacts is largely through population management.

d) Hog removal efforts should be accelerated seasonally or when flooding or other natural events make the hogs more vulnerable to removal. Hogs may be removed by trapping, catch dogs, and/or by direct removal (i.e., shooting) according to the General Procedures section of this document. Of these three methods, trapping is usually the most effective means of population control. Therefore, trapping should receive the most effort and emphasis. In order to maximize trapping efficiency and effectiveness, technology such as feeders, remote cameras and trap gates should be employed as much as possible. Catch dogs and shooting will primarily be used in instances where trapping alone has not met management goals, or is not feasible. All hogs will be treated as humanely as possible regardless of the removal method chosen.

f) Live traps should be located according to the General Procedures section of this document. Traps must be checked at least every 24 hours either in person or via remote

camera. Once trapped, hogs may not be released by Department staff, and should be euthanized in accordance with AVMA guidelines. Whether baited or not baited, all traps with "continuous catch" type doors must be checked at least every 24 hours unless the door(s) are securely fastened in the open position with an appropriate metal fastener.

g) Live hogs are not to be moved offsite by Department staff. Only hog removal contractors with a current Hillsborough County contract, and who meet all applicable Hillsborough County and Florida Department of Agriculture and Consumer Services requirements may remove live hogs from Department lands. Trailers used by authorized contractors to transport live hogs must be constructed with non-skid flooring.

h) All Department staff working with hog removal shall be made aware of infectious diseases (e.g., swine brucellosis) in feral hogs and of methods to avoid exposure.

i) Euthanized hogs may be donated to charitable non-profit organizations. Receipts of donated animals shall be maintained for records (Appendix D). Interested charitable organizations should be contacted in advance of scheduled removals to maximize the chances that the hogs can be transported and used effectively.

j) If donation to charitable organizations is not feasible, disposal of hogs on Department lands is authorized. Because of the effort required to bury carcasses, and the possible disturbance to natural or archaeological resources, at the discretion of the Section Manager, euthanized hogs may be left unburied as long as the animals are placed well away from public contact.

k) Hogs may be removed by authorized Department staff, or by individuals/entities that are contracted with Hillsborough County and have been given explicit permission to conduct feral hog removal on County lands. Authorization must be in writing or in current contract specifications. Contractors are best applied as part of a larger strategy to meet site-specific hog management goals. All removals must comply with the requirements in this document and with applicable laws regulating the handling and transport of feral hogs. In general, any contractor use of firearms for hog control will be highly restricted, and subject to specific contract terms.

k) While it is well-documented that, with few exceptions, sport hunting is not an effective management tool for controlling feral hog populations, the Department recognizes that hog hunting is a desirable form of recreation for some citizens. Where feasible, the Department will consider allowing limited opportunities for sport hunting of feral hogs on specific lands when it is believed to be compatible with a site's feral hog management strategy and overall land management goals.

l) Record of all hogs removed or euthanized on Department lands shall be recorded and maintained.

8. PERIODIC REVIEWS

The **CONSERVATION AND ENVIRONMENTAL LANDS MANAGEMENT DEPARTEMENT** shall conduct periodic reviews of its **NUSAINCE AND NON-NATIVE ANIMAL REMOVAL** activities to determine that it is functioning as intended, and that all applicable County policies and procedures are being followed.

9. EXCEPTIONS

There are no exceptions to this policy. All procedures, conduct, collection of documentation, verification, and document processing must be followed.

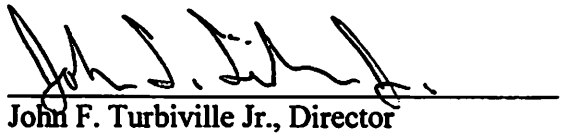
10. ENFORCEMENT

The Section Manager shall ensure this policy is enforced.

11. FAILURE TO COMPLY

Failure to comply with the provisions in this procedure, or other applicable County policies or procedures, may result in disciplinary action up to and including termination of employment (Ref. Civil Service Rule 11.2).

Approved Signature



John F. Turbiville Jr., Director
Conservation and Environmental Lands
Management Department

4/7/2016
Date

PRESCRIBED BURNING POLICY

Hillsborough County Parks and Recreation Department/Resource Management Team

Purpose: To provide a set of guidelines to define the objectives and procedures which determine when and how to utilize prescribed fire as a resource management technique on preserve lands.

Background: The Hillsborough County Parks and Recreation Department (HCPRD) routinely uses prescribed fire to manage county-owned natural preserve lands. Prescribed fire is beneficial for purposes of wildlife management, disease control, hazardous fuel reduction, habitat restoration, access improvement, aesthetics, and site preparation. Management of natural preserves is required by the Hillsborough County comprehensive plan, as well as through interlocal agreements with state agencies such as the Southwest Florida Water Management District (SWFWMD), the Conservation and Recreational Lands Program (CARL) and the Florida Communities Trust (FCT). The Environmental Protection Commission of Hillsborough County (EPCHC) endorsed the use of prescribed fire as a critical resource management tool in August of 1994.

Burn plans

In accordance with Florida Statute 590.026, a prescribed burn plan must be written prior to every burn that is conducted on county-owned land. This plan includes ecological objectives for the burn, specific weather conditions which are necessary to conduct the burn safely, as well as a plan to protect surrounding sensitive areas such as residences and roads which may be impacted by smoke.

Burn Unit Identification

Each nature preserve has a master burn map in which each burn unit is numbered.

Consequences of not burning

When fire is excluded from natural areas, they become overgrown with vegetation. Gopher tortoises, which are a key component of upland habitats in Florida, leave the site to forage for food and are often killed by vehicles when they cross roads. Other animals which depend on the use of gopher tortoise burrows also leave the site and are killed in the same manner. Many species of native wildlife will be negatively impacted if periodic burning does not take place. The sites become susceptible to intense wildfires, which can cause damage to facilities on the site as well as to private property. Air quality concerns such as smoke impacts on roadways are more serious when wildfires occur than with periodic prescribed burning. The chances of wildlife being killed in a wildfire are much greater than during a prescribed burn.

Without periodic fires regeneration of trees such as longleaf pine, whose seeds require bare mineral soil to germinate, decreases. Grasses and wildflowers stop blooming and producing seeds, then disappear. Shrubs such as saw palmetto stop blooming and bearing fruit. Insect and disease damage to plants increases. Diverse ecosystems such as pine flatwoods succeed into hardwood hammocks, which replace grasses and herbaceous plants with hardwood trees and woody shrubs. Low intensity, rejuvenating fires can no longer occur without ground covers such as grasses and wildflowers. The resulting habitat does not support as large a number of wildlife species as a mosaic of habitat types would.

Frequency of Burning
Different habitat types require different intervals between burns, ranging from every 1 to 3 years for grasslands, prairie, and sandhills, from every 3 to 5 years for pine flatwoods, and 10 to 50 years for sand pine scrub and oak scrub. The varying intervals are needed to provide optimum conditions for the plants and animals that are adapted to each habitat type, based on their requirements for feeding, breeding, etc. The burn intervals also reflect the different rates at which fuels accumulate to the point at which burning is feasible, while enabling the fire to be relatively low in intensity.

Debriefing
The prescribed burn manager has the option of conducting a post burn debriefing with staff who worked on the burn. The debriefing must be done at the conclusion of the burn, preferably at the site with all individuals who participated in the burn. If it cannot be done at that time, it is done at the first opportunity after completion of the burn.

Public Education
Staff is available on a request basis to give programs to educate the public about the need for prescribed fire. Neighborhood meetings are conducted well in advance of planned burning in areas surrounded by development. In addition, literature is distributed before and during prescribed burns which take place in residential areas, and during events such as Earth Day.

HCPRD personnel are active members of the Central Florida Prescribed Fire Council (CFPFC). A primary objective of this council is to increase the public's understanding of the role of fire management.

News media are encouraged to observe prescribed burns in order to keep the public informed of the importance of fire management. Media access to burns must be guided by staff to ensure personnel safety.

Equipment
Equipment to be used on a prescribed burn is inventoried the day before the burn to ensure that it is in working condition. This includes brush trucks, hand tools, and Indian pumps. All fuel canisters are filled and ready for service.

Firelanes
Firelanes are constructed only when natural or manmade barriers are not present. Their construction is done with the objective of minimizing disturbance to the soil and natural plant community, and to prevent the fire from escaping. A preconstruction inspection is always done to ensure that the proposed construction areas do not contain wildlife habitat such as gopher tortoise burrows, or plants such as the endangered Florida golden aster. In addition, firelanes are never constructed through wetlands, and large trees are preserved. HCPRD staff uses a tractor, disk, and rotovator to construct firelanes, and employs the use of firefoam in environmentally sensitive areas to minimize firelane construction. Firelanes constructed with a tractor plow by the Florida Division of Forestry (FDOF) during a burn may need to be recontoured at a later date. Any areas with constructed firelanes which have the potential to impact wetlands with erosion will be

separated from the wetlands by the use of haybales, siltscreens, or other approved erosion control devises.

Firing Techniques
Firing techniques are selected which generate the least amount of smoke when smoke sensitive areas are nearby and which give wildlife the maximum potential to escape from the fire. Ring fires, which could trap an animal inside a circle of fire, are never used. Only portions of preserves are burned in a single season using a mosaic pattern, leaving an abundance of wildlife habitat with food and cover.

Mop up
Areas which are still burning at the end of a prescribed burn are evaluated for potential smoke impacts to the surrounding community. Staff employs the use of hand tools and water to extinguish open flames and smoldering fuels. Tree snags are left for wildlife habitat unless they pose a hazard to human safety, in which case they will be removed. Staff is required to check the prescribed burn site after noon the following day to verify that the fire has not rekindled and that residual smoke is not creating a problem. If problems are identified, mop up continues until staff is satisfied that all problems are resolved.

Notification
Staff contacts the FDOF to request a prescribed burn authorization on the morning of the burn, prior to leaving for the site. This is followed by calls to the EPCHC and the Hillsborough County Fire Department. Next, E-mail notification is sent to the Deputy County Administrator, the Parks Department director, the Resource Development section manager and the media contacts for both the HCPRD and Hillsborough County. The E-mail notification is then printed and faxed to the Resource Development section manager.

Neighbors or groups adjacent to a prescribed burn unit are notified via pamphlets, meetings, telephone calls, or press releases prior to the burn. Neighbors and those who could be affected by the burn may contact the Parks and Recreation Department to be placed on an advanced notification list. Signs are placed on a site during the burn to notify motorists or pedestrians of the burn. Staff inspects the area to be burned prior to igniting the fire to ensure that no one is within the area to be burned.

Post-burn monitoring and evaluation
Staff conducts post-burn monitoring of prescribed burn sites for up to a year after the burn for the purpose of determining the success of the burn's objectives. Documentation is through the use of photography and written notes, which are filed along with the burn plan.

Radio protocol
The main means of communication during prescribed burns is through conversation over the radio. All staff members carry a radio. Staff follows established procedures for radio use (Resource Management Radio Procedures).

Safety
Staff members must wear a nomex fire suit over all cotton clothing, a helmet, leather gloves, and

leather shoes in order to work on a prescribed burn. These items can only be removed during breaks, and at the end of the burn as determined by the person in charge of the burn. After attendance at basic prescribed fire training, each staff member is issued a fire shelter and required to wear it at all times during the burn.

Staff members are encouraged to drink adequate amounts of water. They are also required to take frequent breaks, work in pairs whenever possible and watch for signs of heat stress or fatigue.

Statistics
Staff keeps documentation concerning the acreage burned by year, dates of the burns, and where the burns were conducted. These statistics are submitted annually to the CFPFC and kept on file.

Technical Assistance
Staff coordinates with the FDOF, SWFWMD, The Nature Conservancy (TNC), the Florida Game and Freshwater Fish Commission (FGFWFC), the National Audubon Society (NAS), and others to gain technical knowledge and advice about prescribed burns. FDOF conducted its Basic Prescribed Fire training course at Upper Tampa Bay Park for several years with assistance from the HCPRD.

Time of year when burns occur
Factors which influence selection of the time of year to burn include weather conditions, wildlife benefits, fuel conditions, preservation of large trees, and time of the last fire. Some flora and fauna responses to dormant season burns may justify a variable season strategy. For example, winter burns may kill reptiles and amphibians, which are less active during cold weather (Robbins and Myers, 1989). Also, eggs or hatchling birds could be killed during the nesting season, which varies widely depending on the species. Many species of birds, such as quail and mourning doves, have the ability to renest if the eggs or nestlings are lost. Winter burns may encourage growth of woody plants, while some grasses only produce seeds when burned during the growing season. Areas of heavy fuel buildup should be burned in the dormant season or as soon as appropriate weather conditions occur.

There is a growing body of scientific literature which documents the benefits of burns done during the growing season, i.e., when natural wildfires most frequently occur. This position is heavily advocated by TNC, SWFWMD and FDOF. HCPRD policy is to conduct prescribed burns throughout the entire year, with an emphasis on the growing season.

Training
As soon as feasible, all permanent staff members who work on prescribed burns must at a minimum attend the training course on Basic Prescribed fire (organized through Hillsborough Community College and FDOF) and obtain a prescribed burn certification. Additional training may be required by the supervisor. Staff attends the meetings of the CFPRC to get the latest information and support, as well as annual conferences given by organizations such as the Florida Native Plant Society and the Society for Ecological Restoration, which cover issues concerning prescribed fire. Staff also maintains a literature file of scientific articles about fire and other management issues.

Visitors/outside observers
Visitors may be permitted to watch prescribed burns from a safe distance. Entry into the burn unit while or immediately after a prescribed burn is in progress is discouraged. However, should there be a need for visitation, such as for the benefit of the media, visitors can be allowed entry with the accompaniment of a staff member. Visitors are required to wear protective burn equipment at the discretion of the burn boss.

Volunteers
Requests from the public to volunteer during prescribed burns are common. Due to the specialized knowledge needed for prescribed burning, as well as safety of the volunteer, the Resource Management team requires that any prospective volunteers be approved by the environmental supervisor. For training purposes, volunteers must attend the FDOF Basic Prescribed Fire training course prior to volunteering on a burn. As with all county volunteer positions, Volunteer in Public Service (VIPS) forms must be completed prior to participation.

Wildfires
Wildfires on preserve lands are normally extinguished as soon as possible after discovery. Any reported wildfires which are determined to be burning according to an existing set of prescribed burn objectives may, with appropriate permission from regulatory agencies, be allowed to continue burning. This is a special situation which requires on-site monitoring by staff, with assistance from FDOF as needed.

Incendiary or arson fires are reported to the FDOF immediately and an investigation may be requested. Staff and public visitation to the arson site is temporarily suspended until the investigation is completed in order to preserve evidence. The Resource Management supervisor can be contacted by telephone or pager 24 hours a day.

Wildlife Management objectives
HCPRD policy for natural preserve lands is to increase native wildlife populations wherever feasible, with emphasis on the recovery of listed species (endangered, threatened, and species of special concern). Much of this is accomplished through the use of prescribed fire. Listed species which are managed for include gopher tortoise, Sherman's fox squirrel, the Florida golden aster, and Florida scrub-jay. All of these species are declining in number because of loss of habitat and because the remaining habitat has not been managed through the use of prescribed fire. Many other associated plant and animal species that depend on these keystone species also benefit from fire management.

References:
Myers, Ronald L. and John J. Ewel. 1990. *Ecosystems of Florida*. University of Central Florida Press, Orlando.
Robbins, Louise E. and Ronald L. Myers. 1989. *Seasonal Effects of Prescribed Burning in Florida: A Review*. The Nature Conservancy Fire Management and Research Program, Tallahassee

Subject: **PRESCRIBED BURNED POLICY**

Effective: **DATE SIGNED INTO EFFECT OR A LATER DATE**

Review Date: **EVERY 12 MONTHS**

Supersedes: **EITHER "NEW" OR THE DATE OF THE LAST**

POLICY/PROCEDURES

1. PURPOSE

To define the procedures and guiding principles which determine prescribed fire use as a resource management tool on lands managed by the Environmental Lands Management Section (ELM). To maximize the acreage burned annually while achieving a high level of safety and proficiency in meeting burn objectives.

2. AUTHORITY

a. All prescribed burning activities must comply with the requirements and provisions of Florida Statute 590.026, Florida Administrative Code 5I-2.006, as well as the Open Burning Multilateral Operating Agreement between the Florida Forest Service (FFS), Hillsborough County Fire Rescue (HCFR), Hillsborough County Sheriff's Office (HCSO) and the Environmental Protection Commission (EPC) of Hillsborough County.

b. The Director of the Conservation and Environmental Lands Management Department develops, communicates, and monitors policies, procedures, and standards for the department." (Job Description: Hillsborough County Unclassified Positions, date 10/01/1994).

3. DEFINITIONS

- Burn Manager - Person responsible for supervising a prescribed fire from ignition through mop-up.
- Burn Coordinator – ELM Environmental Specialist position responsible for coordinating the sharing and movement of burn-related resources, ensuring burn notification is given, and facilitating burn-related training.
- Environmental Lands Manager – Environmental Lands Management Section manager
- Region Manager – Environmental Lands Management Coordinator responsible for one of the four ELM regions (Northwest, Northeast, Central, South).

4. LIST OF APPENDICES

Appendix A – List of Personal Protective Equipment

Appendix B – Burn Notification Format for Email

Appendix C – Brush Truck Fire-Readiness Checklist

5. INTRODUCTION

Prescribed burning is the single most important land management task carried out by the Environmental Lands Management Section. It is generally the most economical and efficient tool for meeting a variety of land management goals; many of which can only be accomplished with fire. The consequences of not applying fire periodically to natural areas include increased proneness to serious wildfire, habitat and ecosystem degradation, reduction of biodiversity, and other undesirable consequences.

Because the capacity to conduct prescribed burning is restricted by available resources, advance planning and prioritization are required in order to ensure burns addressing the greatest land management needs are not hindered by a lack of resources. Resources must be well-maintained and allocated appropriately so that ELM's full capacity to conduct burns is realized at all times.

Planning and effective use of fire entail numerous considerations in order to safely meet a burn's planned objectives. Burn planners must evaluate the suitability of fire to address the management need, required timing and conditions for safety and success, likelihood of achieving the intended outcome, whether pre or post burn treatments may be beneficial, whether or not alternatives to fire exist, and etc. Proficiency in achieving burn goals under prescribed burning constraints often requires significant training and experience with fire in a variety of fuels and under a wide range of conditions.

6. TRAINING

All Environmental Lands Management personnel participating on burns must have successfully completed the National Wildfire Coordinating Group (NWCG)-approved S-130 and S-190 training. In addition, permanent staff will be expected to attend the Florida Forest Service Certified Prescribed Burn Manager Training Course and attain a passing score on the final examination. Staff who have successfully obtained their Prescribed Burn Manager Certification in Florida may serve in the capacity as Burn Manager. The decision regarding whether or not a staff member will be expected to become certified is made jointly by the immediate supervisor and Environmental Lands Manager, and is influenced by the staff member's job duties. All certified burners are expected to maintain their certification. Employees who have taken fire training as part of their employment are responsible for applying the material presented in the course.

The importance of providing skill development opportunities for Burn Managers is recognized by ELM in order that expertise within the program can continually increase. Certified staff who are willing to lead burns regularly and are recognized as having aptitude for burning will be supported in their continuing development of knowledge and ability whenever possible.

7. PARTICIPATION

Each staff member's participation on a burn is subject to their supervisor's approval. Burn participants are expected to stay on the burn until excused by the Burn Manager. Participants have the right to decline participation in burns if feeling ill. The Burn Manager must be notified immediately of any participant who becomes ill during a burn. Should the Burn Manager become ill or otherwise have to leave a burn due to emergency, he or she must delegate the burn to another certified burner who is willing, medically able, and on site during the burn.

All burn participants must wear appropriate personal protective equipment (PPE) (Appendix A) and carry a functional radio at all times while on a burn. If a radio malfunctions or is otherwise not available, the participant must stay within verbal communication range of those with radio communication devices at all times. Radio transmissions must be kept as brief as possible and related to official business only.

Volunteers may participate on burns provided they have taken the S-130 and S-190 courses, have signed up as Volunteers in Public Service with Hillsborough County, are acceptable to the current Burn Manager, and wear appropriate PPE (Appendix A).

8. BURN PRIORITIZATION AND RESOURCE ALLOCATION

Burns that address the greatest land management needs will be given precedence on any given burn day as determined by the guidelines in this document. Burn priority and resource allocation decisions are largely not determined by a first come, first served arrangement.

8.1 Resource Allocation – Burn Manager and Region Manager Responsibilities

The Burn Manager is responsible for determining crew size and equipment required to safely complete the burn and meet its objectives. These must be specified in the burn prescription. Burn Managers should attempt to make full use of resources assigned to the region where the burn will take place. When the region's available resources are not sufficient to fully meet the burn's requirements, resources assigned to other regions may be requested. The Region Manager must notify the Burn Coordinator of any resources needed from sources outside of the region where the burn will occur as early in the process as possible. In cases where a resource need develops directly prior to a planned burn (e.g., staff illness or equipment malfunction), the Region Manager should inform the Burn Coordinator immediately. Increasing advance notice will improve the likelihood of obtaining the needed resources, especially if assistance from an outside agency (e.g., FFS, HCFR) is required. "Last minute" requests for resources may result in the burn not being fully equipped regardless of its priority status.

8.2 Resource Allocation – Burn Coordinator Responsibilities

When additional resources are requested by a Region Manager, the Burn Coordinator is responsible for determining personnel, equipment availability and coordinating their movement to the requested location. The Burn

Coordinator will attempt to satisfy all resource needs for planned burns on a given day.

If there are not enough personnel to adequately staff all planned burns on a given day, or one crew is larger than required (as specified in the burn prescription), the Burn Coordinator will attempt to meet staffing needs by recruiting additional personnel or redistributing the participating crew appropriately among the burns. In the event that available resources are insufficient to accommodate all requests, the burn prioritization procedures contained in this document will dictate which burns are fully equipped and, therefore, are able to occur.

8.3 Burn Prioritization

Each Region Manager is responsible for determining their region's current fire needs, and including them in a list four times per year, as requested by the Burn Coordinator. Each region's list should include five burns designated as priority burns. The Burn Coordinator will request the list at least one month prior to each generalized burn season (Spring = Mar, Apr, May; Summer = Jun, Jul, Aug; Fall = Sep, Oct, Nov; Winter = Dec, Jan, Feb). Planned burns on a season's list do not automatically carry over to a following season's or year's list.

Priority burns are given precedence for resources over non-priority burns when ELM does not have the capacity to conduct both concurrently (i.e., priority burns will be fully equipped before attempting to allocate resources to a non-priority burn scheduled for the same day). In the event that multiple priority or multiple non-priority burns are planned for the same day, and ELM does not have the capacity to conduct all concurrently, the priority factors listed below should guide discussion among Region Managers to determine which burn(s) should be given precedence. Should further question or conflict arise, the Environmental Lands Manager will make final burn priority determinations. If no burns are scheduled for a particular day, an unplanned burn (i.e., a burn not listed on the current season's burn list) can occur as long as all resource needs are met without causing undue disruption to other regions' activities. All burns must have specific objectives that are clearly stated in the prescribed burn plan.

8.4 Factors guiding burn priority decisions

- Ecological benefit – burns to maintain/improve intact natural communities or imperiled species' habitat are nearly always prioritized over significantly altered sites
- Public safety – burns that significantly reduce fire danger to life and property
- Window of opportunity – weather and seasonal constraints required for safety and meeting objectives
- Obligation – e.g., contracts that require ELM to conduct burns by a specific date

- Likelihood of achieving the intended outcomes – likelihood of meeting the land management objective with fire within the prescribed parameters

9. BURN MANAGER AUTHORITY

The designated Burn Manager will have supervisory authority over burn team members during the execution of the burn, regardless of whether he or she normally functions as the immediate supervisor of the individuals on the burn. However, when planning and executing a burn, Burn Managers should seek input from other experienced Burn Managers.

In the event that a Burn Manager becomes ill, has a personal emergency, or becomes uncomfortable with a burn in progress, the burn may be transferred to another experienced Burn Manager that is willing and able to accept responsibility for the burn. The Florida Forest Service must be contacted immediately to officially transfer the burn. Responsibility for a burn does not shift to the new Burn Manager until approved by the Florida Forest Service.

In spite of the best efforts on the part of staff to prepare for a burn, on occasion a burn may be considered unsafe for the surrounding community or on-site participants because of weather or other factors. In the event that it appears a burn is causing or is likely to cause a danger to human property or life, the burn may be canceled. The decision to cancel a burn, either at its beginning or while under progress, should be made by the two most qualified and experienced prescribed burners on the Burn Team and/or the Environmental Lands Manager. Upon cancellation of a burn in progress, the Burn Manager is responsible for arranging any additional resources needed (e.g., Florida Forest Service assistance) to stop spreading flame.

10. POST BURN ACTIONS

The Burn Manager has the option of conducting a post burn debriefing with staff who worked on the burn; the purpose of which is to discuss specifics of the burn in order to improve future safety and successes. Optimally, the debriefing is done at the conclusion of the burn, preferably with all individuals who participated in the burn. If it cannot be done at that time, it is done at the first opportunity after completion of the burn, typically within one week.

All burns must be inspected at least daily (preferably during the early afternoon) until all smoke and embers are believed to be completely extinguished. Burn Managers must make or coordinate post burn inspections to determine when the burn is completely extinguished, identify mopup needs or issues due to extended smoldering, and to determine if the burn objectives have been met.

A Burn Manager also takes responsibility for documenting the burn by completing a "Burn Execution" entry into the ELM CSITS database. Post burn inspections and any mopup must also be entered into the CSITS database by staff who perform these tasks. In addition, the Burn Manager is responsible for ensuring the entry of observed weather and any other important information into the appropriate portions of the database.

11. NOTIFICATIONS

When applicable, effort will be made to notify adjacent property owners and residents prior to conducting a burn. Primary responsibility for notification of adjacent property owners lies with the Burn Manager. Contact information for individuals with special health or property concerns will be added to the ELM CSITS database as it is discovered. These individuals should always be notified prior to conducting a burn in their immediate area.

Specific County personnel will be notified on the day of the burn, including but not limited to: Director of the Conservation and Environmental Lands Management Department; Manager of the Environmental Lands Section; Public Relations Specialist for Conservation and Environmental Lands Management; Hillsborough County Public Information Office Director; Assistant County Administrator over Conservation and Environmental Lands Management Department; all Environmental Lands Management Staff. The Burn Coordinator is responsible for notifying County personnel, and media as appropriate. This notification is normally accomplished via email. The proper email notification format is contained in Appendix B.

12. EQUIPMENT AND FIRE READINESS

Brush truck inspections are to be completed prior to every burn (Appendix C). Inspections should be conducted at least weekly, regardless of prescribed burning activity, in order to maintain fire readiness. Staff must promptly notify the Region Manager and/or Burn Coordinator of any deficiencies found in equipment and/or supplies.

Extreme care is to be followed with vehicles during burns. Doors and windows must remain fully closed in unattended vehicles. Vehicles which are not to be used must be parked in a secure place outside of the burn unit. Doors should remain unlocked, and keys must be left with the vehicle in a location that may be easily found and accessed by staff in the event the vehicle must be used quickly. Efforts should be made to bring back all equipment to the correct brush truck including burn signs, radios, drip torches, and hand tools at the end of the burn. Borrowed equipment is to be returned by the borrower.

13. VISITORS

In the interest of safety, effort will be made to limit visitors and the general public to the burn area until the burn is declared out. Preserve or trail closures may be initiated by the Burn Manager, and should be communicated to the Burn Coordinator for inclusion in the burn notification. Signage alerting visitors to preserve or trail closures should be placed at appropriate locations within the preserve. Preserve users who show up unexpectedly during a burn will be kindly asked to stay away from the burn, or to leave the site if the preserve is closed.

Visitors that have been approved to observe a burn will be provided appropriate PPE (if needed), directed to a safe parking area, and assigned to a designated staff member to stay with during the visit. Any news media that visits a burn and requests information or interviews should be referred to the Burn Manager or the

Community Relations Coordinator. Burn Managers and other staff are not authorized to speak to news media without prior approval of the Department's Community Relations Coordinator.

14. WILDFIRES

The Florida Forest Service (FFS) is the primary agency responsible for wildland fire control in the state of Florida, and has the authority to extinguish fires on Hillsborough County lands. Wildfires are normally extinguished as soon as possible after discovery. Wildfires occurring on ELM lands that are determined to be burning according to an existing set of safe prescribed burn parameters or are otherwise deemed as not dangerous to public safety may be permitted to continue burning pending approval and assistance from FFS. The Environmental Lands Manager and the local Region Manager should be promptly notified of any wildfire occurring on ELM land.

Suspected arson fires are to be reported to FFS immediately. Staff and public visitation to the arson site should be temporarily suspended until any investigation is complete.

15. PERIODIC REVIEWS

The Environmental Lands Section shall conduct periodic reviews of its prescribed burning activities to determine that all systems are functioning as intended and that all applicable County policies and procedures are being followed.

16. EXCEPTIONS

There are no exceptions to these procedures. All collection of documentation, verification and document processing must be followed.

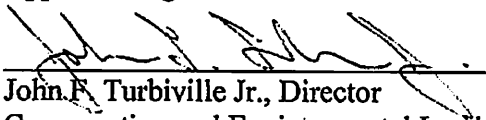
17. ENFORCEMENT

Each Region Manager shall ensure proper prescribed burn procedures are followed by subordinate staff. The Environmental Lands Manager shall ensure each Region Manager and the staff, at large, remain in compliance with these procedures.

18. FAILURE TO COMPLY

Failure to comply with the provisions in this procedure, or other applicable County policies or procedures, may result in disciplinary action up to and including termination of employment (Ref. Civil Service Rule 11.2).

Approved Signature



John F. Turbiville Jr., Director
Conservation and Environmental Lands
Management Department

12/21/15
Date

Appendix A

List of Personal Protective Equipment (PPE)

The following items are mandatory:

1. Radio
2. Nomex (or other NFPA-compliant material) fire shirt or jumpsuit
3. Fire boots
4. Helmet
5. Leather gloves
6. Eye protection - in the form of sunglasses, eyeglasses, goggles, or face shield on helmet
7. Fire shelter

The following items are optional, but must be on hand if issued:

1. Respirator or smoke mask
2. Goggles

Appendix B
Prescribed Burn Notification Email Format to County Officials and Media Contacts

Email Title: Prescribed Burn Notification – *Site Name*

The Hillsborough County Conservation and Environmental Lands Management Department will be conducting a prescribed burn today, *Date*.

Locations: *Site name and address*

S-T-R: *section – township - range*

Duration: One day

FFS Authorization Number: *Number*

Contact Information: Hillsborough County Conservation and Environmental Lands Management Department
Field office name and phone number

Media contact: *Name, Title, phone number*

Purpose of burn: *Purpose (e.g., Ecological, Hazard Reduction)*

Thank you for your continued support of our prescribed burn program.

Note: *Additional information regarding preserve or trail closures (e.g., No public trails will be affected by this burn.)*

Name of Prescribed Burn Coordinator
Title (i.e., Environmental Specialist/Prescribed Burn Coordinator)
Contact information

Appendix C
Brush Truck Fire-Ready Checklist

Function and Mechanical

- Run pump engine, spray water, check nozzle
- Check fuel and oil levels in pump
- Walk around vehicle & check exterior for signs of obvious damage
- Check under vehicle for signs of fluid leaks
- Check fluid levels (oil, transmission, power steering, fuel, washer)
- Check tire pressure (including spare)

Inventory (exterior and boxes)

- Check water level in tank
- Class A foam (2 gals minimum)
- Drip torches (2)
- Burn signs (2)
- Backpack pump
- Water cooler
- Tow strap/clevis
- Jumper cables
- Hand/Power Tools
    - Council rakes (2)
    - Flappers (2)
    - Shovels (2)
    - Pulaski Axe
    - Chainsaw
    - Funnel
    - Toolbox
        - Screw drivers
        - Pliers
        - Hammer
        - Chainsaw tool
        - Wire cutters

- Water Refill Tools
    - Hydrant wrench
    - Hydrant hose
    - Hydrant adapter

- Fuels and lubricants
    - 100% gasoline (5 gals)
    - Drip torch fuel (10 gals)
    - Mixed fuel (for chainsaw)
    - Bar oil
    - 2 cycle oil

Inventory (interior)

- First aid kit
- Winch controller
- Weather Instruments
    - Kestrel (function check)
    - Belt weather kit
        - Anemometer
        - Sling psychrometer
        - Slide rule
        - Distilled water
        - Notebook & pencil

RECREATIONAL USE POLICY

Hillsborough County Parks and Recreation Department/Resource Management team

Purpose: To determine whether a proposed recreational activity is compatible with a specific preserve site, and if so, under what conditions and to what extent it can be allowed to occur.

Background: Resource Management staff receive requests from individuals seeking recreational access to preserve sites on a regular basis. According to the various ordinances establishing the ELAP Program, and the Administrative Guidelines which have been adopted for the program, all lands acquired through the program shall be made available for compatible, resource-based recreational purposes, provided that such uses will not disturb or degrade the environmental quality of the site. In other words, the primary objective of the land acquisition program, as reflected in the management of all lands acquired through the program, is to preserve the native plants and animals and their habitat, and where possible, enhance the natural resources of the preserve areas, and increase populations of wildlife and listed species. A secondary objective is to allow compatible recreational activities, but only to an extent which does not undermine the primary objective. In determining compatibility, it is necessary to consider not only which recreational activities are compatible with environmental protection objectives, but also whether or not two different recreational activities are compatible with each other. One way to avoid user group conflicts is to designate trail systems for "single-use" rather than "multi-use" whenever possible.

Criteria for permitting recreational uses:

1) Is the Activity Appropriate for a Natural Area?

In order to be considered under any circumstances, the recreational activity must be "resource-based", in other words, the activity requires a natural resource in order to occur, rather than a man-made facility. Examples include fishing, hunting, canoeing/kayaking, hiking, mountain biking, horseback riding, bird watching, camping, etc. Recreational activities which are not resource-based, and which require other facilities, include baseball, basketball, tennis, horse racing, drag racing, remote control aircraft, etc.

2) Compatibility

The activity must be compatible with the natural setting, meaning that it does not cause a harmful impact or degrade the natural quality of the site. Negative impacts include not only habitat damage and destruction, but disturbance of wildlife, noise and light pollution, etc. Incompatibility may also result from interference with essential site management activities, such as prescribed burning. In some cases, an activity may be compatible if restricted in location or level of use, but may become incompatible if allowed to occur in certain areas, or if the number of participants or frequency of use is too high. Another consideration is whether or not a site is "ready" for recreational access. In many cases, habitat restoration or enhancement is required, and it may be necessary to withhold access until these efforts have been completed, otherwise, the recreational activity may interfere with management efforts, or even make an existing problem, such as exotic nuisance vegetation, worse.

3) Demand vs. Availability

Since it is possible for virtually any recreational use to create problems if not properly managed, consideration should be given to the need for a proposed use on a specific site. In other words, just because the use is compatible and resource based, it may not be justified if the demand is already being met on other sites in the same area. This concern has been created by two recreational uses in particular.

Mountain bikers are constantly exploring biking opportunities on new sites, due to their high mobility and need for large areas with extensive trail networks. Since there is a tendency for unauthorized trails to proliferate, as well as concerns over safety for participants in this highly active sport, the activity needs to be restricted to certain sites which can accommodate the impacts and where management efforts can be focused.

Horseback riding results in similar concerns over control of the activity, but for a different reason. Since transporting horses to sites which offer trail systems involves considerable effort, horse owners are eager to gain access to any site which happens to be located near their residence. Since most of the larger preserve areas are located in rural neighborhoods where people are more likely to own horses, there has been at least some degree of interest in allowing riding on every site over 100 acres. Unfortunately, opening a site to horseback riding involves a considerable increase in the level of management required, making it impractical to make every potential site available for this use. Even if the management resources were available, other user groups may find that their enjoyment of a site is reduced by horseback riding. If an activity is offered to only those members of the public who happen to live adjacent to a publicly owned preserve, with direct access, it is not ethical and may be illegal to deny access to other members of the public who live elsewhere as well. In addition, not all sites are suitable for the activity due to habitat sensitivity and security concerns. In terms of existing horseback riding areas, there are more sites with trails available for this activity in Hillsborough and surrounding counties, than any other trail based sport.

4) Management Capability

Regardless of whether or not a proposed recreational use meets the above conditions, if management capabilities are not sufficient to guarantee that the use is properly developed and monitored, it should not be allowed. This includes both the funding and manpower to install and maintain required facilities, such as parking, signage, trail layout and construction, as well as to monitor the use to assure that unsafe conditions and negative environmental impacts are avoided. In several cases, a proposed recreational use has been authorized based on the availability of volunteers to provide the labor needed to install the trails, under County supervision and guidance. The mountain biking trail at Balm-Boyette Scrub, and horseback riding trails at Rhodine, Alderman's Ford Addition, and Alafia River Corridor, were all developed with volunteer participation.

Resource Management staff is responsible for monitoring recreational uses to determine if impact problems exist. If serious degradation does occur, the County must have the ability to modify, suspend, or terminate the recreational use so that recovery can occur.

5) Use Agreements

In situations when a proposed use has the potential to become a problem if not properly

managed, the County will require a formal agreement to be developed with an organization representing the user group, outlining the responsibilities of the organization, which are intended to prevent or address any problems which arise, as well as to acknowledge the circumstances under which the use may be suspended or canceled, if necessary.

Summary:

In order for a recreational use to be permitted on a specific preserve site, the following conditions must be met:

* The use must be a compatible, resource-based recreational activity
* It must be possible for the use to occur without degradation of the natural environment
* The use must not interfere with essential site management activities
* There must be a demand for the activity which is not being adequately met in the region
* Management capabilities must be adequate to develop, maintain, and monitor the use
* It must be possible to terminate the use if unavoidable negative impacts occur

updated 11/30/98

SITE SECURITY POLICY

Hillsborough County Parks and Recreation Department/Resource Management Team

Purpose: To establish a set of guidelines to protect natural preserve lands from damages resulting from unauthorized access.

Background: In order to accomplish the objective of preserving the natural resources of lands acquired through the County's ELAP Program, it is necessary to protect the lands from unauthorized human activities which would result in harmful impacts. Potential damages include illegal dumping, destruction of habitat and erosion from off- road vehicles or unregulated trail development, loss of protected plants and wildlife due to poaching, disturbance of nesting habitat, etc. Measures required to prevent such impacts may include: posting of regulatory signage; installation of fences or other physical barriers; routine patrolling; and establishing live-on site security. It is necessary to implement such measures on a site specific basis due to budgetary constraints and individual site characteristics, as well as a desire to promote public access for compatible, resource-based recreational uses.

General Guidelines:

1) All sites will be posted according to State Statutory requirements immediately after acquisition.

2) Sites with a past history of illegal dumping or off-road vehicle use will be a priority for implementation of security measures.

3) Remote areas which are easily accessible by vehicle must be protected by adequate fences, gates, and other barriers as needed.

4) Sites with existing residences in a usable condition will be occupied by qualified security residents as soon as possible.

5) Sites without existing residences, which have severe security concerns, will be provided with the necessary utilities for a mobile home, to be provided by a qualified security resident, as selected by the Resource Management Section.

6) Security residents must be selected from qualified individuals who either serve as law enforcement officers, or are employed by the Parks and Recreation Department. Exceptions will be granted for qualified individuals who were serving in a similar capacity for the previous landowner, as determined by Resource Management. Security residents are required to sign and comply with a Site Security Agreement, specifying the terms and conditions of the live-on position.

7) All provisions of the County "Park Ordinance" #97-14 will be enforced.

APPENDIX G
Compliance with Comprehensive Growth Management Plan

Hillsborough County
City-County
Planning Commission

Hillsborough County: Land Management Plan for Double Branch Bay 2018-2028 – Consistency Finding

Meeting Date	October 8, 2018
Meeting Type	**Regular Meeting**
Staff Planner	Shawn College, Colleges@plancom.org, ext. 367
Action Necessary	Yes
Attachments	Resolution and Selected Attachments

Summary Information

Hillsborough County transmitted a draft copy of their updated Land Management Plan for Double Branch Bay 2018-2028 and requested a consistency determination with the *Future of Hillsborough Comprehensive Plan for Unincorporated Hillsborough County*.

The 1,585-acre Double Branch Bay Preserve (the Preserve) forms a valuable connection between two other Hillsborough County-owned bayfront properties along Old Tampa Bay: Upper Tampa Bay Park and Rocky Creek Coastal Preserve. Upland and wetland communities on the 1,585-acre Preserve include mesic flatwoods, shrub and brushland (mesic flatwoods undergoing restoration), tidally-influenced streams, estuarine habitats including oyster beds and submerged seagrasses, tidal flats, salts marshes, and extensive mangrove swamps. These natural communities support a diverse array of native plant and animal species and are relatively undisturbed by historical land use actions.

For the most part, water quality within the watershed is considered good or fair and the trend has been stable. However, the Rocky/Brushy Creek system, which includes the waters of the Preserve, is considered an impaired water body due to high levels of nutrients and dissolved oxygen (DO). The DO and nutrients responsible for the impairment of the Preserve's waters are common in stormwater runoff from residential and commercial areas.

Authorized uses of the Preserve include environmental protection and compatible outdoor recreation such as hiking, bird watching and nature study. Specific benefits obtained from the preservation and management of the Preserve includes conservation of natural and cultural resources, restoration and protection of estuarine and riparian habitat along Tampa Bay, and improvement of water quality. Significant conservation value is derived by its coastal habitats and natural shoreline being adjacent to uplands. The Preserve is also geographically significant because of its proximity to a number of other conservation lands, parks, and preserves located along Old Tampa Bay. The Preserve lies adjacent to and between Tampa Bay Park and Rocky Creek Coastal Preserve.

Recreational use will continue to increase with the addition of designated hiking trails linking the Preserve to trails and amenities at Upper Tampa Bay Park. A canoe landing spot with easy access to the Upper Tampa Bay Park paddling trail will provide paddlers with an opportunity to explore the Preserve on foot along marked hiking trails. And finally, the Preserve will offer a looped

paddling trail from the Upper Tampa Bay Park paddling trail to explore the back-bay area of the Preserve. The shallow waters of Old Tampa Bay allow paddlers access to the Pinellas Blueway trail to the west, and other Hillsborough County shoreline access points to the east and south. A new informational kiosk at the existing access point from Hillsborough Avenue to the site is recommended.

The management plan notes that the natural communities on the Preserve would benefit from continued frequent scheduled treatments of exotic invasive vegetation and from the treatment of exotic invasive vegetation on the adjacent natural properties, including Upper Tampa Bay Park. The dominant exotic species present include brazilian pepper and lead tree.

The plan details management measures required on the Preserve with respect to maintaining or improving the water quality including: preserving or restoring vegetation in riparian habitat and notifying Hillsborough County to keep stormwater entering the site from the Northwest Five Watershed Management Plan.

The primary fish and wildlife management tasks in the plan focus on plant and animal habitats, rather than individual species. The prescribed burn program and the management of exotic invasive plants and animals are the primary management tasks used to improve habitats and, subsequently, plant and animal populations. These two programs are ongoing at the Preserve on an as-needed basis that is prioritized by county staff. Other tasks that benefit wildlife populations include maintaining site security to prevent trespassing, poaching, and the control of exotic wildlife, such as feral cats, dogs, and other feral animals.

Prescribed burning is the single most important land management task carried out by the County in the preserve and is necessary to maintain the habitat and reduce vegetation fuel loads. Additionally, the plan specifies management needs including habitat restoration.

The draft management plan update is available in the Planning Commission library.

Staff Analysis

The Land Management Plan for Double Branch Bay 2018-2028 focuses on habitat restoration, prescribed burning and the management of exotic invasive plants and animals as the primary management tasks used to improve habitats and, subsequently, plant and animal populations. These efforts mirror those found in the *Future of Hillsborough Comprehensive Plan for Unincorporated Hillsborough County*.

The Hillsborough County City-County Planning Commission reviewed the draft management plan update, and considered the adopted goals, objectives and policies of the *Future of Hillsborough Comprehensive Plan for Unincorporated Hillsborough County* as follows:

Conservation and Aquifer Recharge Element

Objective 13: *The County shall protect and conserve significant wildlife habitat, and shall ensure a no net loss of essential wildlife habitat in Hillsborough County.*

Objective 14: *Populations of listed species occurring in Hillsborough County shall be maintained through the preservation and management of essential wildlife habitat and the implementation of the following policies. Where feasible and appropriate, the abundance and distribution of populations of such species shall be increased.*

Objective 15: *The County shall minimize the spread of exotic nuisance species and shall incorporate programs to control such species into the management plans for County-owned lands, with the objective of a 90 percent reduction of exotic nuisance plants from previously uncontrolled levels. The County shall conserve and use, and shall continue to require the conservation and use of native plant species in the developed landscape. The County shall also continue to protect lands designated Conservation and Preservation Areas within pending and approved development projects.*

Objective 16: *The County shall continue to increase the acreage of natural preserve lands and to ensure their protection and proper use.*

Recreation and Open Space Element

Objective 2: *The County shall continue providing improvements for public access to parks and recreational facilities and waterfront lands, including beaches and shores, by implementing the policies listed below.*

Policy 3.1: *The County, through such programs as the Environmental Lands Acquisition and Protection Program, shall continue to identify, secure, and manage open space for the purpose of conservation, preservation, and provision of open space corridors and park and recreational needs.*

Future Land Use Element

Objective 13: *New development and redevelopment shall not adversely impact environmentally sensitive areas and other significant natural systems as described and required within the Conservation and Aquifer Recharge Element and the Coastal Management Element of the Comprehensive Plan.*

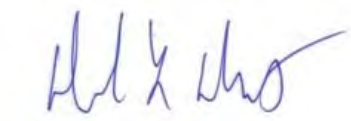
Recommendation

Staff recommends the Planning Commission approve the attached resolution finding Hillsborough County's Land Management Plan for Double Branch Bay 2018-2028 **CONSISTENT** with the *Future of Hillsborough Comprehensive Plan for Unincorporated Hillsborough County*, and forward this recommendation to Hillsborough County.

Hillsborough County City-County Planning Commission

Resolution

Item: Consistency Determination: Land Management Plan for Double Branch Bay 2018-2028

	AYE	NAY	ABSENT	DATE: October 8, 2018
Derek Doughty, PE, Chair	X			
Jacqueline Wilds, Vice-Chair	X			
John Dicks	X			
Theodore Trent Green, RA	X			Derek Doughty Chair
Nigel M Joseph	X			
Karen Kress, AICP	X			
Michael Maurino	X			
Cody Powell	X			
Mitch Thrower	X			
Melissa E Zornitta, AICP Executive Director				Melissa E. Zornitta, AICP Executive Director
On motion of Commissioner Joseph Seconded by Commissioner Thrower The following resolution was adopted:				

WHEREAS, the Hillsborough County City-County Planning Commission developed a Comprehensive Plan for unincorporated Hillsborough County, the *Future of Hillsborough Comprehensive Plan for Unincorporated Hillsborough County*; and

WHEREAS, the Hillsborough County City-County Planning Commission is the Local Planning Agency responsible for long range comprehensive planning in Hillsborough County; and

WHEREAS, Hillsborough County City-County Planning Commission staff reviewed the Land Management Plan for Double Branch Bay 2018-2028; and

WHEREAS, the Land Management Plan for Double Branch Bay 2018-2028 is comprised of 1,585 acres of intact natural habitats; and

WHEREAS, Hillsborough County is experiencing rapid population growth and development; and

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Tampa, FL, 33602

WHEREAS, the management plan provides an inventory of resources on site and documents ongoing and needed management activities and facilities; and

WHEREAS, the Hillsborough County City-County Planning Commission reviewed the draft management plan update, and considered the adopted Goals, Objectives and Policies of the *Future of Hillsborough Comprehensive Plan for Unincorporated Hillsborough County* as follows:

Conservation and Aquifer Recharge Element

Objective 13: *The County shall protect and conserve significant wildlife habitat, and shall ensure a no net loss of essential wildlife habitat in Hillsborough County.*

Objective 14: *Populations of listed species occurring in Hillsborough County shall be maintained through the preservation and management of essential wildlife habitat and the implementation of the following policies. Where feasible and appropriate, the abundance and distribution of populations of such species shall be increased.*

Objective 15: *The County shall minimize the spread of exotic nuisance species and shall incorporate programs to control such species into the management plans for County-owned lands, with the objective of a 90 percent reduction of exotic nuisance plants from previously uncontrolled levels. The County shall conserve and use, and shall continue to require the conservation and use of native plant species in the developed landscape. The County shall also continue to protect lands designated Conservation and Preservation Areas within pending and approved development projects.*

Objective 16: *The County shall continue to increase the acreage of natural preserve lands and to ensure their protection and proper use.*

Policy 16.1: *The County shall continue to implement the Environmental Lands Acquisition and Protection program, at funding levels equal to or greater than the current funding level of one-quarter mill.; and*

WHEREAS, Planning Commission staff determined that the Land Management Plan for Double Branch Bay 2018-2028 is consistent with the Goals, Objectives and Policies of the *Future of Hillsborough Comprehensive Plan for Unincorporated Hillsborough County.*

NOW, THEREFORE, BE IT RESOLVED, that the Hillsborough County City-County Planning Commission finds the Land Management Plan for Double Branch Bay 2018-2028 **CONSISTENT** with the *Future of Hillsborough Comprehensive Plan for Unincorporated Hillsborough County*.



Future of Hillsborough

Comprehensive Plan for Unincorporated Hillsborough County Florida

COASTAL MANAGEMENT

As Amended by the Hillsborough County Board of County Commissioners June 5, 2008 (Ordinance 08-13)

Department of Community Affairs Notice of Intent to Find Comprehensive Plan Amendments in Compliance published August 4, 2008 {DCA PA No. 08-1ER-NOI-2901- (A)-(l)

August 26, 2008 Effective Date

Hillsborough County Coastal Management

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Hillsborough County
Coastal Management

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I. Executive Summary

Historically, local comprehensive coastal planning in Florida has largely been pre-empted by site-specific state and local land development and regulatory decisions. This piece-meal, site-by-site approach to coastal development, in concert with the often vague and generalized coastal protection concepts outlined in state and local planning documents, did not generally provide communities with a comprehensive coastal management strategy. Hillsborough County's approach to coastal management has been similar to that taken throughout the State. In fact, because Hillsborough County is not located on the Gulf of Mexico and lacks the sandy beaches of the Gulf, past development and land use decisions in coastal areas have not taken full advantage of the unique coastal resources. Subsequently, many residents and visitors alike do not consider Hillsborough County a coastal area.

In realization that Florida's coastal areas need long range comprehensive planning and conservation in order to preserve their truly unique character, the 1985 Florida Legislature adopted revisions to Chapter 163 and required each local government identified as a coastal city or county to include a coastal management element in its updated comprehensive plan. The specific language adopted by the 1985 Legislature provides clear policy direction:

> ..it is the intent of the Legislature that local government comprehensive plans restrict development activities where such activities would damage or destroy coastal resources and that such plans protect human life and limit public expenditures in areas that are subject to destruction by natural disaster (s.s. 163.3178-1).

A. PURPOSE OF AND NEED FOR THE COASTAL MANAGEMENT ELEMENT

The Coastal Management Element was prepared pursuant to the mandate of Chapter 163, Florida Statutes, as amended by the Local Government Comprehensive Planning and Land Development Regulation Act of 1985. This Act requires the development of a comprehensive plan by each local government in the State of Florida. Chapter 163 is further defined by Rule 9J-5, Florida Administrative Code, which establishes the minimum criteria for this element and for each element of the comprehensive plan. Specifically, the Coastal Management Element is intended to meet the requirement of Chapter 9J-5.02, Florida Administrative Code.

The purpose of this Coastal Management Element is to provide a plan and policy direction for development activities in the coastal planning area. This plan and policy direction includes restrictions on development activities where such activities would damage or destroy coastal resources, protection of human life, and limitations on public expenditures in areas subject to destruction by natural disaster. The objectives of this element are to ensure that development in the coastal area does not prohibit public accessibility to the coast, that human life is not endangered, that adequate public hurricane

shelter space is available to coastal inhabitants, that levels of service on coastal evacuation routes do not deteriorate, such that safe and timely evacuation is adversely impacted, that water-dependent and water-related land uses are given priority, that public expenditures do not encourage growth in coastal high hazard areas, and that public decisions will include consideration of coastal hazards in each land use and public infrastructure decision-making process.

B. DEFINITION OF COASTAL PLANNING AREA

The coastal planning area includes the coastal waters and adjacent shorelines that are strongly influenced by one another. The coastal planning area extends inland from the shoreline only to the extent necessary to control shorelands, the uses of which have a direct and significant impact on the coastal waters. The coastal planning area consists of two parts: the coastal high hazard area (CHHA) and the remaining land area with an evacuation designation.

For mapping purposes, the coastal planning area is that area proposed for evacuation on the most current evacuation map.

C. ELEMENT ORGANIZATION

The Coastal Management Element is comprised of three integral parts including the Inventory and Analysis; Goals, Objectives and Policies; and the Plan Implementation sections. The Inventory and Analysis section presents historic and current conditions upon which to base the recommended planning and management strategies. The Goals, Objectives and Policies section presents the recommended planning guidelines, programs and other operative provisions which are intended to drive private and governmental decisions regarding natural resources. Finally, the Plan Implementation section recommends strategies for implementing the goals, objectives and policies of the Coastal Management Element.

IV. COASTAL MANAGEMENT ELEMENT BACKGROUND REPORT

A. 9J-5012(2)a Existing Land Use in the Coastal Planning Area

Land uses in Hillsborough County's coastal planning area, as shown on Existing Land Use, illustrates the difficult issues faced by the jurisdiction. There is intense competition between incompatible uses such as residential and industrial, which must be balanced with environmental constraints on a limited shoreline. The 125,167 acres in the coastal planning area includes an array of land uses generalized on Table 1. The primary land use issue within Hillsborough County's coastal planning area is balancing public access demand with the demands of water dependent and water related uses. Historically, the coastal area included a mixture of residential, commercial and industrial land uses. This mixture of land uses has developed over time into a definable—pattern in which development land uses must fit. Also, the remaining natural shoreline system must be preserved or renourished so that future generations can study and understand this system and benefit from the recreational and aesthetic enjoyment this complex system provides.

Existing Land Use

Existing land uses within the coastal planning area are illustrated on the Existing Land Use) in eight categories. These land uses include: residential, commercial, industrial, public facilities, natural, agricultural, vacant and mining.

Residential: An analysis of the existing land uses indicates that the residential land use (single and multi family) is 20% or 25,502 acres of the total existing land uses within the county's coastal planning area. Primary concentrations of residential uses occurs in the Town and County, generally described as the land mass south of Gunn Highway, south to Tampa Bay, Palm River/Clair Mel located south of the Palm River and west of I-275, Riverview/Gibsonton located along the Alafia River, and the Ruskin Wimauma area in the very southern portion of the county.

Many of the areas are often either on low, floodprone uplands, or on land made as the result of dredge and fill operations. Concentrations of this type of development are especially prevalent in the areas of Town and County, Clair Mel City, Apollo Beach, and Bahia Beach. Problems that are common to these areas are periodic flooding, cumulative adverse impacts to wetlands, soil erosion, non-functioning septic systems, and reduced public access to the shoreline.

Although additional development is anticipated, areawide planning process requirements will mitigate the impacts to public facilities and concentrate growth in defined limits.

Commercial: Commercial development in the unincorporated County's coastal planning area is not extensive, encompassing only 6,539 acres or 5% of the

total coastal planning area. Most commercial uses are neighborhood in scale, and do not serve as an attraction for future development in the coastal zone. The Hillsborough Avenue/Memorial Highway area is experiencing extensive commercial development activity, primarily because of the continued residential development in Town n' Country and the area's proximity to Pinellas County. Commerce has not served as an attraction to development; rather, it has followed the demand created in that area by residential development.

Community Facilities: Approximately 30% or 37208 acres of the land uses within the coastal planning area are devoted to public/semi-public uses within the broad category of community facilities. General uses include facilities such as electrical power generating and transmission facilities, wastewater treatment and disposal facilities, governmental complexes, schools, churches, recreation and open space lands, streets and rights-of-way. In terms of acreage, the largest single land user within this category are electrical generating and transmission facilities followed by recreation and open space lands both of which are primarily water dependent land uses. Recreational and open space uses include both passive pursuit of nature and active forms of recreation, such as fishing and boating. Natural parks, such as Upper Tampa Bay Park on S.R. 580, feature primarily the former type of activity. Boating and fishing are pursued wherever the Bay meets the land. For a list of public parks refer to the Recreation and Open Space Element. Refer to the Public Access section of this element for detailed information on public boat ramps and a listing of public access points.

TABLE 1 EXISTING LAND USE FOR HILLSBOROUGH COUNTY COASTAL PLANNING AREA - 2005

Generalized Land Use Classification	Acres	%
RESIDENTIAL Single Family Detached Duplex/Multi-Family/Mobile Home	31,827	25
COMMERCIAL	3,932	3
COMMUNITY FACILITIES Educational Public Utilities Public Right of Way	49,449	38
INDUSTRIAL	6,353	5
RECREATION/NATURAL	2,896	2
AGRICULTURAL	15,095	12
MINING	1,034	.8
VACANT	13,108	10

WATER	5,133	4
Unknown	787	.6
TOTAL	**129,614**	100%

Source: Hillsborough County City-County Planning Commission, 2005.

Agricultural: Agricultural and vacant lands occupy a significant portion of the County's coastal planning area, but urban growth is steadily displacing these land uses forcing agricultural activities to move to more inland parts of the County. As noted in Table 1, agricultural lands account for 12% of the predominant agricultural uses in terms of total acreage are general agriculture, row crops and fenced pasture land.

Industrial: Much of the County's heavy industrial development is located in the coastal planning area, primarily due to the maritime history of the Hillsborough County, and its subsequent development in port-related activities. This heavy industry accounts for approximately 6353 acres or 5% of all industrial activity within the coastal planning area. The balance of the industrial uses take the form of light industrial and warehouse and distribution uses and are generally located inland from the waters of Tampa Bay. The Port of Tampa's historic evolution is detailed within the City of Tampa's Coastal Management Element; however, the Port's activities have spread from the inaugural Port Tampa area, on the southwest shore of the Interbay peninsula in Tampa, along the east shore of Hillsborough Bay. Heavy industrial land use designations on the land use map trace the Port's development.

Natural Areas: Natural areas are more particularly defined as water, woodlands and wetlands which possess significant environmentally sensitive habitat. As noted on the existing land use table, these natural or environmentally sensitive areas account for approximately 2896 acres or 2% of the coastal planning area within unincorporated Hillsborough County. These natural areas provide vital shoreline habitat and protect already developed areas from storm surge. It is anticipated that future development in natural areas will generally occur on the vacant parcels in urban areas as opposed to the displacement of woodlands and wetlands which is consistent with the County's continuing policy to achieve infilling of development. The development of the existing shoreline, where most of the recreational lands occur within the coastal zone, must be of sensitive design. The impacts of recreation use must be controlled to preserve the integrity and future viability of the natural systems.

The Future Land Use element identifies these areas to be of significant environmental importance to be set aside for primarily conservation purposes.

Except for very limited compatible residential or educational use, all development is prohibited.

A detailed discussion of these natural areas is provided in a subsequent section of this element as well as within the Conservation and Aquifer Recharge Element.

Mining: Of all the primary land uses within the coastal planning area, mining represents the least in real coverage. In 2005, active mines, reclaimed mines and mined out areas not reclaimed accounted for 1034 acres or .8% of the total acreage within the coastal zone. However, mining becomes a significant competing land use issue due to the short and long term impacts upon both the physical and visual environment. Both active and mined out areas of shell and dolomite pits exist within the coastal zone in South County. Most recent mining has occurred at the Leisey Shell pit. The mined out pits have been used by amateur archaeologists as dig sites and have yielded several archaeological discoveries. This resource is evaluated further in the Impacts on Historic and Archaeological Resources section of this element.

Shoreline Conflicts

When evaluating shoreline land uses it is important to identify existing conflicts between competing shoreline uses and related coastal features. Recognizing that there is limited space and carrying capacity within the coastal planning area to accommodate future development, a mechanism must be available to resolve these apparent conflicts and direct future development into areas most suitable to accommodate such development. As a result, Florida's comprehensive planning legislation specifically addresses the need for local governments to identify such conflicts within the local comprehensive plan and provide for conflict resolution.

"Shoreline conflict" shall refer to any land use activity that causes a reduced or diminished quality of life for residents and property owners within or immediately adjacent to the established coastal area.

Shoreline conflicts could include land uses or actions that:

1. measurably degrade the natural or man-made environment;

2. contribute to the use of land or water resources in an inappropriate manner;

3. result in the reduction of economic growth and vitality;

4 adversely affect the roadway network within the coastal area inhibiting the expeditious and safe evacuation of the coastal area;

5. significantly disrupt long term desired land use patterns; or

6. require the expenditure of public funds for extension of public services and maintenance within the coastal area.

One of the primary conflicts between the natural processes inherent to the shoreline and man's desire to develop along the shoreline is the problem of beach and shore erosion. While the conflict is experienced to a lesser degree in Hillsborough County because the County's coastal area is not directly exposed to the wind and wave action of the Gulf of Mexico, certain areas have experienced erosion (e.g. E. G. Simmons Park). Hillsborough County's Future Land Use Element recognizes that much of the County's shoreline remains in a naturally vegetated state and acknowledges the presence of many existing shoreline uses which are either water-related or water-dependent. Similarly, most areas designated as vacant, public, natural or agricultural on the existing land use map are reflected as either Natural Preservation, Residential, or Public Quasi Public on the Future Land Use Map, thereby minimizing future conflicts.

Low elevation and the absence of topographic relief characterize much of the County's coastal planning area, also resulting in conflicts in achieving drainage and requisite building heights relative to established FEMA flood elevations. Examples of this conflict are most pronounced in the areas of Bahia Beach, Apollo Beach and lands abutting Old Tampa Bay north of the Courtney Campbell Causeway.

Many of the County's coastal ecosystems have been disturbed or replaced as a result of massive filling of land or from the impacts of urban land use activities. Perhaps the greatest impact to marine habitat results from urban stormwater run-off which discharges directly into Tampa Bay and into the rivers and tributaries within the coastal area. This issue is dealt with in greater detail elsewhere in this element and in the Conservation and Aquifer Recharge Element.

Because of the desire to utilize the County's shorelines for recreation, commercial, residential and port-related industrial activities, the transportation system necessary to accommodate coastal activities becomes a key component of the coastal area, and can be a source of conflict. The existing transportation system is adequate to accommodate traffic generated within the coastal area. Of critical importance is the need to maintain adequate levels of service on designated hurricane evacuation routes and to balance the need for future residential development with the ability of the roadway system to operate without serious conflicts with abutting land uses.

Finally, economic factors must be considered as they pertain to the ability of certain land uses to generate income consistent with development costs and underlying land values. The coastal area, especially those areas which are commercial or tourist related (e. g. Apollo Beach, Bahia Beach, public parks, marinas, etc.) must not deteriorate to the extent that a conflict arises with respect to abutting or nearby properties, thereby adversely affecting the economic vitality of the coastal area. As suitable sites for commercial/tourist uses continue to diminish, the need to ensure the economic vitality of existing uses becomes more critical. Therefore, economic conflicts between existing land uses must also be viewed from a perspective of improving and redeveloping existing coastal uses, where appropriate.

Water-Dependent and Water-Related Uses

Shoreline Access: As previously mentioned, shoreline access problems result from demand by incompatible or competing land uses for coastal locations. The coastal planning area is limited and has historically been the first area to be developed. As demand for land grows, shoreline property is the first to appreciate in value due both to its unique characteristics and to its relative scarcity. For this reason, and to minimize conflicts, coastal planning area land uses must be prioritized with regard to the necessity of shore access. Those activities that require deepwater access, such as port facilities, or large amounts of salt water (electrical generating facilities or aquaculture projects) should be assured that the coastal land they need will not be usurped by a land use that could be accommodated at an inland location.

Chapter 9J-5, Florida Administrative Code, requires that coastal counties identify and evaluate "water-dependent" and "water-related" uses within the comprehensive plan. These uses are specifically defined as follows:

> Water-Dependent Uses - activities which can be carried out only on, in or adjacent to water areas because the use requires access to the water body for: waterborne transportation including ports or marinas; recreation; electrical generating facilities; or water supply.
>
> Water-Related Uses - activities which are not directly dependent upon access to a water body but which provide goods and services that are directly associated with water-dependent or waterway uses.
>
> Water-Independent Uses - activities including, but not limited to, intense urban residential, industrial and commercial uses which could function just as well inland as in a coastal location.

The primary water-dependent and water-related uses, excluding the existing public access facilities depicted on the Existing Water Dependent/ Water Related Uses Map as Light Industrial, Heavy Industrial and Heavy Commercial. It is interesting to note that for an urban county in a tourist-oriented region, very little acreage is utilized for commercial tourist uses. The majority of land use activity within the coastal area is neither water-dependent nor water-related, and could function just as well inland. However, like most counties in Florida, it is the amenities of and proximity to the coastline and rivers that have traditionally encouraged development within the coastal area, and with the continued growth projected for the County these lands will see increased development pressures.

A partial inventory of major public access facilities has been prepared, and depicted on the Shoreline Public Access Facilities Map.

Economic Base of Coastal Area

In the coastal planning area of Hillsborough County, the major sectors of the economic base include services, retail trade and wholesale trade. Within the service sector, the most significant components or subsectors are business

services and medical and health services. The retail trade sector is dominated by automotive dealers, service stations and furniture and home furnishings, while the wholesale trade is dominated by durable goods, such as material equipment and supplies, and lumber and construction material. The second tier of economic sectors, in terms of contribution to the economic base of the coastal planning area, includes finance/insurance/real estate, manufacturing and construction. The balance of the economic base of the coastal zone is comprised of smaller, less significant sectors including transportation/ communication/utilities, agriculture and fishing, mining and government services.

Electric and Wastewater Services: Electric and wastewater services represent adjunct components of the economic base of the coastal zone area.

The Big Bend Station electric power plant is located roughly ten miles south of the City of Tampa in unincorporated Hillsborough County. The plant is situated along the eastern shore of Tampa Bay in the coastal area of the County. The siting of the power station along the Tampa Bay shoreline is advantageous from a cost perspective. The Bay serves as a source of cooling water needed to operate the plant. In theory, the reduced cost alternative afforded by the Tampa Bay siting of the Big Bend Station translates into reduced costs of electric power services supplied to local residents and businesses in Hillsborough County.

Tampa Bay is currently used as a receiving body for treated wastewater and effluent discharge. This method of wastewater and effluent disposal is cost effective from an economic perspective. For example, in northwest Hillsborough County, the Hillsborough Northwest 201 Facilities Plan for wastewater treatment calls for disposal of wastewater and effluent by land application from the River Oaks wastewater treatment facility. This method of treatment was estimated to cost $38.8 million. However, to date, the County has opted to expand the existing wastewater treatment system serving the area which would allow for the continued discharge of treated wastewater and effluent into the estuarine system of Tampa Bay up to a capacity of ten million gallons per day (10 mgd). The estimated cost of this expansion plan, including interim irrigation relocation, pump station, force main construction and flow equalization, is $24.9 million. This cost represents a savings of approximately $14 million from the land application disposal method referenced in the 201 Facilities Plan for the area. More recently, this effluent discharge has be greatly reduced by the expansion of the County's Reclaimed Water Program.

Impacts of the Future Land Use Plan on the Economic Base: The impact of implementation of the future land use plan for Hillsborough County should affect most, if not all, components of the coastal planning area's economic base.

The implementation of the future land use plan may limit the growth of industrial, business, professional and personal services, as well as wholesale and retail trade, in the County's coastal zone. Potential negative impacts on the economic base of the County's coastal zone could be felt in the loss of land

uses such as motor freight transportation; warehousing and light manufacturing, including light machinery, communication, and electronic equipment; and other miscellaneous research and development (R&D) and high-tech industrial sectors. The primary contributor to the potential loss in these sectors is the large amount of development potential for these types of industries and services within the I-75 Corridor.

Most of the growth among favorably impacted components of the economic base should occur in the southern and eastern sub-areas of Hillsborough County's coastal zone, including the area between I-75 on the east and Tampa Bay on the west. The area within the northwest section of the County, generally described as the lands south of the proposed Linebaugh Extension and Old Tampa Bay to the County line, is showing a trend from agricultural lands to low to medium density residential and support commercial development.

The growing desire for people to live and recreate along the coast will increase the demand for coastal access. Sensitive design and engineering of restricted recreational development along the abundant natural shoreline and tidally-influenced tributaries of Hillsborough County will enable the growing population to access these areas. Through understanding of and education about the value of these systems, the general population's environmental awareness may lead to a higher quality of life for existing and future residents of Hillsborough County.

Wetland Habitat: Three major types of vegetative wetland communities occur within the Tampa Bay estuarine system, including seagrass beds, salt marshes, and mangrove forests. The critical roles that estuarine wetlands play with regard to shoreline stabilization, pollutant assimilation and fisheries production has been discussed above and cannot be underestimated. (See Natural Resources Map).

Seagrasses: Between 1996 and 1999 (years that included a strong El Niño rainfall event), seagrass coverage decreased by 839 Hectares(ha), followed by recovery and expansion of 883 ha between 1999 and 2004. Bay-wide, seagrass coverage in Tampa Bay in 2004 was the highest observed since 1950, but still 5,512 ha lower than 1950 coverage.

The catastrophic loss of seagrasses in Tampa Bay has been attributed to numerous causes, including propeller damage from boats, dredging, and water quality degradation. While the first two causes have undoubtedly resulted in significant direct destruction, the third is probably the most important factor affecting the health of seagrasses in Tampa Bay. Recent studies indicate that increasing nutrient enrichment, or eutrophication, of estuarine waters from sewage treatment plant effluent and stormwater runoff is responsible for the production of phytoplankton blooms in the water column and excessive epiphytic growth of macroalgae on the leaves of seagrasses. These nuisance species decrease the amount of light available to seagrasses for growth and reproduction (Lewis et al., 1985). In addition to eutrophication, widespread temporary increases in water column turbidity due to large scale harbor and channel deepening projects have also reduced the light available to seagrasses, thus resulting in significant seagrass destruction.

Emergent Wetlands: There are approximately 17,800 acres of emergent wetlands bordering Tampa Bay. Small fish, shrimp, and crab feed on the nutrient rich detritus formed from decaying mangrove leaves. The sturdy roots of the mangrove tree anchor the shoreline, while the mangrove canopies serve as roosts and nests for a variety of wintering and native birds.

In Hillsborough County alone, approximately 3,000 acres of salt marsh and 1,500 acres of mangrove forest were destroyed between 1820 and 1978. Furthermore, it has been estimated that as much as 44% of the original emergent wetlands in Tampa Bay have been lost to development and other causes (Lewis et al., 1979). Unlike seagrasses, anthropogenic impacts on salt marshes and mangrove forests are almost exclusively attributable to the direct effects of dredging and filling, where suitable intertidal substrate has simply been eliminated. With the exception of the effects of oil spills, the survival and proliferation of emergent tidal wetlands are not particularly dependent upon water quality. Recent estimates of wetland habitat in Tampa Bay indicate that about 18,000 acres of mangrove forests and saltmarsh remain.(Janicki et al., 1995). Thousands of acres of this habitat may be damaged from invasion by exotic plants, such as the Australian Pine and Brazillian Pepper, that choke out native habitat.

Riverine Forests and Adjacent Wetlands:
The acreage of freshwater wetlands of Hillsborough County has declined significantly since historical times. Losses would be expected to reduce the ability of these systems to filter upland runoff, allowing more turbid water to reach the Bay. Particulate organic matter inputs to the Bay from litter fall in adjacent wetland and terrestrial habitats would also be expected to decline, and nutrient inputs would probably increase as filtration capacity declined. In addition, many of these streams have been channelized, and even if the wetlands are structurally intact, hydraulic exchange with the adjacent water body, and thus wetland functions, may be impaired.

Living Marine Resources: Tampa Bay was once the State's most productive and diverse estuarine system. Inventories performed in the late 1960's have shown that the recorded diversity and abundance of marine life in Tampa Bay is not exceeded by any other estuary between the Chesapeake Bay and the Laguna Madre of Texas.

The richness of Tampa Bay's marine life has been attributed to the geographic position of the estuary between temperate and subtropical waters. As a result of the Bay's location, winter water temperatures rarely fall to levels which could kill tropical organisms, and summer water temperatures are moderate enough to be tolerated by many of the temperate species. Another contributing factor to the diversity and abundance of Tampa Bay marine life is that salinity is typically in the range of 25-35 ppt over most of the estuary, without the wide fluctuations and significant vertical stratification that characterize many other estuaries. As a result of the stability of the salinity regime, many oceanic species can coexist with typical estuarine species.

The productivity of Tampa Bay in terms of commercially valuable fisheries has, however, declined dramatically in recent decades due to man's influence on the Bay. The harvest of these species is a particularly visible and important part of the value of the Bay as perceived by most citizens.

Shellfish: Five economically important shellfish species occur in Tampa Bay including, in order of commercial value, the following: bait shrimp, stone crab, blue crab oysters and quahog clams. The bay scallop once flourished in Tampa Bay but since the early 1950's it has been virtually eliminated from the estuary due to degraded water quality conditions.

Currently, only four areas are approved or conditionally approved for shellfishing in Tampa Bay. Due to poor water quality conditions (e.g. high bacterial counts), these areas are now virtually all restricted to Lower Tampa Bay, where better flushing conditions prevail. The Cockroach Bay Aquatic Preserve area, although conditionally approved, has been closed periodically due to coliform contamination from nearby septic systems and has been recommended for permanent closure.

The oyster industry in Tampa Bay, especially Hillsborough Bay, once thrived, with annual oyster meat yields exceeding 500,000 pounds in 1900. Harvests of oysters from the Bay were second only to those of the still productive Apalachicola Bay for most of the 19th Century. However, between the turn of

the century and 1970, the oyster industry in Tampa Bay was essentially eliminated due to water quality problems. Other shellfish species have been similarly affected by development around the Bay, and only bait shrimp and stone crabs remain as economically viable fisheries in Tampa Bay.

Fishes**:** The Tampa Bay estuary and contiguous coastal waters serve as home, feeding ground, and/or nursery for more than 270 species of resident and migrant fish. Approximately 80 fish species are found in at least one life stage within the Tampa Bay estuary, with about 25 of these species considered to be economically important. Of special concern are spotted seatrout, red drum and snook which constitute the bulk of the recreational finfish landings in Tampa Bay. Available statistics indicate that these species, all of which spend most of their lives in estuaries, are declining in numbers both locally and statewide. Accordingly, the Florida Department of Environmental Protection has recently placed greater restrictions on the commercial and recreational harvest of these species. As stated above, vegetated tidal wetlands, especially seagrass beds, play a critical role as nursery habitat for larval and juvenile fishes. It is felt that the significant decline in both seagrasses and emergent wetlands has had a corresponding adverse impact on fishery stocks; however, long term quantitative studies on fishery stocks in Tampa Bay are not available to confirm this. Data on commercial finfish landings in Tampa Bay indicate a general downward trend occurring after 1965.

Reptiles: Only two species of marine reptiles are common in Tampa Bay, the diamondback terrapin) and the mangrove water snake). Both are common in localized areas but have not been well studied. However, because of the reduction of intertidal habitat and adjacent upland areas due to coastal development, these species may be threatened. Loggerhead turtle) are occasionally observed in the Bay on the gulf side of Egmont Key.

Birds: Seabirds and wading birds are a very visible and important component of the animal life of Tampa Bay. 83 species of birds are associated with marine habitats in the Bay. Many of these not only use certain Bay habitats for nesting and raising young, but also wade in the shallows or dive in deeper waters to feed on fish and invertebrates.

The total breeding population of colonial birds in Tampa Bay is estimated to be 75,000 pairs, of which two-thirds are laughing gulls. The laughing gull population is estimated to be one-third of the entire bird breeding population in the southeast United States. The brown pelican population of 2,700-3,000 breeding pairs represents nearly a third of the entire Florida population of such birds.

McKay Bay, located in northeast Tampa Bay, is a particularly important feeding area and typically supports a winter population of almost 25,000 marine birds of at least 75 species. Almost 80% of these birds are of five species: lesser scaup, ruddy duck, dunlin, short-billed dowitcher, and western sandpiper.

Although some species which formerly nested in the Bay have recently returned (reddish egret in 1974, roseate spoonbill in 1975), recent population

declines in many species are apparent. Red tides, parasite outbreaks, dredge and fill activities, pesticide use, and oil spills have all had a generally negative effect on bird abundance. Waterfowl surveys of the Bay have indicated a sharp decline in the wintering population of lesser scaup with a high of 105,900 in 1976 falling to a low of 8,400 in 1979. Major dredging in Hillsborough Bay has been implicated as a possible cause of the decline, since over 988 acres of open water habitat was lost during this period due to harbor deepening and spoil island creation.

Marine Mammals: Only two species of marine mammals are normally found within Tampa Bay, the bottlenose dolphin and the West Indian manatee. The bottlenose dolphin is a year-round resident, with a local population estimated at 100-200 individuals, generally found in small herds of 3-6 animals. Little research, beyond aerial surveys of local populations, has been done on this species in the Bay.

In the years preceeding 1980, a bay-wide survey over a period of one year found that the number of manatees varied seasonally, with a maximum of 55 being observed in the winter. Research continues to bolster evidence that Tampa Bay is an important year round or seasonal home to the manatee. The Tampa Bay Estuary Program reports that more than 200 of the Gulf Coasts 1800 mantees seek refuge in the winter at the warm water discharges surrounding the bay's power plants. The largest single aggregation was 42 individuals observed around the mouth of the Alafia River in February, 1980. The mouth of the Alafia River has been designated a State Manatee Sanctuary by the Florida Department of Environmental Protection, and is the only such area in Tampa Bay.

9J-5.012(2)(c)- Historic and Archaeological Resources

The protection, preservation, and restoration of historic resources is an integral part of the federal Coastal Zone Management Act. The best available information is that provided by the Florida Master Site Files.

Historically Significant Structures in the Coastal Planning Area:

George H. Elsberry Farm House, 4 Mi. E. on S. R. 674, Wimauma
Giants Motel, south US 41, Gibsonton
Kep-Rite Tourist Court Office, 9839 US 41 Gibsonton
L.L.Dickman House, 401 Tamiami Trail, Ruskin
Lewis Good Gulf Service, Swilley Rd., and SR 39, Alafia
Ruskin Vegetable Corporation Bldg., US 41 at Millermack, Ruskin
Ruskin Women's Club, 508 Tamiami Trail, Ruskin
Sun City Show House, 2824 Studio Blvd., Ruskin
Symmes House, Millpoint Rd., Riverview
U.S. Phosphoric Products Bldg., south US 41, Riverview
W.B. Moody House, W. Hackney Dr., west of US 301 Riverview
W.I. Bradley Place, Riverview
William House, 10605 Hackney Dr, Riverview
Wimauma Church of the Nazarene, SR 674, Wimauma
Providence Baptist Church, 5416 Providence Church Rd., Riverview

James L. Hackney House, Section 17, Township 30S, Range 20 E.
Riverview Cemetery, Providence Rd. and Hackney Dr., Riverview
Joe Ebert House , Section 20, Township 28S, Range 20 E.

Sites of Local Significance for Unincorporated Hillsborough County

102 College Avenue East, Ruskin; 402 College Ave. East, Ruskin; 601 4th Ave. SW, Ruskin; Dr. Beaudette House, Ruskin;
Grubbs House, Gibsonton.

Hillsborough County does not contain a large number of built historic resources; rather, the predominant historic resources are archaeological sites. Because a significant portion of the unincorporated County's archaeological sites are located in the coastal zone, special consideration should be given to those resources. Hillsborough County adopted a landmark ordinance as part of its Land Development Regulations in March, 1992. The future requires continuing efforts to achieve the long-term goal of historic preservation.

Impacts of Future Land Use on Historic Preservation

The County's historic resources are located within suburban and rural development areas which will accommodate their continued use. Future land Use designations have not created non conformity of structures.

Hillsborough County, in an attempt to manage its diverse growth has adopted an Urban Service Area. The Urban Service Area emphasizes three principles: the type of development; the location of development; and the services required for development. These three principles should be properly coordinated to promote a rational transition from urban to rural land uses within the County.

The Urban Service Area concept provides a three tiered infrastructure phasing system coordinated with the Comprehensive Plan land use categories and the County's Capital Improvements Program to provide urban service delivery. Urban services may include public water, wastewater, roadways, stormwater, fire and police protection, parks, and transit.

The Urban Service Area provides some order and reliability to the land development process, its implementation can have a positive impact on historic resources. The historic resources that are located in the designated Urban Service Area should make these structures attractive for continued use. Conversely, for those structures that are located outside the USA may not experience development pressures to be converted to subdivisions.

The Future Land Use Element also contains policy provisions which set up the framework for the preservation and reuse of historic structures within Hillsborough County, including those that lie within the coastal planning area.

9J-5.012(2)d- Estuarine Management
Definition and Importance of the Tampa Bay Estuary

The entire shoreline of Hillsborough County borders on the Tampa Bay estuary. Closely associated with the Tampa Bay estuary are the tidal freshwater habitats that occur immediately above the upper limits of salt water. These ecosystems are vitally important as nursery and spawning areas for many anadromous fisheries. Seaward from the estuary, measurable dilution of sea water by land drainage can be traced for considerable distances offshore. Moreover, considerable acreages of vegetated wetlands, including seagrass meadows, salt marshes and mangrove forests, occur along the shallower bottoms and peripheral fringes of the estuary. Together with the open water estuary, these important transition zones comprise the entire Tampa Bay estuarine system.

Because of their unique physical and chemical properties, estuaries are among the most biologically diverse and productive ecosystems in the world. Tidal wetland vegetation at the headwaters of estuaries trap silt and absorb excess nutrients resulting from land drainage, thus buffering the coastal ecosystem somewhat from upland sources of pollution. Tidal wetland vegetation also protects upland areas by stabilizing coastal sediments and preventing erosion from storm events.

The real importance of estuarine plant communities such as mangrove forests, salt marshes, and seagrass beds lies in the vital functions they perform in the aquatic ecosystem. First and foremost is their role in converting sunlight and nutrients into food usable by marine animals, thus forming the base of the aquatic food chain. Odum (1971) estimated that the richest coastal marshes produce 10 tons per acre of plant material per year, or more than six times the average amount of wheat produced per acre. Although relatively little of this plant material is eaten directly by higher animals, it is broken down into detritus by micro-organisms and consumed by small crustaceans and other animals which are, in turn, eaten by larger fishes and so on up the food web.

In addition to serving as a food source, estuarine wetland vegetation provides shelter and nursery areas for the young of many economically important species such as shrimp, seatrout, mullet and red drum (redfish). Although the majority of species do not spend their entire lives within estuaries, it is estimated that nearly 98 percent of the most economically important fisheries species taken along the Gulf of Mexico coast are directly dependent upon estuarine habitat during some portion of their life cycle.

Tampa Bay is Florida's largest open water estuary, with a total surface area of almost 400 square miles. The Tampa Bay estuarine system has been geographically subdivided into seven named subunits including: Old Tampa Bay, Hillsborough Bay, Middle Tampa Bay, Lower Tampa Bay, Boca Ciega Bay, Terra Ceia Bay, and the Manatee River.

The data inventory and analysis that follows primarily addresses estuarine conditions, impacts and trends in Hillsborough Bay, Old Tampa Bay and Middle Tampa Bay, the primary impact area of Hillsborough County. However, it is also recognized that the Tampa Bay estuarine system is a dynamic waterbody within which the cumulative impacts of numerous localized

perturbations are often expressed on a Baywide scale, irrespective of political boundaries. Therefore, Baywide trends are discussed and summarized as appropriate.

Existing Conditions and Past Impacts

Water Quality: In practical terms, water quality refers to the fitness of water for both human and natural uses and can be described by concentrations of specific parameters (such as bacteria) or by the relation of observed concentrations to state standards (e.g. allowable levels of bacteria). Several parameters are important from the standpoint of human uses of the Bay. The Environmental Protection Commission of Hillsborough County (EPC) has monitored numerous parameters throughout Tampa Bay every month since 1972. The EPC summarizes monitoring data in a series of annual reports in which a "general water quality index" for Tampa Bay is presented. Values of the index range from excellent (collectively low values) to undesirable (collectively high values), and are based on ranked averaged values for total coliform bacteria, turbidity, chlorophyll, total organic carbon and biochemical oxygen demand (BOD). Although the general water quality index is a useful comparative tool, it should not be used as an absolute measure of conditions in Tampa Bay. Each parameter must be considered individually to truly assess its role and influence on the Bay's water quality.

TABLE 2 TAMPA BAY SUMMARY WATER QUALITY INDEX

Year	Lowest WQI	Highest WQI	Number of Stations with WQI <70 Pts.	Number of Stations with WQ1 >90 Pts.
1998	58.2	89	8	0
1999	71.9	92	0	8
2000	71.4	23	0	0

Source: Environmental Protection Commission, 2000

General water quality in McKay and Hillsborough Bays has been undesirable since monitoring began. EPC attributes low water quality in Hillsborough Bay to the City of Tampa Hookers Point Wastewater Treatment Plant discharges and other industrial wastes. The influence of Hillsborough Bay upon Tampa Bay extends along the eastern shore to the area offshore from the Little Manatee River. This area has been reflected as fair to poor water quality in most years since 1978. General water quality in and near the Cockroach Bay Aquatic Preserve has been excellent or good, except for fair to poor ratings near the Little Manatee River, which is due to the seasonal influence of river discharge. In 2000 the EPC reported most of Tampa Bay having good water quality.

Sediment Pollution: The sediments of the Tampa Bay estuary are generally uniform in character. They are mostly composed of reworked terrace quartz and near shore sand and biogenic carbonate detritus. The mean size of the sediments increases from the upper to the lower reaches of the estuarine system. Organic sediments and clays are prominent, primarily in the upper portions of Hillsborough Bay and in other isolated portions of the Bay complex. Because of their greater binding capabilities, pollutants such as heavy metals are generally more concentrated in the fine-grained sediments of Hillsborough and Old Tampa Bays.

The Florida Department of Environmental Protection (FDEP) analyzed sediment quality in Hillsborough Bay during its comparative study of estuarine sediments in deepwater ports. In general, sediments in and around the port and urban areas of Hillsborough Bay contain elevated levels of metals, including cadmium, lead, zinc and mercury. Natural levels for chromium and copper are only slightly exceeded. The combined metals data indicate anthropogenic (man-induced) impacts most likely caused by urban stormwater runoff.

Organic carbon and nitrogen and total phosphate distributions in Hillsborough Bay sediments were determined in 1968 by the Florida Water Pollution Control Authority. Organic carbon and nitrogen concentrations were determined to be high at Hookers Point and south of Long Shoal, located east of the MacDill Air Force Base sewage treatment plant outfall in 1968. Studies performed by the Florida Department of Environmental Regulation (McClelland, 1984) indicate that under certain conditions, the sediments of Hillsborough Bay and Old

Tampa Bay have amongst the highest nutrient flux rates recorded. These data suggest that even with improved wastewater and stormwater treatment measures, there may always be a significant reservoir of nitrogen and phosphorous in Bay sediments to contribute to water quality problems in upper Tampa Bay.

Point Source Pollution: Stormwater, industrial operations and domestic wastewater treatment plants are major sources of pollutants discharged to the waters of Hillsborough County. The Environmental Protection Commission, in cooperation with the Florida Department of Environmental Protection uses a permit process as the primary tool for controlling water pollution from the industrial and domestic sources. Stormwater management is also addressed through a permitting process, this is administered by the Southwest Florida Water Management District.

Inventory and analysis of all point sources discharged into the Tampa Bay estuarine system revealed 59 sources along rivers or directly on the Bay (Moon, 1985). In 1980, these point sources contributed 190 billion gallons of water, carrying 2.35 and 3.58 million pounds of phosphorous and nitrogen, respectively, to the Bay. Among the four major rivers contributing to Tampa Bay, the Alafia River contributed 75% of all water discharged from permitted point sources. This volume is attributed to the extensive phosphate mining operations in Polk and Hillsborough Counties. Although this is a high volume, the greatest nutrient loads were discharged by municipal wastewater treatment plants discharging directly into Tampa Bay. Wastewater treatment plants accounted for 78% and 84% of the annual phosphorous and nitrogen loadings, respectively, in 1980.

In 1996, all sewage treatment plants discharging into Tampa Bay and its tributaries provide Advanced Wastewater Treatment, a process that can reduce nitrogen loading from effluent by as much as 90 percent. The retrofit of Tampa's Howard F. Curren facility at Hooker's Point, the areas largest plant, has been a catalyst in the bay's water quality recovery. On a Bay-wide scale, other factors involved in this reduction include alternative effluent disposal methods (e.g., spray irrigation, deep-well injection), municipal and industrial water reuse, upgrading of treatment capabilities, and phosphate land reclamation projects. While advances in wastewater treatment and increased regulation have helped reduce pollution, sewage treatment plants and industries discharging into the bay still contribute substantial pollutants to Tampa Bay. The Tampa Bay National Estuary Program reports that sewage treatment plants in the watershed contribute approximately 340 tons of the Bays total annual nitrogen loadings. Although all sewage treatment plants with surface discharge to the Bay or Bay tributaries now provide Advance Wastewater Treatment, roughly 36 billion gallons of effluence are still discharged to the Bay each year with Hillsborough Bay receiving the largest portion. In 1991, this sector received two thirds of the cumulative nitrogen load from domestic wastewater treatment plants discharging into the Bay.

Wastewater discharged from industrial facilities in the Tampa Bay watershed is responsible for about 8 percent of the total nitrogen loading. The largest categories of industrial sources are fertilizer manufacturing and shipping

facilities. Despite progress in bay cleanup, nitrogen continues to be a key focus of concern for Tampa Bay. Excess amounts of this otherwise beneficial nutrient can pollute the bay by accelerating algae growth. Excess algae reduces light penetration to seagrasses and ultimately depletes the water of dissolved oxygen.

Industrial and municipal point sources are also pathways for toxic substances to enter the Bay. This contributes about 30 percent of the Bay's total loadings of arsenic, cadium, chromium and copper, as well as low levels of other contaminants. Homeowners also contribute by discarding toxic cleaners, or solvents that local sewage treatment plants cannot remove completely.

Non-Point Source Pollution: Non-point source pollution encompasses those sources of water pollution which are diffuse in nature, and generally refers to urban stormwater runoff. Sources of urban stormwater pollution have been identified as trash and litter deposited on streets and parking lots; erosion of exposed ground due to construction, lawn and landscape maintenance; domestic pet litter; automobile emissions; and atmospheric pollution. Following a storm event, these non-point sources of pollution are concentrated by stormwater collection systems and transported to a point of discharge.

Stormwater runoff from the Tampa Bay watershed contributes about 62 percent of the bay's total annual nitrogen load. Runoff also conveys more than 60 percent of the annual loadings from each of the following metals: chromium, zinc, mercury, and lead. Many toxic contaminants enter the bay attached to fine grained particles in stormwater runoff. Consequently, total suspended solids also are regarded as pollutants. Solids suspended in the water are of concern because they reduce water clarity and sunlight available for seagrass growth.

More than half of the nitrogen in urban runoff comes from residential areas, the region's largest land use. By comparison, commercial/industrial sites account for about 7 percent of total nitrogen in urban runoff, although their per acre contribution is higher than that of residential uses. (Zarbock et.al. 1994). Runoff from intensive agricultural land uses contribute about 12 percent of total bay loadings along with pesticides. Agricutural runoff from pastures and range lands account for 17 percent of total bay nitrogen loadings, with forests and wetlands contributing 6 percent, and mining the remaining 6 percent.

Per-Acre Nitrogen Loadings from Non-Point Sources

	% Loading	% Watershed	Yield lbs/ac/yr
Residential	14	15.5	4.52
Commercial	7	6.4	5.26
Industrial/Institutional			
Mining	6	3.2	4.97
Range and Pasture	17	28.4	2.81
Intensive Agriculture	12	6.5	5.63

Undeveloped Land	6	39.93	1.15

Source: *Tampa Bay Estuary Program, 2003*

Tributaries: Freshwater discharges to an estuary are critical to the maintenance of good circulation and flushing, as well as the salinity gradient required by numerous estuarine-dependent fisheries. Four major rivers, the Hillsborough, Alafia, Little Manatee and Manatee, flow into Tampa Bay. Another, the Palm River, once drained lands between the Hillsborough and Alafia Rivers, but has been completely channelized and controlled since 1970 and is now called the Tampa Bypass Canal. All but the Manatee River occur in Hillsborough County. The Hillsborough and Manatee Rivers are impounded as municipal reservoirs. Some of the flow of the Little Manatee is withdrawn for power plant cooling water, but it is otherwise regarded to be the least disturbed river flowing to Tampa Bay. The Alafia has been affected by phosphate mining and processing and is impounded at places.

Numerous lesser tributaries and three major flood control channels also drain into Tampa Bay. Many unrated creeks and streams drain 879 square miles of coastal watershed between river basins; several of these have been channelized, filled, or modified beyond rehabilitation. Three restorable streams are Double Branch Creek in upper Old Tampa Bay, Bullfrog Creek south of the Alafia River, and Piney Point Creek near Port Manatee. Other tidal streams entering into rivers have not been modified as much as the urban streams.

Circulation and Flushing: Circulation refers to the paths taken by water currents and their constituents due to tidal forces, runoff, wind, and other effects. Flushing is the net retention or export of water or waterborne material after circulation has occurred over a given period of time. Both circulation and flushing in estuaries are largely determined by the relationship of freshwater inflow to tidal volume. In Tampa Bay, freshwater inflow from rivers, sewage plant effluent and rainwater runoff contribute some localized flushing. This however, is exceeded by the tidal volume by a factor of 500 or more, making it a comparatively sluggish estuary with regard to both circulation and flushing.

The Environmental Protection Commission reports that a complete tidal cycle for Tampa Bay requires 14 and a half days in which a cycle of two high and two low tides predominates.

Eutrophication: Eutrophication is defined as the process of increasing dissolved nutrient concentrations (nitrogen and phosphorous) to a point where nutrient enrichment produces certain characteristic responses in a water body. These responses include algal blooms, noxious odors, decreases in water clarity, declines in dissolved oxygen, and periodic fish kills.

Studies performed by the Department of Environmental Protection, the U. S. Geological Survey, and the City of Tampa concluded that urban runoff from streets, parking lots and lawns could contribute up to 25% of the biochemical oxygen demand, 35% of the suspended solids, and 15% of the nitrogen loading to Hillsborough Bay. These studies further suggested that stormwater runoff is

a major source of nutrient enrichment to the entire Tampa Bay estuarine system.

The control of nutrient loadings from stormwater runoff will most likely be a more intractable problem. The State stormwater rule (Chapter 17-25, F. A. C.) currently requires that newly-constructed drainage facilities provide water quality treatment of runoff prior to discharge. However, little can be done to reduce current loading rates, as retrofitting of stormwater treatment facilities is most likely economically prohibitive. Retrofitting will probably only occur on a piecemeal basis as redevelopment occurs in previously urbanized areas.

Dredge and Fill: It has been estimated that the original surface area of the Tampa Bay estuarine system has been reduced by 3.6%, or 13.15 square miles, due primarily to the filling of shallow tidal wetlands for development. Of this acreage, about 11% was for the construction of causeways, 15% each for residential and commercial (power plants) development, and 60% for port development including channels, filled sites, and dredged material disposal sites. This development resulted in the filling or excavation of 44% of the Bay's marsh and mangrove habitat, and contributed, through direct destination or increased water turbidity, to the loss of 81% of the Bay's seagrasses.

Because of scientific documentation of the value of tidal wetlands as wildlife and fisheries habitat in the early 1970's, the type of large-scale dredge and fill projects which were routinely permitted by regulatory agencies in the 1950's and 1960's are no longer permitted, and any proposed project undergoes close scrutiny.

Freshwater Flows to the Bay: More than 60 years of marine research has shown conclusively that low-salinity estuarine water, combined with the physical protection and energy sources supplied by marine plants, constitutes the primary nursery habitat for most of the commercially and recreationally important fish and shellfish species in the Gulf of Mexico. In addition, freshwater flows into estuaries are critical to maintaining normal circulation and flushing patterns.

With the population of the Tampa Bay area growing rapidly, public demand for increased diversion of freshwater is expected to grow. It is critical that future plans to divert additional flows of freshwater away from the Bay receive careful biological study.

Fisheries: The health of Tampa Bay's fisheries is important to the economic and recreational value of the Bay. Thus, it is important that the enhancement and restoration of fishery stocks be identified as a key measurable objective for all future estuarine management efforts.

Available commercial landings data and anecdotal evidence strongly indicate that both finfish and shellfish stocks have declined significantly in Tampa Bay since the early 1950's. The loss of wetland habitat (especially seagrasses) and degraded water quality are cited most often as the cause for these declines, although excessive commercial fishing pressure has also been identified as a contributing factor. More recently, the diversion of freshwater and the

resulting alteration of critical low-salinity nursery areas has been cited as a potential problem for many estuarine-dependent fisheries.

The future of Tampa Bay's fisheries under the projected growth scenario will be primarily dependent upon the success of measures taken to control nutrient enrichment of the Bay, restore habitat and provide adequate freshwater flows

Coastal Redevelopment Needs and Potential

Because Hillsborough County's coastal shoreline is a limited natural and economic resource, it is in the public interest to ensure the maximum beneficial and efficient use of coastal lands.

Because of the relative youth and viability of the existing development within Hillsborough County's coastal shoreline, there is not a major need for extensive areawide redevelopment efforts. In localized areas, however, there is a need for redevelopment of individual properties or small land areas. Shell mining located within the southern sectors of the County's coastal zone is a temporary enterprise, affording the opportunity for redevelopment/reclamation of the sites. The issue of immediate concern is the reclamation of existing mined-out areas. One possibility may be to require the creation of functional water bodies in former mine areas and the utilization of them as recreational areas and/or residential developments capitalizing on the amenity potential of the water bodies.

In the Port Sutton and Port Redwing areas of the County there is a need for intensive redevelopment of individual structures and small land areas. Since many of the derelict structures are in private ownership and management, incentives to encourage private investment and redevelopment may be needed, thus lessening the need for new water-dependent and water-related facilities in pristine, undeveloped areas, where the adverse fiscal and environmental impacts will be most greatly felt. The need for maximum efficiency of coastal land use is obviously crucial to effective long range coastal planning and natural resource/amenity conservation.

Intergovernmental Coordination

Existing Regulatory Programs: Currently, management of the Tampa Bay estuarine system and adjacent coastal waters is fragmented amongst a multitude of federal, State and regional regulatory agencies, as well as seventeen local governments bordering the Bay. Management is accomplished through the implementation of various monitoring, permitting and regulatory programs. However, under the existing management framework, jurisdictions are often overlapping, interests are often conflicting, and no one agency has overview authority for the Bay, or manages it as a holistic natural resource.

The major agencies currently involved in the management of estuarine wetland habitat in the Tampa Bay region include the following:

Federal

- U.S. Army Corps of Engineers (USACE)

- U.S. Fish and Wildlife Service (USFWS)
- U.S. Environmental Protection Agency (EPA)
- U.S. Department of Commerce (NOAA)
- National Marine Fisheries Service (NMFS)

State
- Florida Department of Environmental Protection (formerly the Florida Department of Environmental Regulation [FDER] and the Florida Department of Natural Resources [FDNR]; merged in July, 1993))
- Florida Fish and Wildlife Conservation Commission (FWC)
- Florida Department of Community Affairs (FDCA)

Regional and Local
- Southwest Florida Water Management District (SWFWMD)
- Tampa Bay Regional Planning Council (TBRPC)
- Tampa Port Authority (TPA)
- Environmental Protection Commission of Hillsborough County (EPC)
- Counties and Municipalities

Federal: The U. S. Army Corps of Engineers (USACE) has a broad range of regulatory and permitting authority for dredge and fill projects within estuarine waters. Jurisdiction and regulatory functions are based on Section 10 of the Rivers and Harbor Act of 1899 and Section 404 of the Clean Water Act of 1977. During the permitting process, the USACE solicits recommendations on the permissibility of projects from the U. S. Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NMFS), and the Environmental Protection Agency (EPA).

The USFWS reviews and provides recommendations on the impact of projects on fish and wildlife habitat, pursuant to authority granted by the Fish and Wildlife Coordination Act (FWCA), Endangered Species Act, and the Marine Mammal Protection Act. The NMFS, under the Magnuson Fisheries Conservation and Management Act and the FWCA, is responsible for habitat protection and fisheries management for estuarine and marine fishes. The NMFS advises the USACE concerning the impact of projects on fish and wildlife habitat under these Acts and provisions of the Endangered Species Act and the Marine Mammal Protection Act. Although the EPA has the responsibility for establishing and enforcing national water pollution control standards, through the Clean Water Act and the National Pollutant Discharge Elimination System, the USACE is the permitting agency for dredge and fill projects and can veto permits under the authority granted in Section 404(c) of the Clean Water Act. The EPA provides comments to the USACE on the permissibility of projects with respect to water quality impacts.

In addition to providing comments on dredge and fill permit applications, the USFWS manages public use of three National Wildlife Refuges within the Tampa Bay Region, including Egmont Key, Passage Key, and the Pinellas Wildlife Refuge (six mangrove islands, including Tarpon Key in Boca Ciega Bay).

Within the U. S. Department of Commerce, the National Oceanic and Atmospheric Administration's Office of Coastal Zone Management (CZM) has a planning and review role in the coastal zone. Under the Coastal Zone Management Act, the CZM has the responsibility to preserve, protect, develop, and, where possible, restore and enhance the resources of the coastal zone. The CZM grants money to states with approved coastal zone management plans and has the responsibility for reviewing large projects for consistency with those plans.

State: Most of the regulatory and permitting authority for dredge and fill projects within estuarine waters of Florida is held by the Florida Department of Environmental Protection (FDEP). As part of the permit process, the FDEP solicits comments from affected parties and local governments. Comments are also received from either the Florida Fish and Wildlife Conservation Commission (FWC) concerning the effects of a project on fish and wildlife habitat and endangered or threatened species (as authorized by the Florida Endangered and Threatened Species Act of 1972).

The role of the FDEP in this process is also to administer and enforce regulations for use of submerged and tidal land belonging to the State, as authorized in Chapter 253, Florida Statutes, with administrative procedures in Florida Administrative Code, Rule 160-17. The FDEP comments on the use of State-owned submerged lands, but the title and administrative control is still held by the Board of Trustees of the Internal Improvement Trust Fund, currently represented by the Governor and Cabinet. Use of State-owned submerged land is typically not granted if the comments are unfavorable.

As part of the responsibility for the regulation and management of fish and wildlife habitat in marine and estuarine waters, FDEP manages the four Aquatic Preserves in the Tampa Bay region, including the Cockroach Bay Aquatic Preserve, the Pinellas County Aquatic Preserve, the Boca Ciega Bay Aquatic Preserve and the Terra Ceia Aquatic Preserve. Aquatic preserve designation limits the extent of dredging, filling and construction in the preserve, in accordance with Section 258.42, Florida Statutes. Basically, beyond “reasonable ingress or egress by riparian owners,” only projects clearly in the “public interest” can be permitted in an aquatic preserve.

The FDEP is also responsible for acquisition of lands for preservation as wildlife habitat and recreational areas. An example is the Bower Tract, a 627 acre tract in northern Old Tampa Bay, which has been purchased under the Conservation and Recreation Land Program (CARL). In addition, FDEP administers funds collected from gill net license fees in Hillsborough, Manatee, Pinellas and Pasco Counties for the sole purpose of performing estuarine fisheries habitat research and restoration.

The FDEP is also responsible for protection of water quality. The FDEP, through broad regulatory and enforcement powers defined by the Clean Water Act, has the permitting and enforcement responsibility to protect and improve water quality. The Florida Department of Community Affairs (FDCA) has a limited planning role in the Tampa Bay region, primarily through the Development of Regional Impact (DRI) process. FDCA is also responsible for

designating Areas of Critical State Concern (ACSC), of which the Green Swamp in Polk County is the only one locally.

Regional and Local: The Environmental Protection Commission, in cooperation with the Florida Department of Environmental Protection, uses a permit process as the primary tool for controlling water pollution from industrial and domestic sources. Both the FDEP and the Southwest Florida Water Management District (SWFWMD) regulate the flow of surface water into Tampa Bay and coastal estuaries. The FDEP has delegated its authority for implementing stormwater regulations to the Southwest Florida Water Management District. The SWFWMD controls groundwater levels by issuing and monitoring Consumptive Use Permits (CUPs), and controlling discharges from upland canals. In addition, the SWFWMD permits construction within, and uses of, the waters of canal systems within their district, and sets minimum flow levels for coastal rivers and tributaries.

The Tampa Bay Regional Planning Council (TBRPC) has the leading natural resource planning role in the Tampa Bay region. Pursuant to the provisions of the Clean Water Act, TBRPC was delegated the responsibility for preparing the Areawide Water Quality Plan (AWQP) and numerous related studies, including a Reservoir Protection Plan and a Groundwater Protection Plan. In 1984, the Florida Legislature established the Tampa Bay Management Study Commission, which was given a one-year mandate to develop a management plan for Tampa Bay. The Commission, which was to be housed within and staffed by TBRPC, completed its final report, entitled The Future of Tampa Bay (TBRPC, 1984), and submitted it to the Legislature in 1985. In addition to numerous special planning studies, the TBRPC also performs technical reviews, coordinates all agency comments, and issues recommended Development Order conditions for Developments of Regional Impact within the region.

The Tampa Port Authority (TPA) has permitting authority and jurisdiction pursuant to Chapter 84-447, Florida Statutes, Special Acts of 1984. The prime mandate of the TPA is to promote and manage the navigable waters of Tampa Bay for port development. TPA sponsored the Tampa Harbor Deepening Project. Jurisdictional waters include all tidal waters of Hillsborough County, Lake Thonotosassa, Lake Keystone, the Alafia River, the Hillsborough River and the Little Manatee River. Involvement in dredge and fill projects includes assessments of the engineering, hydrographic, and biological aspects of various dredge and fill and construction projects by the TPA Environmental Affairs Department. In addition, TPA performs limited research and sponsors habitat restoration projects.

Most local government organizations in the Tampa Bay area have the opportunity to review and comment on applications during state and federal permitting processes. The TBRPC and county governments surrounding Tampa Bay (Hillsborough, Pinellas, and Manatee) comment on the permissibility of applications to the federal, State and local permitting agencies according to their local regulations. Hillsborough County receives money from the TPA permit fees to pay for review of applications by the Environmental Protection Commission and The Planning Commission. The FDEP has

delegated some responsibilities for water quality programs to county agencies, and most of the local governments have developed ordinances or policies aimed at controlling the impact of development on water quality. Manatee and Hillsborough Counties have conducted routine monitoring studies within Tampa Bay and its tributaries. Local governments have a limited role or jurisdiction over habitat management. At this level, the emphasis has primarily been on County managed-parks, including: Upper Tampa Bay Park (Hillsborough County), E. G. Simmons Park (Hillsborough County), and Fort DeSoto Park (Pinellas County). The Environmental Protection Commission of Hillsborough County, however, issues a separate permit for dredge and fill projects in both tidal and isolated wetlands.

Most of the municipal governments in the Tampa Bay region require construction permits for structures in the coastal area. The local permit process typically does not include an extensive environmental assessment, and municipal governments generally do not have adequate staff to comprehensively review federal and State applications on an ongoing basis.

In summary, responsibility for the management of coastal and estuarine resources in the Tampa Bay Region is fragmented along legal and political lines, and no ecosystem-level management exists at this time. Although numerous permits must be obtained before a proposed project can proceed, there is no overall plan to ensure consistency between agencies in the issuance of permits, nor are the overall cumulative impacts of several projects considered during the review process.

The Surface Water Improvement and Management (SWIM) Program

With the passage of the Surface Water Improvement and Management (SWIM) Act of 1987, the Southwest Florida Water Management District was mandated the responsibility for improving, maintaining, restoring and protecting Tampa Bay and its tributaries. As required under the Act, SWFWMD must identify surface water bodies in the Tampa Bay drainage basin for conservation and restoration and develop work programs to manage those activities. The programs are to be funded by the Legislature and staffed by SWFWMD.

On August 1, 1988, the SWFWMD published the Surface Water Improvement and Management Program for Tampa Bay. In this plan, five priority issues have been identified as critical to the management, restoration and preservation of the Bay, including:

- Water quality improvement;
- Habitat protection and restoration;
- Fisheries and shellfish management;
- Development and use of the Bay; and
- Legal framework for comprehensive management.

Coordination Potential- The Future:

The Tampa Bay Estuary Program was established in 1991 to assist the community in developing a comprehensive plan to restore and protect Tampa

Bay. The Program receives local administrative support from the Tampa Bay Regional Planning Council.

The landmark agreement establishing the Tampa Bay Program brought together Hillsborough, Pinellas and Manatee counties; the cities of Tampa, St. Petersburg and Clearwater; the Southwest Florida Water Management District; the Environmental Protection Commission of Hillsborough County; Florida Department of Environmental Protection; and the U.S. Environmental Protection Agency in a partnership committed to action.

The missions of the Estuary Program are: to set reasonable, achievable goals for the estuary's recovery; to coordinate the many new and ongoing bay management initiatives, from small-scale efforts that focus on individual segments of the bay to broad-based programs that address the estuary as a whole; and to determine how best to implement these programs in the future to avoid costly and ineffective duplication of efforts.

Additional roles of the Tampa Bay Program include evaluation potential options and costs of bay management strategies on a site-specific basis, and developing scientific and economic models to help bay managers attain the goals of the management plan.

The Tampa Bay National Estuary Program has also published "Charting the Course for Tampa Bay" which is the basis for the "Comprehensive Conservation and Management Plan for Tampa Bay".

The Comprehensive Conservation and Management Plan for Tampa Bay contains action plans that address the following areas:

- Water and Sediment Quality
- Bay Habitat
- Fish and Wildlife
- Dredging and Dredged Material Management
- Spill Prevention and Response

9J-5.012(2)e- Natural Disaster Planning

Hillsborough County is susceptible to a wide variety of natural disasters. In response to that susceptibility, Hillsborough County has prepared a Comprehensive Emergency Management Plan (CEMP), in cooperation with the incorporated cities, the Tampa Bay Regional Planning Council and the State of Florida Division of Emergency Management. The CEMP establishes: the procedures for disseminating warnings and reporting the severity and magnitude of any disaster; operational procedures for governments' and disaster organizations' response to disasters; a framework for expeditious, effective and coordinated employment of resources; procedures for requesting State and federal assistance; and a description of recovery and mitigation operations.

The Tampa Bay region, including Hillsborough County, has been identified by the National Weather Service as one of the most hurricane-vulnerable areas of

the United States, with the potential for large scale loss of life. For purposes of this document, natural disaster planning will focus on a hurricane event.

The County's vulnerability to a hurricane is a result of several factors, including its location on Tampa Bay and the large number of people living in low-lying coastal areas and in mobile homes. The choice of individuals to live in coastal areas and/or mobile homes increases their susceptibility and vulnerability to the effects of the storm surge and high winds of hurricanes.

A hurricane is a regional phenomenon in terms of the geographic area affected by the hazards of a hurricane making landfall or closely approaching the coast of Florida. Just as a hurricane knows no political or jurisdictional boundaries, natural disaster planning must be carried out across jurisdictional boundaries and coordinated among local, State, and federal agencies.

Evacuation Zone Population*

Evac. Zone	Population 2004	Population 2015	Population 2025
A	88593	108489	122721
B	152653	183880	207651
C	221302	266570	302809
D	283217	338912	384838
E	318126	380260	432516

***This does not include Group Quarter (e.g. Nursing Homes, Military Barracks, School dormorities, long term hospital facitlies, etc.)
Source; Hillsborough County City-County Planning Commission, 2005.

Hazard Vulnerability Analysis

Hazard vulnerability is the likelihood of a particular area to experience a natural disaster. For purposes of this discussion, a natural disaster is limited to a hurricane. The hazard vulnerability analysis includes information and data to identify the geographical area, the population, and the public facilities susceptible to the impacts of a 100-year or Category 3 hurricane event.

The hurricane vulnerability zone is defined as the area requiring evacuation in a Category 3 storm event. A Category 3 hurricane has winds of 111 to 130 miles per hour and storm surge 13 to 18 feet above normal. The hurricane vulnerability zone is shown graphically, on the TBRPC Storm Tide Analysis and the designated evacuation areas are shown on the Hillsborough County Hurricane Guide. The Hurricane Guide also shows evacuation routes and designated shelters.

In addition to identifying the vulnerability zone, the coastal high hazard area (CHHA) must be defined. The CHHA is defined as the area defined in the most current regional hurricane evacuation study as requiring evacuation during a category one hurricane. The CHHA is graphically represented on attached maps.

Evacuation

Evacuation is required in the event of a hurricane. Consequently, an analysis of the number of persons requiring evacuation, the number of public shelter

spaces available, the number of public shelter spaces required, and evacuation route transportation constraints is required.

The number of persons requiring evacuation is calculated as "population-at-risk." This is the total population within the Hurricane Evacuation Zones. It is important to note that this will not likely be the number of people who actually evacuate, because many who live in evacuation zones choose not to evacuate. In addition, some who are not in an evacuation zone will choose to evacuate ("Shadow Evacuation"). It is also important to note that the "population-at risk" is not the population that will require public shelter space, as many will evacuate to other locations such as hotels and the homes of friends and family.

POPULATION-AT-RISK
HILLSBOROUGH COUNTY
2006

	EVACUATION LEVEL				
Level	***A***	***B***	***C***	***D***	***E***
	148,338	***230,748***	***292,052***	***350,934***	***411,280***

Source: Tampa Bay Region Hurricane Evacuation Study 2006, Tampa Bay Regional Planning Council; November, 2006.

POPULATION-AT-RISK
HILLSBOROUGH COUNTY
2011

	EVACUATION LEVEL				
Level	***A***	***B***	***C***	***D***	***E***
	166,682	***256,156***	***322,563***	***386,507***	***452,373***

Source: Tampa Bay Region Hurricane Evacuation Study 2006, Tampa Bay Regional Planning Council; September, 2006.

The population figures included in this document are Countywide totals, including unincorporated Hillsborough County and the three municipalities: Tampa, Plant City, and Temple Terrace.

Evacuees Seeking Public Shelter: In the hurricane evacuation planning process, an indication of shelter destinations sought by potential evacuees is useful for determining adequate public shelter capacity based on expected demand, as well as aiding in the computation of evacuation times. Population analyses and behavioral surveys indicate that ultimate evacuee destinations include a variety of choices: 1) friend's or relative's homes, 2) hotel/motels, 3) public shelters, or 4) out of the region.

Hurricane Public Shelter Availability: The Annual County Hurricane Guide identifies public shelters available for each hurricane season. The County, with state assistance, is attempting to add shelter space to address deficits.

Hillsborough County, in coordination with the State, will need to address the existing shelter deficit for major storms and the possibility of future deficits based on a county-wide projected annual population growth of 1.5%.

Shelter Demand
Hillsborough County
2006

Evacuation Level	**A**		**B**		**C**		**D**		**E**	
Seasonal Fluctuation	Low	High	Low	High	Low	High	Low	High	Low	High
Capacity = 55,282	16,532	16,884	38,260	38,610	51,247	51,602	65,806	66,156	73,941	74,289

Source: Tampa Bay Regional Hurricane Evacuation Study 2006, Tampa Bay Regional Planning Council; November 2006.

To determine the shelter demand the following assumptions were made: 15% of the surge-vulnerable population-at-risk plus 40% of the mobile home residents (50% occupancy) plus 25% of the shadow evacuation population (10-25% participation rate).

Shelter Demand *Hillsborough County* *2011*										
Evacuation Level	**A**		**B**		**C**		**D**		**E**	
Seasonal Fluctuation	Low	High	Low	High	Low	High	Low	High	Low	High
Capacity = 75,000	18,561	18,924	42,487	42,848	56,646	57,012	72,586	72,954	81,463	81,833

Source: Tampa Bay Regional Hurricane Evacuation Study 2006, Tampa Bay Regional Planning Council; November 2006.

It is important to note the table is for all of Hillsborough County. It is not broken down for individual jurisdictions.

Conclusion: For Year 2006 there is an estimated shelter space deficit for evacuation level D and E. The County recognizes that there is a need to increase the amount of shelter capacity available. One of the measures to increase shelter capacities is to retrofit existing public schools to make them more wind-resistant. State funding is being provided for this purpose. In addition, newer schools with more wind-resistant characteristics will be added as shelters by the County as they come on line. Objectives and policies of this element support the expansion of shelter space to accommodate estimated shelter demand.

Transportation Constraints

The Tampa Bay Regional Planning Council (TBRPC) has prepared transportation models to determine the best available evacuation routes for Tampa/Hillsborough County residents and visitors. These models identify several factors that contribute to determining the optimum evacuation route. These factors include areas-at-risk, public shelter location, inter-jurisdictional traffic impacts, and expected behavioral responses of the population at risk.

One of the most important factors in hurricane preparedness is the understanding of "evacuation time" which is defined as the amount of time prior to projected landfall that an evacuation order must be given in order to allow the completion of a safe evacuation. Evacuation time has two components: clearance time and pre-landfall hazards time.

Clearance time is composed of three contributing portions of time resulting from the response and relocation process: 1) mobilization time, or how long it would take a household to begin evacuation; 2) travel time, a function of the specific distances of the collective evacuation trips and attainable speeds; and 3) queuing delay time, or the time delay that occurs when the total volume of vehicles assigned to a roadway link exceeds that link's capacity. Clearance times are used to allow the evacuation to be completed prior to the arrival of tropical storm force winds.

CLEARANCE TIMES (IN-COUNTY MOVEMENTS)
HILLSBOROUGH COUNTY (HOURS)

2006										
EVACUATION LEVEL										
	Level A		Level B		Level C		Level D		Level E	
Season	Light	Heavy	Light	Heavy	Light	Heavy	Light	Heavy	Light	Heavy
Low	16.5	19.25	18.5	21.75	19.25	21.75	20.5	23	23	25.75
High	18.5	21.5	20.5	24	21	24	22.25	25.25	25	28

The clearance times (19.25-24 hours "in-county movements", Category 3) for Hillsborough County are generally quite large, which means that typical hurricane watch and warning time frames will not allow all desired evacuation movements to take place. Specifically, this means that some evacuees who want to leave the region will have to take refuge locally.

9J-5.012(2)e-Special Needs Population

A hurricane evacuation requires not only the evacuation of able-bodied, vehicle-owning residents but also a population consisting of elderly, handicapped, disabled, or individuals lacking personal transportation. Recognizing this special need, the Hillsborough County Office of Emergency Management has provided such residents the opportunity to register with the County regarding their special needs. Residents are encouraged to register with the County so that during an evacuation they can be safely evacuated.

There are typically approximately 5000 people with special needs on the registration list. Of these, approximately 2500 would have to evacuate for a Category 3 hurricane. The total special needs sheltering capacity is 2500. This capacity is considered sufficient to take care of those registrants who would actually seek public shelter (a lesser number than registered would actually use public shelters) plus unregistered "walk-ins" to the shelters.

In addition to special evacuation needs of individuals living in private residences in vulnerable areas, certain hospitals and nursing homes are vulnerable to hurricane storm surge. Two hospitals, Tampa General and MacDill Air Force Base Hospital are subject to storm surge in a Category 1 storm event, and Kindred South Hospital and Town & Country Hospital are in a Category 2 storm surge zone. There are three nursing homes in the Category 2 storm surge zone and one in the Category 3 storm surge zone. Patients of hospitals and nursing homes which must evacuate will be transferred to like type facilities out of the evacuation zones. If any of these facilities have resource shortfalls to conduct evacuations, Hillsborough County Emergency Management Department will coordinate whatever resources are necessary.

Associated with special evacuation needs is the availability of public transportation in the event of a hurricane. Hillsborough County will utilize buses and vans from the School Board, Hartline, social service agencies and public and private ambulance services to meet the needs of the special evacuation population. The County has also established a system of bus routes to evacuate residents who need transportation to public shelter. Additional information regarding emergency transportation is included in the Comprehensive Emergency Management Plan (CEMP).

9J-5.012(2)e-Hazard Mitigation

Recognizing that Hillsborough County is vulnerable to a hurricane storm event, government is responsible for ensuring that human life is protected and property damage is minimized in flood-prone and coastal high hazard areas; that land use and development patterns are consistent with the vulnerable nature of the coastal high hazard and inland flood-prone areas; and that natural systems and vegetation that serve to reduce the impacts of severe weather are protected and preserved. In order to accomplish these ends, Hillsborough County must consider available options to reduce or limit exposure in the coastal high hazard area; develop guidelines/procedures for development in the coastal high hazard area; propose alternatives to reduce clearance times or reduce deficit public shelter space; and develop methods to redirect population concentrations away from the coastal high hazard area.

One step in this process is the *Local Mitigation Strategy: Risk and Vulnerability Assessment, 1998-1999*. This report, a cooperative effort between unincorporated Hillsborough County, the Cities of Tampa, Plant City and Temple Terrance, was funded through a grant from the Florida Department of Community Affairs and the U.S. Department of Energy. This report serves as the basis for subsequent study to reduce the potential losses from disasters such as hurricanes in the future.

Hillsborough County has adopted a flood management ordinance that is more restrictive than the model developed by the Southwest Florida Water Management District; the County's building code complies with Section 161.56 (1), Florida Statutes. In addition to these regulations, Hillsborough County has also adopted a sign ordinance which controls the maximum size of signs. In general, the County's Land Development Code exceeds minimum standards for flood protection as illustrated under 44 CFR. The adoption of this ordinance, accompanied by the policies proposed in this element, should reduce the cost of debris clearance in the event of future hurricanes. Policies proposed in this element to reduce or limit exposure in the CHHA include:

- Mitigating the impacts of development on evacuation routes and/or public shelter space.
- Notifying residents in the hurricane vulnerability zone regarding need to evacuate, evacuation routes, and public shelter locations.
- Removal of trees susceptible to high wind damage from evacuation routes. Replacement with trees less susceptible to high winds.
- Projects in the CHHA shall be subject to site plan controlled zoning.
- Certain proposed uses (e.g. heavy industrial, schools, and mobile home parks) shall be reviewed on a case-by-case basis to determine appropriateness.
- Water-dependent and water-related uses shall be given priority.
- Lower DRI thresholds, in all categories, to discourage large-scale developments in the CHHA.
- Performance standards shall be developed for the CHHA.

The Hurricane Refuge Alternative Study prepared by the Tampa Bay Regional Planning Council assesses the feasibility of vertical evacuation with respect to structural/technical, operational, legal, and perceptual issues. As discussed previously, if vertical evacuation is to be considered as a viable alternative, even on a limited basis, an in-depth analysis of each building and location must be done. Decision-makers must act on the basis of some form of risk/benefit analysis. The risk/benefit analysis will produce the level of risk that is socially acceptable to the individual or governing body, depending upon the extent to which the benefits will out weigh the risks.

In addition to vertical evacuation, for which the benefits of reducing shelter space deficits is uncertain, an additional means to reduce shelter space requirements is to require mobile home parks to build a structure suitable for evacuation in the event of a hurricane. Over 76,000 mobile home residents are required to evacuate in any given storm event. Plan policies address new mobile home parks; however, consideration should be given to requiring existing parks to add shelters.

Post-Disaster Redevelopment

Hillsborough County has an estimated 293,925 individuals (40% of total population) vulnerable to the effects of a worst case hurricane scenario. Therefore, a plan for how to deal with not only the mechanics of redevelopment (how much it costs to repair or replace damage or destroyed structures; what development standards should the redevelopment be required to meet; the post-disaster timetable; etc.) but also the more esoteric issue of whether redevelopment should occur at all, must be prepared.

Hillsborough County's hurricane structural damage projections, as conducted by the Tampa Bay Regional Planning Council in *Tampa Bay Region Hurricane Loss and Contingency Planning Study, 1983*, are set forth as guidance for preliminary hurricane damage assessments. While hurricane damage scenario boundaries referenced in the above report have altered somewhat from existing configurations, the structural loss assessments are still informative for evaluating the possible levels of property damages under varying hurricane intensities in the County.

A high concentration of structural loss has been projected for the coastal high hazard area during a Scenario A (Category 1) hurricane, thereby reflecting the vulnerability of those zones to both overland storm surge and high winds; the remaining zones are only vulnerable to winds in a Category 1 storm. The total projected structural damage for this minimal hurricane scenario in Hillsborough County is approximately $292 million. A medium strength hurricane (Scenario C) is projected to destroy approximately $904 million worth of property, two-thirds of which is single-family residential structure damage. The very low probability hurricane Scenario E damage is projected to exceed $3 billion in structural losses.

Although federal assistance is available to state and local governments in the event that a storm results in a Presidential disaster declaration, a precondition to receiving federal disaster assistance is that state and local governments

agree to bear 25% of the total costs to repair or restore the impacted areas to pre-disaster conditions. The availability of this 25% match could be a critical issue depending upon the intensity of the storm.

In accordance with Chapter 129, Florida Statutes, Hillsborough County maintains a reserve for contingency fund that does not exceed 10% of the annual budget, the maximum permitted by law. Funds to meet the 25% match would be drawn from this account in the event of a disaster. The reserve for contingency fund would also be used in the unlikely event that a Presidential disaster declaration is not made. Moreover, if the funds in that account are not adequate to repair or replace public facilities, a reallocation of budgeted funds would occur. In the worst case scenario, when funding sources are depleted, the County would borrow the funds through a tax revenue anticipation note.

An issue closely related to fund availability is: should the infrastructure or facility be repaired or replaced, or should the facility or infrastructure be relocated outside of the coastal high hazard area? A decision-making framework needs to be established by the County in order to determine if the infrastructure or facilities should be relocated, have structural modifications or be replaced. After Hurricane Elena, the Florida Department of Community Affairs, as lead agency, conducted three (3) case studies to evaluate the effectiveness of existing and new State programs in reducing storm damage along the coast. The case studies focused on the feasibility of eliminating, relocating, or structurally modifying public infrastructure which suffered storm damage, and to implement such determinations where feasible. The decision-making format included the following analyses:

- Costs
- Environmental Impacts
- Mitigative Impacts
- Growth Management Consistency
- Impacts on the Public
- Timeliness
- Legal Issues
- Availability of Funds
- Is the infrastructure necessary?

It is a recommendation of this element that the above decision-making format be utilized and/or modified by Hillsborough County. For a detailed description of the decision-making model, refer to *Post-Disaster Hazard Mitigation Plan for the State of Florida, in response to Hurricane Elena and Hurricane Kate, June 1986*.

Once a decision that redevelopment will occur has been made, the standard at which redevelopment will occur must be determined. New construction in the coastal high hazard area must meet more stringent construction standards than did older development. Hillsborough County participates in the National Flood Insurance Program (NFIP), which requires that communities adopt minimum ordinances and regulations which address hazard mitigation and elevation requirements designed to minimize flood damage associated with hurricanes or other natural disasters. The problem, however, is that damaged

structures can be extensively improved without the improved portion being required to meet the minimum standards. Plan policy addresses the redevelopment of damaged structures in the coastal high hazard area.

In 1991, the County initiated a Post Disaster Redevelopment Task Force, which produced a Post Disaster Redevelopment Ordinance, adopted by the Board of County Commissioners in 1993. In 1995 the County, through a grant from the Florida Department of Community Affairs and in conjunction with the Tampa Bay Regional Planning Council, developed the "Model Local government Disaster Mitigation and Redevelopment Regulations" study.

Public Acquisition: The primary State land acquisition programs are the Conservation and Recreation Lands (CARL), Land Acquisition Trust Fund (LATF), and Save Our Coast (SOC) programs; however, none of the existing acquisition programs are specifically directed toward post-disaster acquisition. Federal acquisition falls under Section 1362 of the National Flood Insurance Act of 1968, which states that property damaged by a storm or flood event can be purchased with federal money and donated to the local government. However, the local governments in Florida have not utilized Section 1362 acquisition funds, primarily because of an inability to meet the strict eligibility requirements. Hillsborough County does accept the dedication of land in lieu of impact fees; however, the dedication is not restricted to coastal areas.

9J-5.012(2)f- Beach and Dune Systems

Existing Conditions

Beaches and dunes are built through the constant resuspension and deposition of weathered beach material (sand) along the turbulent land-sea interface known as the littoral zone. Beach and dune systems generally constitute the land masses associated with coastal barrier islands, and are thus a product of a high-energy wave environment.

Hillsborough County's one natural coastal barrier island on the Gulf of Mexico is Egmont Key, located at the mouth of Tampa Bay. This 300-acre island is the only coastal dune/strand vegetation in the County, and is an ecological showcase for the barrier island type environment. Egmont Key has been designated as a wildlife refuge by act of Congress (PL 93-341). As part of the National Wildlife Refuge System, Egmont Key is under federal jurisdiction (U. S. Coast Guard and U. S. Fish and Wildlife Service) which discourages any intensive recreational use.

The remainder of the Hillsborough County shoreline occurs along the low-energy waters of the Tampa Bay estuary. Although sandy beach formations can naturally develop along the more windward shorelines of bays and estuaries, their formation in Tampa Bay is relatively minor and limited due to the Bay's shallow depth. Consequently, no natural estuarine beaches of significance occur in Hillsborough County. There are, however, five major man-made and maintained sandy beaches in Hillsborough County and the City of Tampa, including three public and two private beaches.

The southern-most public beach in the unincorporated County is at E. G. Simmons Park, north of Ruskin. Apollo Beach, north of Ruskin, is the largest private beach in the unincorporated County. Bahia Beach, north of the mouth of the Little Manatee River, is a spoil deposition beach with an associated motel and residential area.

In addition to the beach areas above, several small and large dredged spoil islands in lower Hillsborough Bay and Old Tampa Bay are exposed to significant wave action and have thus developed beachfronts, which are used extensively by boaters as anchorages and for picnicking. However, none of these islands are currently maintained as either public or private recreational areas.

Areas Subject to Erosion/Accretion

As stated above, most of the sandy beach areas in Hillsborough County face low-energy wave regimes typical of estuaries. Therefore, rapid erosion of beach and dune systems is not a significant problem in the County.

Some of the man-made beach areas in the County are, however, subject to localized erosion problems. E. G. Simmons Park beach is subject to significant wave action, especially during winter months, when passing storm fronts approach from the northwest. In addition, the two prominent dredge spoil disposal islands, 2-D and 3-D, located in lower Hillsborough Bay have experienced considerable erosion along their western shorelines, due primarily to wave energy generated from passing ship traffic. There are no areas of significant sand accretion in Hillsborough County tidal waters.

Beach and Dune Protective Measures

Beach and dune systems are naturally in a state of dynamic equilibrium. The stability of these systems is often critically dependent upon the associated vegetative communities, which trap and bind sand particles with their root network. In addition, the stability of natural beach and dune systems is maintained by a constant source of sand, which is transported to and from the system by longshore currents. Although man-made structures (e.g. groins, jetties and breakwaters) may provide effective localized erosion protection and accretion, they often do so by disrupting the natural longshore flow of sand, thus causing reactive erosion problems downstream.

Man-made estuarine beaches, due to their low-energy environment, often do not have a natural source of sand to supplement erosion losses. Therefore, without either vegetative or structural stabilization, they are often subject to slow, regular erosion. Where feasible, beach and dune systems should be stabilized by enhancing natural vegetative communities.

Establishing new vegetative communities or supplementing existing growth may be feasible for several Hillsborough County beaches. Dune plantings would most likely benefit Apollo Beach, E. G. Simmons Park and possibly Bahia Beach. Egmont Key, although currently possessing stable dune

vegetation, would benefit from additional plantings, especially around areas of heaviest recreational use.

The erosion problems occurring on dredge spoil islands, especially 2-D and 3-D, have been analyzed by the Tampa Port Authority. Due to the slope and composition of the beachfront, as well as the adjacent deep water, it has been concluded that rock and/or concrete rip-rap would provide the most effective erosion control.

9J-5.012(2)g-Public Access

Public access includes boat ramps, fishing piers, beaches, and regional, district, neighborhood, and special parks.

Public access to the coastal area, either through publicly-owned property or dedicated private easements, is an issue that is becoming increasingly sensitive as the pressure to develop coastal areas intensifies. Because 94 percent of the County's coastal area is in private ownership, those areas in public holdings should not be lost through sale, vacation or transfer. Moreover, existing public access locations should be enhanced to more completely take advantage of the limited resource.

See the Public Access Map for an inventory of existing public access facilities including beach areas, fishing piers, boat ramps, and parks. This inventory has been coordinated with the Recreation and Open Space Element. The Recreation and Open Space Element should be referred to for more detailed information with respect to parks and recreation facilities.

Unincorporated Hillsborough County has only one public beach area, E. G. Simmons Park; the remainder of the coastal shoreline areas contain mangroves, making those areas inaccessible to the public. Any development, whether public or private, shall be done in accordance with applicable environmental regulations.

Beach utilization and access problems are most acute in the growing coastal urban areas along Tampa Bay, where competition for use of coastal areas is greatest. A potential area of concern is the coastal area fronting on Hillsborough Bay; fortunately, growth pressures in this area are not as acute as those on other portions of Tampa Bay, and the County can have some control over future development.

As population increases, so does the demand for public access, while at the same time, the amount of available waterfront land for public use decreases. Since the amount of coastal shoreline suitable for public access is limited in unincorporated Hillsborough County and the provision of recreational facilities is a County-wide concern, not merely restricted to the individual units of government, Hillsborough County should continue to coordinate with the Cities of Tampa, Temple Terrace and Plant City to provide adequate public access in the coastal area for all County residents.

9J-5.012(2)h-Coastal Public Infrastructure

Public infrastructure located in the coastal planning area is subject to hazards and damage that inland facilities do not experience. The following inventory and analysis summarizes the existing and projected infrastructure located within the coastal planning area and includes: roadways, bridges and causeways; sanitary sewer facilities; potable water facilities; and shoreline protection structures. In addition, although it is a for-profit utility, electric generating facilities and substations are inventoried and the potential loss of service analyzed.

Roadways, Bridges, and Causeways: Generally, level of service (LOS) "D" is used by Hillsborough County as the acceptable traffic operation standard. LOS D represents high-density, but stable flow with speed selection and maneuverability severely restricted; substantial delays and significant decreases in operating speed resulting from small increases in flow.

All evacuation routes located in the CHHA are currently operating at an acceptable LOS. However, based on the MPO 2025 Cost Affordable Long Range Transportation Plan (LRTP), parts of US Hwy 41 (Cockroach Bay Rd to 19th Ave NE and Apollo Beach Blvd to Riverview Drive) and Hillsborough Avenue / SR 580 (Double Branch Road to Memorial Hwy) will fall to an unacceptable LOS.

Further, planned improvements on parts of US Hwy 41 (Riverview Drive to Madison Ave) and Causeway Blvd (Maritime Blvd to 50th Street) identified in the LRTP presumably prevent these roadways from falling to unacceptable levels of service by the year 2025.

In addition, the bridge approaches at U. S. 41/Alafia River and U. S. 41/Little Manatee River have been identified as critical evacuation route points that are susceptible to flooding.

Wastewater Treatment Facilities: Unincorporated Hillsborough County does not have any wastewater treatment facilities located in the coastal planning area. However, the City of Tampa's Hookers Point Advanced Wastewater Treatment Plant, serving both County (approximately 12 percent of capacity is to unincorporated County) and City residents, is located in the CHHA. Hookers Point is projected for potential service disruption of two (2) days for a minimal hurricane scenario (Category 1) to fifteen (15) days for a medium scenario (Category 3).

Potable Water Facilities: Unincorporated Hillsborough County has three (3) potable water facilities located in the coastal high hazard area. All three facilities are located in the Apollo Beach area: a pump station and two (2) elevated storage tanks. None of these potable water facilities are projected to experience service disruption from structural damage under a Category 1 storm; however, under a Category 2 storm, the pump station and the Gibsonton elevated storage tank are projected for a five (5) and twelve (12) day service disruption, respectively.

Electrical Utility Facilities: Unincorporated Hillsborough County has two (2) electrical plants (Gannon and Big Bend) and several substations located within

the coastal planning area. All of these facilities are owned and operated by Tampa Electric Company (TECO). Of these facilities, only the Gannon Plant is projected for service disruption (2 days) in the event of a Category 1 storm. In a Category 2 storm the Big Bend Plant and 15 of the County's total 114 substations are projected to experience disruption of up to 5 days. Moreover, in a Category 3 storm all three electrical plants (Hookers Point, Gannon and Big Bend) and 18 substations would experience service disruption, most for up to fifteen (15) days.

Shoreline Protection Structures: Seawalls are the primary man-made coastal protection structures in the County. The remainder of the shoreline in the coastal planning area is comprised of beaches and naturally-vegetated areas. To date, a comprehensive inventory of seawalls has not been completed for the County. Routine maintenance and redevelopment are accorded to both private interests and the County. It is recommended that repairs and reconstruction of any seawalls should be consistent with the standards required under Chapter 61B-33, Rules and Procedures for Coastal Construction and Excavation (FDEP, Division of Beaches and Shores).

VII. Support Document Summaries

Hillsborough County Local Mitigation Strategy (LMS), 1999
Environmental Protection Commission, *Surface Water Quality 1998-2000*.

Tampa Bay National Estuary Program, *Charting the Course for Tampa Bay (draft*), January, 1996.

TBRPC, *Tampa Bay Region Hurricane Evacuation Study, 2000*.

Hillsborough County Comprehensive Emergency Management Plan, 2001
This publication, conveys the County's comprehensive emergency plan and identifies the county's emergency management operations.

I. EXECUTIVE SUMMARY

Historically, local comprehensive coastal planning in Florida has largely been pre-empted by site-specific state and local land development and regulatory decisions. This piece-meal, site-by-site approach to coastal development, in concert with the often vague and generalized coastal protection concepts outlined in state and local planning documents, did not generally provide communities with a comprehensive coastal management strategy. Hillsborough County's approach to coastal management has been similar to that taken throughout the State. In fact, because Hillsborough County is not located on the Gulf of Mexico and lacks the sandy beaches of the Gulf, past development and land use decisions in coastal areas have not taken full advantage of the unique coastal resources. Subsequently, many residents and visitors alike do not consider Hillsborough County a coastal area.

In realization that Florida's coastal areas need long range comprehensive planning and conservation in order to preserve their truly unique character, the 1985 Florida Legislature adopted revisions to Chapter 163 and required each local government identified as a coastal city or county to include a coastal management element in its updated comprehensive plan. The specific language adopted by the 1985 Legislature provides clear policy direction:

> ..it is the intent of the Legislature that local government comprehensive plans restrict development activities where such activities would damage or destroy coastal resources and that such plans protect human life and limit public expenditures in areas that are subject to destruction by natural disaster (s.s. 163.3178-1).

A. PURPOSE OF AND NEED FOR THE COASTAL MANAGEMENT ELEMENT

The Coastal Management Element was prepared pursuant to the mandate of Chapter 163, Florida Statutes, as amended by the Local Government Comprehensive Planning and Land Development Regulation Act of 1985. This Act requires the development of a comprehensive plan by each local government in the State of Florida. Chapter 163 is further defined by Rule 9J-5, Florida Administrative Code, which establishes the minimum criteria for this element and for each element of the comprehensive plan. Specifically, the Coastal Management Element is intended to meet the requirement of Chapter 9J-5.02, Florida Administrative Code.

The purpose of this Coastal Management Element is to provide a plan and policy direction for development activities in the coastal planning area. This plan and policy direction includes restrictions on development activities where such activities would damage or destroy coastal resources, protection of human life, and limitations on public expenditures in areas subject to destruction by natural disaster. The objectives of this element are to ensure that development in the coastal area does not prohibit public accessibility to the coast, that human life is not endangered, that adequate public hurricane shelter space is available to coastal inhabitants, that levels of service on coastal

evacuation routes do not deteriorate, such that safe and timely evacuation is adversely impacted, that water-dependent and water-related land uses are given priority, that public expenditures do not encourage growth in coastal high hazard areas, and that public decisions will include consideration of coastal hazards in each land use and public infrastructure decision-making process.

B. DEFINITION OF COASTAL PLANNING AREA

The coastal planning area includes the coastal waters and adjacent shorelines that are strongly influenced by one another. The coastal planning area extends inland from the shoreline only to the extent necessary to control shorelands, the uses of which have a direct and significant impact on the coastal waters. The coastal planning area consists of two parts: the coastal high hazard area (CHHA) and the remaining land area with an evacuation designation.
For mapping purposes, the coastal planning area is that area proposed for evacuation on the most current evacuation map.

C. ELEMENT ORGANIZATION

The Coastal Management Element is comprised of three integral parts including the Inventory and Analysis; Goals, Objectives and Policies; and the Plan Implementation sections. The Inventory and Analysis section presents historic and current conditions upon which to base the recommended planning and management strategies. The Goals, Objectives and Policies section presents the recommended planning guidelines, programs and other operative provisions which are intended to drive private and governmental decisions regarding natural resources. Finally, the Plan Implementation section recommends strategies for implementing the goals, objectives and policies of the Coastal Management Element.

III. GOALS, OBJECTIVES, AND POLICIES

Goal 1: Hillsborough County shall preserve, protect, restore, and appropriately manage the natural resources of the coastal area to maintain or enhance environmental quality for present and future generations. To this end, Hillsborough County shall restrict development that would damage or destroy the natural resources of the coastal area.

Coastal Resources Protection And Management

Estuarine Management

Issue: The entire shoreline of Hillsborough County borders on the Tampa Bay estuary. Tampa Bay is the largest open water estuary in Florida with over 1.6 million people living in the three counties bordering its shores. Tampa Bay was once one of the nation's most biologically productive and diverse estuaries. However, piecemeal urbanization around and within the Bay over the last 150 years has resulted in wide-spread environmental degradation. Over the past 30 years, numerous studies have documented the deterioration of water quality and habitat values of the estuary. Studies have indicated that 44 percent of the original 25,000 acres of mangrove forests and salt marshes have been destroyed, and 81 percent of the original 76,500 acres of seagrasses have disappeared. Recent estimates (2005) of wetland habitat in Tampa Bay indicate that there are about 20,000 acres of mangrove forests and saltmarsh. This habitat loss has resulted in declining populations of economically important fish and shellfish, including a complete collapse of such fisheries as those for scallops and oysters, and major declines for bait shrimp, spotted seatrout and redfish.

The environmental deterioration of Tampa Bay can be attributed to the cumulative effects of numerous perturbations, including: direct habitat destruction from dredging and filling and the hardening of shorelines for coastal development; degradation of water quality and eutrophication resulting from the discharge of municipal and industrial effluents and stormwater runoff; and the reduction of natural freshwater inputs due to the impoundment and withdrawals from rivers and streams.

A comprehensive, coordinated and holistic management approach is needed to ensure the protection and restoration of the environmental values of the Tampa Bay estuary. In an effort to develop a mechanism to bring about such management to Tampa Bay and other surface waters throughout the state, the 1987 Florida Legislature adopted the Surface Water Improvement and Management (SWIM) Act of 1987. This Act is implemented locally by the Southwest Florida Water Management District (SWFWMD), which has jurisdiction over Tampa Bay and Hillsborough County. Tampa Bay was named in both the Act and in Southwest Florida Water Management District's management plan as the number one priority for restoration and preservation within the District. Hillsborough County's Coastal Management and Port Element recognizes the spirit of cooperation and compliance with Southwest Florida Water Management District's Tampa Bay Surface Water Improvement and Management Plan.

As a result of local sponsorship by the Agency on Bay Management, Congress designated Tampa Bay eligible to participate in the National Estuary Program. Designation of the Tampa Bay Estuary Program (TBEP) authorized the U.S. Environmental Protection Agency (EPA) to begin a multi-year process that ultimately lead to development and implementation of a Comprehensive Conservation and Management Plan (CCMP) for Tampa Bay. The CCMP process involves working with all levels of government to identify problems and constraints, and opportunities and solutions, for the management of Tampa Bay as this area's most significant natural resource. The process is designed to coordinate the long-range growth management plans, permitting decisions, and expenditure of funds of all levels of government around the Bay, ultimately toward the maintenance and restoration of Tampa Bay's living resources to historic levels. The CCMP was adopted by all governments around the Bay and implemented by local governments and federal, state, regional, and local environmental planning and permitting agencies.

One of the most pristine and biologically productive areas remaining in Tampa Bay is the Cockroach Bay Aquatic Preserve, located in south Hillsborough County near Ruskin. The preserve includes submerged lands of the Little Manatee River from U.S. 301 down river and along Tampa Bay south to the Manatee County line. Cockroach Bay and Little Cockroach Bay are both included in the preserve. In 1987, the Governor and Cabinet approved the Cockroach Bay Aquatic Preserve Management Plan. Implemented by the Department of Natural Resources, this plan sets forth management guidelines for protecting the aquatic preserve in essentially its natural condition. Successful implementation of this plan depends upon the cooperation of Hillsborough County.

Objectives and Policies addressing Cockroach Bay Aquatic Preserve are contained in the “Special Uses” section of the Future Land Use Element of the *Plan*. Other objectives and policies addressing estuarine management are found in the Conservation and Aquifer Recharge, Potable Water, Stormwater Management and Sanitary Sewerage Elements.

Objective 1: The County shall continue to ensure that all discharges to natural surface water bodies in the Tampa Bay watershed shall comply with state water quality standards for their designated use.

Policy 1.1:

The County shall not support the reclassification of any surface waters of Tampa Bay within County boundaries to acknowledge lower water quality conditions that cannot be improved, unless necessary to protect the public health, safety or welfare. The County shall however, support the reclassification of surface waters of Tampa Bay to accommodate higher standards, where it can be demonstrated that improved water quality conditions will prevail in the future.

Policy 1.2:

The County shall require that the surface water discharge from all domestic wastewater treatment plants discharging effluent into Tampa Bay or its

tributaries meet advanced wastewater treatment standards, or, if specific alternative criteria developed by the Surface Water Improvement and Management Program can only be met by removing a surface water discharge, such a program shall be implemented where economically feasible and in accordance with Policy 1.4 below.

Policy 1.3:

To reduce the need for interim wastewater treatment plants, the County shall plan for the construction of regional wastewater treatment facilities to serve areas designated for urban densities on the Future Land Use Plan Map.

Policy 1.4: [i]

RESERVED

Policy 1.5:

The County shall cooperate with the appropriate regulatory agencies in requiring that developments identified as sources of water pollution establish and implement water quality management plans that eliminate or improve discharges into Tampa Bay (e.g., municipal and industrial point sources).

Policy 1.6:

Where economically feasible, the County shall provide improved domestic wastewater treatment service to coastal areas where persistent water quality problems are clearly attributable to poorly functioning septic treatment systems.

Policy 1.7:

The County shall cooperate with the regulatory agencies responsible for developing a nutrient monitoring and control program for those land uses located adjacent to Tampa Bay and its tributaries that are likely to contribute significant nutrient loadings. At a minimum, the program shall require the implementation of Best Management Practices (BMPs) for controlling nutrient loadings, including retrofitting if needed, to meet specific alternative criteria as established by the Surface Water Improvement Management (SWIM) Program.

Policy 1.8:

The County shall continue to participate in a public education program aimed at residential homeowners that addresses the impacts of improperly managed lawn litter and fertilizer/herbicide/pesticide applications on the surface water quality of Tampa Bay.

Policy 1.9:

The County shall require that existing developments planned for expansion, modification or replacement in the coastal area provide or support stormwater treatment improvements within the affected drainage basin where treatment facilities are lacking. Where economically and environmentally feasible, the County shall require retrofitting of stormwater treatment facilities in urbanized coastal areas lacking such facilities.

Policy 1.10: [ii]

RESERVED

Policy 1.11:

Hillsborough County shall develop, update and implement its approved Action Plans, and any amendments thereof, pursuant to the Tampa Bay Estuary Program (TBEP) inter-local agreement dated February 1998, and consistent with the applicable goals of the Comprehensive Conservation and Management Plan (CCMP) for Tampa Bay.

Objective 2: There shall continue to be no net loss of ecological value of wetlands authorized in the coastal area of Hillsborough County. The County shall continue to seek to achieve a measurable annual increase in restored tidal wetland acreage through the continued restoration of degraded natural wetlands until all economically and environmentally feasible tidal wetland restoration is accomplished.

Policy 2.1:

The County shall, through the land use planning and development review processes, and in cooperation with the Environmental Protection Commission, continue to conserve and protect tidal wetlands from detrimental physical and hydrological alteration and prohibit unmitigated encroachment into tidal wetlands.

Policy 2.2:

Channelization or hardening of natural coastal shorelines and tidal creeks shall be prohibited except in cases of overriding public interest.

Policy 2.3:

Where the maintenance and or alteration of existing hardened shoreline is allowed, the County may require mitigation of environmental impacts. Such mitigation may include, but is not restricted to, the installation of rip-rap.

Policy 2.4:[iii]

RESERVED[iv]

Policy 2.5:

The County shall support development of a unified and coordinated wetland compensatory mitigation and restoration program by federal, state and local environmental regulatory agencies that will not weaken local regulatory authority, will ensure replacement of ecological value and function, and will require restoration of tidal wetlands, where environmentally and economically feasible.

Policy 2.6:

The County shall cooperate with the Southwest Florida Water Management District to ensure that the minimum freshwater flows needed to support natural optimal diversity and productivity in estuarine areas are scientifically determined and maintained.

Policy 2.7:

The County shall prohibit unmitigated development activities on submerged lands containing significant seagrass habitat, and shall seek to restore seagrass coverage.

Policy 2.8:

The County shall require land developments located adjacent to coastal wetlands to preserve those portions of native upland plant communities necessary to provide an effective buffer for coastal wetlands.

Policy 2.9:[v]

The County shall cooperate with the Tampa Port Authority (TPA) to restrict dredge and fill operations within the coastal area to activities that facilitate the continued use of existing channels, activities associated with appropriate water-dependent uses, water-related uses, and uses pursuant to the Port Master Plan, and activities that correct environmental problems. The County shall support and recommend the following: TPA policy actions:

- Prohibit the dredging or spoiling of bay bottom containing significant seagrass habitat, except in cases of overriding public interest. Habitat restoration/creation, if shown to be intrinsically worthwhile and not primarily justified as a means of spoil disposal, and environmentally acceptable maintenance dredging of existing channels shall be encouraged.
- Protect unique and irreplaceable natural resources from the adverse effects of dredging and spoil disposal.

Objective 3: The County shall continue to maintain, and enhance where environmentally and economically feasible, the abundance and diversity of living marine resources in Tampa Bay through (a) the application of varying setbacks from environmentally sensitive areas, (b) cooperation with the Hillsborough Environmental Protection Commission, Port Authority and other entities having jurisdiction over such resources and (c) continued participation and lobbying for programs which implement the intent of this overall objective area.

Policy 3.1:[vi]

The County shall cooperate with and assist the Florida Department of Environmental Protection and the U.S. Fish and Wildlife Service in the implementation of protective and recovery programs for the West Indian manatee, and other listed marine species.

Objective 4: RESERVED[vii]

Beaches and Dunes

Issue: With the exception of Egmont Key, which is under federal ownership and management, no barrier island beaches or natural dune systems occur in Hillsborough County. In its natural state, the low energy shoreline of the Tampa Bay estuary is generally characterized by coastal marshes and mangrove swamps. Only in a few locations do natural sandy beaches occur along Tampa Bay, and these typically do not support major dune systems. To provide public

recreational access to the Bay, man-made beaches have been created in various locations. Due to the relatively low wave energy occurring in Tampa Bay, erosion of sandy beaches has generally not been a problem. However, where improperly located or designed, some man-made beaches have exhibited erosional losses. Improved design and natural stabilization of man-made estuarine beaches is needed.

Objective 5: The County shall stabilize those man-made beaches prone to erosional problems and shall only support development of man-made estuarine beaches in environmentally-acceptable locations.

Policy 5.1:

The County shall use only those beach stabilization techniques recommended by the Florida Department of Environmental Protection.

Policy 5.2:

The County shall oppose, through the development review process, the destruction or degradation of natural inter-tidal and sub-tidal vegetative communities to develop new man-made estuarine beaches.

Land Use And Public Access

Land Use

Issue: Hillsborough County is a coastal county and is expanding rapidly in both population and economic base. Naturally, this growth increases development pressure along the coastline. Land uses dependent upon access to the water should be given priority in order to meet demands for water-dependent and water-related uses and also to meet the demands of the public for access to waterfront areas. Proximity to the coast is an amenity, while at the same time development is vulnerable to natural disasters not experienced by inland areas. The objective when approving future development within the coastal high hazard area should be to ensure that adequate public hurricane shelter capacity is available to accommodate present and future population densities, and to ensure that adequate clearance times and evacuation routes are provided to evacuate resident and seasonal populations in a timely and orderly manner. Land use planning in the coastal area must also provide for the orderly development and use of the Port of Tampa. By their nature, applications for development of most marinas will require permits from the Tampa Port Authority (TPA) for the use of sovereign lands. The TPA operates in accordance with its enabling act (Chapter 84-447, Laws of Florida), its sovereign Lands Management Rule and other guidelines.

Objective 6: Residential land uses within the coastal high hazard area shall be limited to those areas which are planned to accommodate such development through the provision of adequate public facilities and services. Such development must meet storm velocity standards and be provided with adequate hurricane evacuation capability.

Policy 6.1:

The Coastal High Hazard Area is the area below the elevation of the category 1 storm surge line as established by the Tampa Bay Regional Planning Council utilizing the Sea, Lake and Overland Surges from Hurricanes (SLOSH) computerized storm surge model. Where this definition and any graphic representation of this area are not consistent, the definition shall govern.

Policy 6.2:

New development within the coastal high hazard area shall continue to be subject to the applicable site plan review process. As a component of the review process, the property owner shall provide adequate data to assess the impacts of the proposed development upon existing infrastructure within the coastal high hazard area, as well as level of service standards established for shelter capacity and clearance times.

Policy 6.3:

New development and substantial expansions of existing uses within the coastal high hazard area, other than government-owned or leased facilities, shall be approved through a planned unit development rezoning process for the following:

1. Commercial or industrial development on more than five acres of land; and
2. Residential subdivision development requiring platting.

For those developments within both the coastal high hazard area and the I-75 Corridor, the more restrictive requirements shall apply.

Policy 6.4:

The County shall delineate the coastal high hazard area on zoning maps.

Policy 6.5:

The County shall require, through the subdivision regulations, that all new construction of utility lines in the coastal high hazard area be placed underground. This requirement shall be subject to all other restrictions in this section.

Policy 6.6:

The use of septic tanks for new development shall be prohibited in the coastal high hazard area. Regulatory review procedures and criteria for determining exceptions to this policy in cases of undue hardship shall continue to be applied to determine hardship exceptions.

Policy 6.7:

Limit new development within coastal waterfront properties to uses that are water enhanced, water related, water dependent, or further the port consistent with the Port Authority Master Plan and limit public expenditure. Within the coastal high hazard area, preference shall be given to uses that are water enhanced, water related, water dependent, or further the port.

Objective 7: Water-dependent and water-related uses will be directed into suitable areas of the County that meet or exceed applicable criteria established in this element and the Land Development Code and are compatible with the Future Land Use Element.

Policy 7.1:

The County shall give priority to locating water-dependent and water-related uses within the coastal planning areas designed for industrial development on the Future Land Use Map. Water-dependent and water-related uses that are not industrial in nature may also be considered in other areas of the coastal planning area.

Policy 7.2: [viii]

RESERVED

Policy 7.3: [ix]

RESERVED

Policy 7.4:[x]

RESERVED

Policy 7.5:

Water-related land uses requiring dredging and filling that would result in a significant adverse impact to the long-term hydrological or biological integrity of wetlands or the natural shoreline shall not be permitted.

Policy 7.6:

No new sites shall be permitted for heavy industrial uses along the shoreline of the coastal area unless such uses are water-dependent or water-related, or unless an overriding public interest is demonstrated.

Policy 7.7:

Existing public and private marina sites shall be encouraged to expand prior to siting new marina facilities within the County.

Policy 7.8: [xi]

The following criteria shall serve as the County's marina siting guidelines:

A. Support Services (Utilities/Public Facilities)

1. **Adequate Uplands/Access**: Marinas shall demonstrate that they have sufficient upland area to accommodate all needed utilities and marina support facilities with minimal environmental impacts. Only facilities providing parking areas that minimize stormwater runoff and mitigate pollution shall be permitted.
2. **Sewage Capacity:** All new marinas shall provide adequate capacity to handle sewage in accordance with state standards, either by means of on-site pump-out and treatment facilities or connection to a treatment plant. All marinas with fueling facilities should provide pump-out facilities at each fuel dock. Marinas which serve live-aboards or overnight transient traffic shall provide shower, restroom and sewage

treatment facilities at the dock. Facilities of 50 slips or more shall provide permanent pump-out facilities.

3. **Spill Containment:** All applicants shall provide documentation of their capability to respond rapidly and effectively to contain any spills of petroleum or other hazardous materials within the boundaries of leased area.

B. Resource Constraints (Environmental Considerations)

1. **Sensitive Areas:** In the following sensitive areas, the applicant shall be required to demonstrate that a marina is clearly in the public interest and in accordance with all pertinent rules of appropriate regulatory agencies before approval to build is granted:
   - Aquatic Preserves;
   - Outstanding Florida Waters;
   - Class I Waters;
   - Class II Waters;
   - Marine or Estuarine Sanctuaries;
   - Manatee Sanctuaries or Critical Manatee Habitats;
   - Areas approved or conditionally approved by Florida Department of Environmental Protection for shellfish harvesting;
   - Other highly productive or unique habitats as determined by Florida Department of Environmental Protection, based on vegetation or wildlife species, and
   - Areas designated as particularly sensitive to oil spills.

2. **Water Depth:** Only those docking facilities in locations having adequate water depths to accommodate the proposed boat use shall be permitted. A minimum water depth of 4-feet mean low water shall be required. Greater depths shall be required for those facilities designed for or capable of accommodating boats having greater than a 3-foot draft. These depth requirements shall also apply to the area between the proposed facility and any natural or other navigation channel, inlet or deep water. Where necessary, marking of navigational channels may be required.

3. **Access/Dredging:** Preference shall be given to docking facilities that require minimal or no dredging or filling to provide access by canal, channel or road. This restriction applies to widening or deepening any existing canal or channel, but not to regular maintenance dredging and filling to meet depth standards of existing canals or channels. Preference shall be given to marina sites adjacent to naturally maintained channels.
4. **Environmental Restoration:** In reviewing applications for new docking facilities, or for renewal of existing leased facilities, an effort shall be made to identify ways to improve, mitigate or restore adverse environmental impacts caused by previous activities. This may include shallowing dredged areas, restoring wetlands or submerged vegetation or making navigable channels. Such mitigation or restoration could be required as a condition of approval for new, renewed or expanded facilities.

5. **Cultural Resource Protection:** Facilities must demonstrate no adverse impact on archaeological or historic properties.
6. **Access Markers:** Immediate access (ingress and egress) points shall be delineated by channel markers, indicating speed limits and any other applicable regulations.
7. **Erosion Prevention:** On sites with historically erosion-prone shorelines, applicants shall ensure that appropriate shoreline protection measures (as determined by the Port Authority and the Florida Department of Environmental Protection will be taken.

Policy 7.9:

Existing ports and marinas shall be targeted for concentrations of marine-related land uses.

Policy 7.10: [xii]

RESERVE

Public Access

Issue: Hillsborough County has 33 square miles of coastal area. –However, although the County has acquired significant acreage along the coast, much–of this property is in private ownership or has not yet been developed to accommodate public access. Although the public, through the State's sovereignty rights, owns virtually all lands seaward of the mean high water line, private property fronting these resources prevents their use by the public resulting in additional burdens on existing public facilities. Because there is a limited supply of public facilities, those that exist must provide public access to the fullest extent possible. As the County's population grows, the demand on existing facilities will increase and the need for additional public facilities will increase.

Objective 8: Public access to the shoreline shall continue to be provided, maintained and improved consistent with public need and protection of the natural environment.

Policy 8.1:

The County shall retain ownership rights to any property providing or having the potential to provide public access to coastal areas (e.g., dead-end streets and undeveloped dedicated rights-of-way).

Policy 8.2:

The County shall ensure that any public accessway established through private lands seaward of the mean high tide or water line by prescription, prescriptive easement, or any other legal means shall not be diminished or rendered unusable. If a developer or property owner improves, consolidates, or relocates such public accessways, then the accessways subsequently provided shall meet the following conditions:

a. The accessways shall be of substantially similar quality and convenience to the public;
b. Accessways shall be approved by Hillsborough County; and

c. Accessways shall be consistent with this Element.

Policy 8.3: [xiii]
RESERVED

Policy 8.4:
The County shall consider, during the development review process, requiring the dedication of public access easements for multi-family and non-residential private development in shoreline areas.

Policy 8.5:
The County, in cooperation with appropriate agencies, will maintain access to coastal facilities for all Hillsborough County residents regardless of physical, mental, or economic hardship.

Policy 8.6:
The County shall require public access to any private beach that is re-nourished at public expense.

Historic Resources

Issue: Preservation of the past provides an important link to the future. Paleontologic and historic resources are defined as all areas, districts or sites containing properties listed on the Florida Master Site File, the National Register of Historic Places, or designated by a local government as historically, architecturally, paleontologically or archaeologically significant. Historic resources must be preserved throughout Hillsborough County, including the coastal area. Hillsborough County adopted a local historic preservation ordinance in 1992. Consequently, historic resource management efforts are now more clearly defined. In addition to this element, the future land use element and other applicable elements address the issue

Objective 9: Historic resources shall be protected, preserved or utilized in a manner which protects and preserves their continued existence. Once a site has been scientifically excavated, then development may proceed without preserving the site.

Policy 9.1:
The County shall continue to enforce an ordinance to protect historical and archaeological sites.

Policy 9.2:
As an alternative to preserving on-site known historic or archaeological resources, the property owner may allow excavation of the site by the Division of Historic Resources or their approved alternate prior to development of historic resources.

Emergency Preparedness

Coastal High Hazard Area

Issue: The coastal high hazard area (CHHA), is defined as the area seaward of the anticipated storm surge elevation in a category one hurricane. Development within the coastal high hazard area must be regulated and reviewed differently than even that within the hurricane vulnerability zone. The issue with respect to development in the coastal high hazard area is the protection of residents and the public expenditure of funds for areas that are subject to severe flooding from storm surge and rainfall and structure damage as a result of high winds. In addition to limiting development, the permitted development shall be designed to mitigate problems associated with stormwater runoff, wastewater treatment, and septic tanks.

Objective 10: Limit public expenditures for infrastructure and facilities in the coastal high hazard area.

Policy 10.1:

The County shall limit public infrastructure expenditures in the coastal high hazard area to:

a. Restoration or enhancement of natural resources or public access;
b. Flood-proofing existing potable water and sanitary sewerage facilities;
c. The development or improvement of public roads and bridges that are on the Metropolitan Planning Organization's Long-Range Transportation Plan or that serve a crucial need by ameliorating the evacuation time of residents of the county;
d. Reconstruction of seawalls that are essential to the protection of existing public facilities or infrastructure;
e. A public facility of overriding public interest as determined by the Hillsborough County Board of County Commissioners;
f. The retrofitting of stormwater management facilities for water quality enhancement of stormwater runoff; or
g. Port and port-related facilities.

Policy 10.2:

Wastewater treatment facilities shall not be constructed within the coastal high hazard area unless the expenditure meets the criteria of **Policy 10.1.**

Policy 10.3:

Hillsborough County shall preserve and restore, as feasible, coastal ecosystems to maintain and enhance natural coastal barriers to storm events.

Policy 10.4:

All new buildings, structures, uses and substantial expansions of existing uses, for commercial or industrial development on more than five acres of land or residential subdivisions exceeding ten lots, within the Coastal High Hazard Area (CHHA), other than government owned or leased facilities, shall be approved through a planned unit development process.

Policy 10.5:

The use of septic tanks for new development shall be prohibited in the Coastal High Hazard Area, except in cases of excessive hardship where (1)

no reasonable alternative exists, (2) a discharge from a septic tank will not adversely affect public health and will not degrade surface or ground water and (3) where the Health Department determines that soil conditions, water table elevation and setback provisions are adequate to meet state requirements.

Hurricane Evacuation

Issue: The Tampa Bay Region, which includes Hillsborough County, has been identified by the National Weather Service as one of the most hurricane-vulnerable areas of the United States, with the potential for large scale loss of life. Consequently, Hillsborough County must be prepared for the likelihood of storms and have in place a disaster preparedness program. The three major hazards produced by a hurricane are: storm surge, high winds, and rainfall. These potential hazards to lives and properties require the evacuation of certain portions of the County, depending upon the type of storm. Because evacuation relies on the transportation network and available public shelters for evacuating and housing evacuees, analysis of the vulnerability of evacuation routes, as well as the availability of adequate shelter, is necessary. The goal for hurricane evacuation is to minimize the loss of life primarily and, secondarily, to minimize property damage.

Objective 11: The County shall maintain adequate clearance times as identified in the most up-to-date Hurricane Study. Any proposed development shall not increase these clearance times.

Policy 11.1:

In order to prevent unnecessary evacuees from crowding roads and shelters, during the hurricane season, the County shall continue to notify households of their need to evacuate at various threat levels. Hotels, motels and other similar facilities shall conspicuously post the need for evacuation, evacuation routes and shelter locations.

Policy 11.2:

The County shall continue to identify new shelter space to meet the demands of the projected population. The standard shall be 20 square feet per person.

Policy 11.3:

The County shall maintain capacity on all identified major evacuation routes maintained by the County so that the clearance times as identified in the most up-to-date Hurricane Study can be maintained.

Policy 11.4:

The development review process shall include the review of the development's effect on evacuation clearance times and the number of persons requiring public shelter. Developments shall be reviewed and impacts assessed based on the most recently available data. This requirement shall apply to those developments located in the vulnerability zone and those located along and impacting evacuation routes.

Policy 11.5:

The County shall continue to conduct an annual review of new development in the Coastal High Hazard Area, and coordinate with the City of Tampa to ensure compliance with the Comprehensive Emergency Management Plan (CEMP).

Policy 11.6:[xiv]

RESERVED

Policy 11.7: [xv]

RESERVED

Policy 11.8: [xvi]

The County shall annually review shelters in an effort to provide shelter space for the worst case hurricane scenario.

Policy 11.9: [xvii]

RESERVED

Policy 11.10:

New development, and redevelopment, is required to demonstrate available shelter space and evacuation clearance time capacity and/or fully mitigate its impact on these standards, as determined by Hillsborough County.

Policy 11.11:[xviii]

RESERVED

Policy 11.12:[xix]

RESERVED

Policy 11.13[xx]

RESERVED

Policy 11.14:

Hillsborough County shall implement the Local Mitigation Strategy (LMS) Report, and hereby incorporates this report into the Comprehensive Plan by reference.

Policy 11.15:

Hillsborough County's Level of Service for out-of-county hurricane evacuation (Intra-State Movements) for a category 5 storm is 28 hours – consistent with the Tampa Bay Region, Hurricane Evacuation Study 2006, Tampa Bay Regional Planning Council, September 2006. No plan amendment within the Coastal High Hazard Area that increases density shall be approved that would exceed a 16 hour evacuation Level of Service for a category 5 storm unless the increase in density is mitigated pursuant to accepted techniques; whereby, the mitigation technique accepted will maintain the evacuation clearance time at, or less than, the 16 hour limit.

Post-Disaster Redevelopment

Issue: A high concentration of structural loss has been projected for the coastal high hazard area during hurricanes due to storm surges and high winds, and both the public and private sector would be subjected to major losses due to hurricane damage. Repairing or replacing damaged structures and infrastructure due to hurricanes will subject them to renewed damage during any repeat occurrence of a hurricane. Hospitals, nursing homes, assisted living facilities, and correctional facilities located in the coastal high hazard area would be subjected to higher risks during a natural disaster due to special needs evacuation. These uses are best located away from the coastal high hazard area so that evacuation would not be required. Because the coastal high hazard area is subjected to major hurricane damage, this area will require mitigating steps to restrict and eliminate inappropriate and unsafe development when the opportunity arises.

Objective 12: The County shall continue to implement a post-disaster redevelopment ordinance to reduce or eliminate the exposure of human life and public and private property to natural hazards.

Policy 12.1:

The County's Comprehensive Emergency Management Plan (CEMP) shall be referred to concerning post-disaster activities within the coastal high hazard area. The CEMP specifies the actions necessary for immediate response and clearance of debris in order to protect the public health and safety.

Policy 12.2:

The County shall continue to implement, review, and amend as needed its Post-Disaster Redevelopment Ordinance, addressing long-term development, repair, and redevelopment activities, and including measures to restrict and eliminate inappropriate and unsafe development in the coastal high hazard area through Plan designated uses, zoning, and density and intensity limitations.

Policy 12.3:

The County shall maintain an inventory and assessment of the value of all public facilities within the coastal high hazard area.

Public Infrastructure

Issue: Recognizing that Hillsborough County is vulnerable to a hurricane, government is responsible to ensure that the minimum amount of property damage and loss of life is experienced as a result of a storm event. The provision of publicly funded infrastructure (e.g. roadways, pumping stations, wastewater treatment facilities) in the coastal area raises several questions: Does the provision of infrastructure encourage development of coastal areas? Should all citizens be required to bear the burden of increased public infrastructure cost in coastal areas? As development and redevelopment pressures continue in the coastal areas, these questions and others must be addressed. The federal and state governments have reduced subsidies for coastal development by limiting public expenditures in the coastal high hazard area and encourage the same at the local level.

Objective 13: The level of service standards, phasing of infrastructure, and areas of service within the coastal area shall be as established in the public facilities elements, Transportation Element, Recreation and Open Space Element, and Capital Improvements Element of the Comprehensive Plan; and the County shall limit its public infrastructure expenditures in the coastal high hazard area.

Policy 13.1:
Interim wastewater treatment plants shall not be permitted in the coastal high hazard area except when County service will be available within five (5) years.

Policy 13.2:
The County shall insure that all regional, sub regional and private sewage treatment plants meet Advanced Wastewater Treatment (AWT) standards.

Policy 13.3:[xxi]
RESERVED

Policy 13.4:
The County shall not accept responsibility for maintaining new roadways nor take over maintenance for existing private roadways, in the coastal high hazard area unless said roadway is designated on the future Traffic Circulation Map.

Policy 13.5:
The County shall complete and maintain an inventory of existing infrastructure within the coastal high hazard area and develop a program to relocate or retrofit such facilities where feasible and as replacement becomes necessary.

Policy 13.6:
The County shall ensure that future development and redevelopment within the coastal high hazard area is consistent with coastal resource protection and will not increase clearance times along evacuation routes.

Policy 13.7:
Evacuation routes that are located in the coastal high hazard area and are subject to flooding shall be improved to the extent feasible to expedite the safe passage of evacuees in the event of mandatory evacuation.

Policy 13.8:
No new solid waste or hazardous waste management sites shall be approved for location in the coastal high hazard area.

Port of Tampa Master Plan[xxii]
The Hillsborough County Port District is established and the Tampa Port Authority is created pursuant to Chapter 95-488, Laws of Florida, as amended. Under such laws, the exercise of powers established thereunder is declared to be of public necessity and is recognized as an essential government function. The Comprehensive Plan recognizes that the Tampa Port Authority acts in furtherance of the public interest. The Tampa Port Authority has prepared a Master Plan which has been incorporated as part of the Coastal Management

Element. The Master Plan includes certain objectives and policies to meet the Tampa Port Authority's legislative mandate. The Planning Commission found the Tampa Port Authority Master Plan to be consistent with the Hillsborough County Comprehensive Plan on May 12, 2008. Under the comprehensive plan the County encourages development and redevelopment of the port and infrastructure to serve the port in accordance with the Master Plan and other applicable laws and regulations in order to ensure the orderly development of the port.

The Master Plan as adopted by the Tampa Port Authority has been incorporated by reference into Hillsborough County's Comprehensive Plan per Chapter 9J-5, Florida Administrative Code. Refer to the Port Component of the Transportation Element for the Goals, Objectives and Policies that ensure consistency between the Plans of the County and the Tampa Port Authority.

Objective 14: Hillsborough County shall encourage development and redevelopment of the Port of Tampa, and infrastructure to serve the Port, in accordance with the Tampa Port Authority Master Plan and other applicable laws and regulations, shall encourage related maritime industries, and discourage the encroachment of incompatible land uses.

Policy 14.1:

Hillsborough County hereby incorporates by reference the Tampa Port Authority Master Plan adopted by the Tampa Port Authority Board of Commissioners, July 17, 2008. In the event of a conflict between the Tampa Port Authority Master Plan and the Comprehensive Plan, the Comprehensive Plan will prevail.

Policy 14.2: Reserved

Policy 14.3: Reserved

Policy 14.4: Reserved

Policy 14.5: Reserved

Policy 14.6: Reserved

Policy 14.7:[xxiii]

The Planning Commission staff shall transmit to the Tampa Port Authority a copy of all land use plan amendment applications within the Port Activity Center, or within 250 feet of said area, as identified in the Tampa Port Authority Master Plan.

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[i] CPA 12-04 Delete and/or revise objectives and policies because the language is redundant or unnecessary

[ii] CPA 12-04 Delete and/or revise objectives and policies because the language is redundant or unnecessary

[iii] CPA 12-04 Delete and/or revise objectives and policies because the language is redundant or unnecessary

[iv] CPA 12-22 – Economic Potential Policies Update – Remove impediments to economic development in plan.
[v] CPA 12-04 Delete and/or revise objectives and policies because the language is redundant or unnecessary
[vi] CPA 12-04 Delete and/or revise objectives and policies because the language is redundant or unnecessary
[vii] CPA 12-04 Delete and/or revise objectives and policies because the language is redundant or unnecessary
[viii] CPA 12-04 Delete and/or revise objectives and policies because the language is redundant or unnecessary
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[xvii] CPA 12-04 Delete and/or revise objectives and policies because the language is redundant or unnecessary
[xviii] CPA 12-04 Delete and/or revise objectives and policies because the language is redundant or unnecessary
[xix] CPA 12-04 Delete and/or revise objectives and policies because the language is redundant or unnecessary
[xx] CPA 12-04 Delete and/or revise objectives and policies because the language is redundant or unnecessary
[xxi] CPA 12-04 Delete and/or revise objectives and policies because the language is redundant or unnecessary
[xxii] CPA 09-06 - Incorporates the Tampa Port Authority Master Plan, adopted by the Tampa Port Authority Board on July 17, 2008.



Future of Hillsborough

Comprehensive Plan for Unincorporated Hillsborough County Florida

CONSERVATION AND AQUIFER RECHARGE

As Amended by the Hillsborough County Board of County Commissioners June 5, 2008 (Ordinance 08-13)

Department of Community Affairs Notice of Intent to Find Comprehensive Plan Amendments in Compliance published August 4, 2008 {DCA PA No. 08-1ER-NOI-2901- (A)-(l)

August 26, 2008 Effective Date

Hillsborough County
Conservation and Aquifer Recharge

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I. EXECUTIVE SUMMARY

Hillsborough County, by virtue of its subtropical climate and variable hydrology and geology, supports a rich and diverse complement of natural resources. The County borders the largest estuary in the State, Tampa Bay, and three major rivers (the Hillsborough, Alafia and Little Manatee) flow through the County's borders. The County is underlain by the Floridan AquiferAquifer, the largest and highest quality potable water aquifer in the State, as well as by some of the richest phosphate deposits in the world. The karst topography of the County has created a mosaic of solution sinks and depressions which contain a wide variety of wetland flora and fauna, while the higher well-drained elevations support rare xeric hammocks and scrub habitat.

The role of the Conservation and Aquifer Recharge Element is to maintain or improve the quality of the County's environment and natural resources, and its citizens' quality of life, in light of the anticipated population growth. The Conservation and Aquifer Recharge Element must work in harmony with the Future Land Use, Coastal Management and Port, Community Facilities, Transportation and other elements of the *Future of Hillsborough Comprehensive Plan for Unincorporated Hillsborough County* in ensuring environmental protection while fostering economic growth and development.

II. INTRODUCTION

PURPOSE OF CONSERVATION AND AQUIFER RECHARGE ELEMENT

The purpose of the Conservation and Aquifer Recharge Element is to provide a plan and policy direction for the preservation, conservation, and management of the natural resources of Hillsborough County. This element is intended to provide guidelines for future governmental programs and decisions related to the protection and enhancement of the County's natural environment, as well as the public health, safety and welfare. The objective of the Conservation and Aquifer Recharge Element is to ensure that the air, land, water and living resources of Hillsborough County remain an asset, rather than become a liability, to the quality of life of all existing and future inhabitants.

NEED FOR CONSERVATION AND AQUIFER RECHARGE ELEMENT

Hillsborough County, by virtue of its subtropical climate and variable hydrology and geology, supports a rich and diverse complement of natural resources. The County borders the largest estuary in the State, Tampa Bay, and three major rivers (the Hillsborough, Alafia and Little Manatee) flow through the County's borders. The County is underlain by the Floridan Aquifer, the largest and highest quality potable water aquifer in the State, as well as by some of the richest phosphate deposits in the world. The karst topography of the County has created a mosaic of solution sinks and depressions which contain a wide variety of wetland flora and fauna, while the higher well-drained elevations support rare xeric hammocks and scrub habitat.

Over the past century, however, development has slowly degraded the rich natural resources of the County. The unregulated filling of wetlands, discharge of pollutants, mining of phosphate deposits, clearing of forests, dredging of bay bottoms, channeling of streams and rivers, and over pumping of groundwater supplies has irretrievably destroyed or altered much of the original natural resource base. Environmental legislation passed at the federal, state, regional and local levels over the past three decades has done much to stem the tide of this destruction; however, advance planning and further safeguards will be needed to ensure the preservation and conservation of the County's remaining natural resources for future generations.

ELEMENT ORGANIZATION

The Conservation and Aquifer Recharge Element is comprised of three integral parts including the Inventory and Analysis; the Goals, Objectives and Policies;

and the Plan Implementation and Monitoring sections. The Inventory and Analysis section presents historic and current conditions upon which to base the recommended planning and management strategies. The Goals, Objectives and Policies section presents the recommended planning guidelines, programs and other operative provisions which are intended to drive private and governmental decisions regarding natural resources. Finally, the Plan Implementation and Monitoring section recommends probable strategies and intergovernmental coordination for implementing the goals, objectives and policies.

III. INVENTORY AND ANALYSIS

GEOGRAPHIC SETTING

Hillsborough County is located on the coast of west-central Florida, bounded on the west by Tampa Bay and Pinellas County, on the east by Polk County, on the north by Pasco County, and on the south by Manatee County. Hillsborough County has a surface area of approximately 1,072 square miles. Land-surface altitudes range from sea level along the coast to approximately 160 feet above sea level at the Hillsborough-Polk County line southeast of Keysville.

Hillsborough County can be broken down into five physiographic provinces (White, 1970). The provinces are the Coastal Swamps, the Gulf Coastal Lowlands, the Zephyrhills Gap, the Polk Upland, and the DeSoto Plain. The physiographic areas are primarily a function of topographic relief and underlying sediments. The Coastal Swamps and Gulf Coastal Lowlands areas lie between the Tampa Bay estuary and the Polk Uplands in southeastern Hillsborough County and range in width from 2 miles to approximately 12 miles. Elevations of land surface range from sea level to 90 feet above sea level. Soils are characteristically sandy and contain little organic material.

The Polk Upland is the dominant topographic feature in southeastern Hillsborough County, extending eastward from central Hillsborough County and south from the Hillsborough River valley. The western edge is a gentle slope and the northern edge follows the drainage basin ridge between the Hillsborough and Alafia Rivers. Its siliclastic composition has contributed to the topographic character of these areas, for in most of the Polk Upland, the effects of solution sinks are not as intense as they are generally throughout peninsular Florida, and surface streams are much more prominent here. Elevations range up to 160 feet above sea level in the Polk Uplands, a poorly drained plateau underlain by deeply weathered sand and clay-rich sand. The uplands have flatwoods with cypress heads and strands existing in most places, with thick, well drained sands along the margins. The Alafia and Little Manatee Rivers originate in the Polk Uplands with widely branching tributaries. A small portion of the DeSoto Plain is in south-central Hillsborough County. This plain is similar to the Polk Upland but very flat.

The Zephyrhills Gap is the southernmost surface water drainage outlet from the central Florida valley, between the central ridge and the Ocala Uplift. This area follows the Hillsborough River valley; which is an erosional basin with sluggish surface drainage and many karst features. Much of the clastic sediments have been removed in northeast Hillsborough County. A thin sand and clay layer overlie karst limestone in this Gap area. Many sinkholes and springs occur in the Hillsborough River connecting it with the Floridan Aquifer.

Elevations range from 10 to 140 feet above sea level. The Hillsborough valley is much older than the other rivers in the County, which is evident from the ancient beach terraces cut back by the Hillsborough River that are not cut by the Alafia River. Poorly drained swamps and marshes support cypress and wetland vegetation, while flatwoods are found on the higher ground.

Major surface drainage features in Hillsborough County are the Hillsborough, Alafia, and Little Manatee Rivers (Figure 1). The Hillsborough River begins in the Green Swamp and flows southwestward, draining 690 square miles before emptying into Hillsborough Bay. The Alafia begins in Polk County and flows westward, draining a 420 square mile basin, and also enters Hillsborough Bay. The Little Manatee River begins in southeast Hillsborough County and northeast Manatee County and flows west to Tampa Bay, draining 225 square miles.

Much of the precipitation in northwest Hillsborough County infiltrates the surficial deposits through shallow creeks and solution features. The rapid infiltration of precipitation has precluded the development of well defined streams in this area. The northeast, central, and southern Hillsborough County areas have well developed stream systems. The Hillsborough River is in an artesian flow area and many springs exist. The central and southern Alafia and Little Manatee basins overlie a thick confining formation that restricts infiltration. Three springs are also located along the lower Alafia River, where the confining layers are breached and artesian conditions exist.

CLIMATE AND WEATHER

The climate of Hillsborough County is humid and sub-tropical, characterized by high mean annual rainfall and temperature. The climate is a result of low latitude and the stabilizing effect of the Gulf of Mexico and the Atlantic Ocean. The mean annual temperature in Hillsborough County is about 72ºF. August, the warmest month, has a mean monthly temperature of about 82ºF and January, the coldest, has a mean monthly temperature of about 60ºF. Summer highs generally are in the low to mid 90's, with occasions of 100ºF or higher. The colder winter fronts are of Arctic origin and may bring minimum temperatures ranging from 25-30ºF. Temperatures rarely remain below freezing during the day and colder weather from a front generally lasts only 2-3 days. Temperatures in the 60's and 70's often separate the cold fronts. Frost and freezing temperatures can be expected to occur two to three times a year in Hillsborough County (NOAA, 1986).

Rainfall amounts in Hillsborough County vary both seasonally and annually. Annual rainfall in Hillsborough County averages about 50.8 inches. Annual rainfall, however, has varied from 32.0 to 76.6 inches during the period of record (1900-1986) at the Tampa National Weather Service Station. Maximum monthly rainfall recorded was 22 inches during the period of record (1905-

1986) at the Plant City station. Long lasting rainstorms during the summer months are uncommon, but when they do occur, they are usually associated with tropical storms or hurricanes. In Hillsborough County the least rainfall occurs in the fall (October to November) and in the spring (April to May). The wet season is typically between May and October (NOAA, 1986).

GEOLOGY

In Hillsborough County, Pliocene to Recent age sands of variable thickness overlie Cretaceous and Tertiary carbonates and clays deposited during higher elevations of sea level. Ancient seas deposited thick sequences of sand with shell, clay and marl along Tampa Bay, Hillsborough Bay, and in south-central Hillsborough County. These sands reach thicknesses of more than 100 feet east of Hillsborough Bay. Underlying these sands are clayey sands and clays which geologically appear to be remnants of the Peace River Formation (Bone Valley and Upper Hawthorn Formation) of Miocene age north of the Alafia River. The Peace River Formation, when present, has a variable thickness. It is generally absent or thin in the northern areas of the County and thickens to the south. The formation reaches a maximum thickness of approximately 200 feet at the Manatee-Hillsborough County line (Campbell, 1984).

Below the sand and clays of the Peace River Formation is a thick sequence of carbonate rocks which comprise the Floridan Aquifer system. These chemically-precipitated deposits of limestone and dolomite contain shells and shell fragments of marine origin, which were deposited throughout the Tertiary period. These carbonate units comprise the Arcadia (Tampa and Lower Hawthorn), Suwannee, Ocala, and Avon Park Formations. The Avon Park Formation is the deepest hydrostratigraphic unit containing potable water. Water Quality in the Avon Park degrades near the coast where saltwater intrusion is occurring. Collectively these carbonate units reach a thickness of approximately 1,200 feet in Hillsborough County. These shallow marine carbonates are highly variable in their composition. They may be composed almost entirely of calcium carbonate or contain impurities such as sand, clay or chert. The Peace River Formation is the uppermost rock unit in the southeast part of the County. The Arcadia (Tampa and Lower Hawthorn) Formation is present in most other parts of the County and outcrops can be seen along the bays and rivers (Campbell, 1984). Because the beds thicken and dip to the southwest, potable water wells of similar bottom elevation will penetrate older formations in the northeast than in the southwest. Most of the deep wells in the County produce water principally from the Arcadia, Suwannee, and Avon Park Formations.

Economically mineable quantities of pebble and sand phosphate are found in the shallow Bone Valley and Hawthorn Formations in southeast Hillsborough County. This rock resource is processed into agricultural fertilizer. This area

is the northwest section of the Central Florida Phosphate district located in Hillsborough, Manatee, Polk, and Hardee Counties. The limestone in the northeast part of the County is also at or near the surface, consequently making the area subject to possible future limestone mining activities. This economical resource is used as road base, fill, concrete, and asphalt production. The quarried limerock is taken from the Oligocene, Suwannee, and Eocene Ocala Formations. Other economically mined products include sand, peat, and clay (Campbell, 1984).

SINKHOLES

Sinkholes form in areas underlain by limestone formations. They occur because limestone can be highly soluble in water, especially along fault and layering lines. Rainfall becomes slightly acidic as it percolates through the organic topsoil, and dissolves the limestone layers as it leaches through. Over geologic time, the cavities can enlarge, and may collapse, especially if the water table recedes, leaving the weakened rock to support overhead loads. This forms what is known as "karst" topography. Sinkholes are often associated with springs and round lakes.

Sinkhole formation is likely throughout much of northern and eastern Hillsborough County. Surveys have indicated the presence of 2,303 ancient and 179 modern or active sinkholes in the County (Upchurch and Littlefield, 1987). Geologists have a good idea where sinkholes are likely to form geographically, but it's much more difficult to accurately predict specifically where sinkholes will occur. Special ground penetrating radar equipment can be used to create a map of the underground area, but this information provides only a clue where the cavities are in the subsurface. There has also been research to indicate that many sinkholes are hydraulically connected to the surficial and Floridan Aquifers (USGS, 1978). Some sinkholes act as both sinks and springs, depending upon seasonal water level variations in the aquifer. The permitted utilization of sinkholes should entail the provision of adequate site-specific information, to ensure that the proposed use will not lead to degradation of ground or surface water quality, or cause water level impacts to nearby wells.

Central to the Southwest Florida Water Management District's (SWFWMD) mission is the protection and management of water resources. Due to the hydrogeologic connection of many sinkholes to the aquifer, sinkholes can act as conduits for contamination. SWFWMD records and monitors sinkhole activity that can affect water resources. In addition, the SWFWMD has adopted procedures for the reporting and remediation of sinkholes in an effort to protect water resources.

SOILS

The general soils map for Hillsborough County depicts four broad divisions as follows:

- Poorly drained to very poorly drained;
- Moderately well drained to poorly drained;
- Well drained; and
- Mine pits and dumps.

Each area outlined in the soils map consists of more than one kind of soil; therefore, this figure is intended for general planning purposes (refer to the USDA Soil Conservation Service publication "Soil Survey of Hillsborough County, Florida" for a detailed description of soil types in the County).

Soil Limitations

Due to the flat topography and relative uniformity of soil distribution in Hillsborough County, soil limitations generally do not preclude structural development, except in extreme cases (e.g., wetland soils). Instead, these limitations require that engineering modifications be made to the site prior to construction. Soils with minor limitations can generally be made suitable for development, while moderate limitations may require more extensive alterations. Severe limitations may require the removal of the natural material and replacement with a more suitable soil type.

The use of septic systems for the treatment and disposal of sewage effluent may, however, be significantly limited by site specific soil conditions. The location of septic systems in improper soils may result in several undesirable effects. If the soils have high wetness and poor permeability then the discharged effluent will not percolate properly and may runoff into, and contaminate, adjacent surface waters. In excessively well-drained deep sand, septic effluent can migrate too rapidly for purification processes to occur, and carry contaminants into the groundwater supply. Extreme prudence should be used when permitting septic tanks in very well-drained soils. If a large number of tanks sited on highly permeable soil generate effluent that reaches the potable water supply without sufficient filtering, severe water quality problems can arise. The surficial aquifer, the intermediate aquifer, and even the primary artesian aquifer (Floridan) are all subject to contamination from septic wastes. Areas of high aquifer recharge and contamination potential are discussed and mapped elsewhere in this document.

Soil Erosion

According to the Hillsborough County Soil and Water Conservation District (USDA), there are no chronic soil erosion problems in the County. Temporary soil erosion problems often occur during land clearing for agriculture and development; however, these perturbations can be controlled through the implementation of Best Management Practices (BMPs). The County and the Environmental Protection Commission each review development applications for development approval in conjunction with soils survey information, exercising jurisdiction over wetlands soils.

COMMERCIALLY VALUABLE MINERALS

The most significant mineral resource in Hillsborough County is phosphate, which has been mined in the area since the late 19th century. Prior to 1989, there were several mining companies operating within Hillsborough County. Mosaic Phosphate is currently the only remaining company. Economically, the phosphate industry continues to provide hundreds of jobs in the Tampa Bay region in the fields of processing, marketing, and shipping, as well as the mining of the resource. This results in a net capital inflow to Hillsborough County. Port facilities are also necessary for export of the phosphate rock. Phosphate continues to be the major export from the Port of Tampa (Tampa Port Authority, Master Plan Update, 2000).

From a land use perspective, phosphate mining has by far the greatest impact of any mineral resource in the County. Phosphate mining complicates land use considerations in southeast and central Hillsborough County because large tracts of known deposits are reserved for future mining thereby precluding other land uses in these areas. Additionally, land allocations are necessary for beneficiation plant's tailings and clay settling ponds. Clay settling, or slime ponds, are particularly space intensive and create large areas of unstable land surface unsuitable for development. A single mining plant may require a square mile or more of settling ponds.

Mining itself involves complete disruption of the on-site natural vegetation, drainage, and soil characteristics. Soil and sand atop the ore (overburden) is stripped away and the clay/sand/phosphate matrix is mined with draglines. These huge machines remove up to 50 cubic yards of material with each bucket load. Mining proceeds in parallel cuts of up to 100 yards wide, a mile in length, and 70 feet deep. The overburden is left adjacent to the cut, or deposited in nearby cuts. As successive cuts are made, the matrix is either transported dry or piled in a slurry to the beneficiation plant, which is usually not on the mining site. A typical mining operation disrupts up to 400 acres a year.

During active mining and beneficiation, environmental and aesthetic disturbances are common. Development of lands adjacent to mining operations often results in land use incompatibilities. Residential use is

especially susceptible to problems associated with mining and beneficiation, including noise, and air and water quality problems. Groundwater supplies are subject to drawdown where active mining occurs.

Reclamation and restoration of mined lands is extremely important for long-term land use planning in Hillsborough County. The vast acreages of mined trenches and slime ponds are virtually useless for long time periods unless effective reclamation measures are implemented. This is accomplished through surface contouring, use of original top soil and vegetation types, and restoration of the original drainage patterns.

The mines operated by Mosaic are regulated through the Development of Regional Impact process. The DRI process requires the filing of annual reports which are submitted to applicable review and permitting agencies.

SURFACE WATER RESOURCES

Freshwater Resources

Hillsborough County's surface water features include rivers, lakes, bays, creeks, sloughs, ponds, springs and wetlands. In 2001, it was estimated that surface water was used to supply approximately 31.4 percent of the County's water demand. This entire amount was derived from the Hillsborough River Reservoir system which provides the majority of the City of Tampa's water supply (SWFWMD, 2001). The City's reservoir system includes the Hillsborough River upstream from the dam, and augmentation from Sulphur Springs and the Tampa Bypass Canal (SWFWMD, 2001). By 2003 Tampa Bay Water brought online new surface water withdrawals from the Alafia River and Tampa Bypass Canal, and finished construction of a 15-billion gallon reservoir in 2005 to store excess available surface water from these new river withdrawals.

Saltwater Resources

An in-depth discussion of Tampa Bay, the County's most significant surface water resource, can be found in the Coastal Management Element. The protection and conservation of the resources of Tampa Bay is one of the County's most critical conservation issues, and is dealt with both in this Element and the Coastal Management Element.

Water Quantity

Surface water flows are not only a product of runoff, but also include a groundwater baseflow component. In fact, many surface water systems in west-central Florida are closely interconnected with the underlying groundwater system through springs and sinkholes. In accordance with hydrologic conditions, these natural interconnections may augment flow,

reduce flow, or perform both functions intermittently. Because the Tampa Bay region manifests annual wet and dry seasons with significant variations in precipitation frequency and intensity, the contribution of surface runoff and groundwater baseflow to streams varies. This cyclic pattern of changing baseflow conditions results in variable surface water quantity and quality.

Extreme stream flow fluctuations occur due to intense and erratic seasonal precipitation. Generally, as the percentage of the groundwater flow contribution to a surface water flow increases, the fluctuation in the surface source decreases. Stream flows are generally lowest during April and May. Unfortunately, high municipal water demands historically occur during this same seasonal time period. Due to low monthly minimum flows during peak consumptive periods a regional reservoir has been constructed to provide water during this period.

Water Quality

Surface waters in the region may intermittently contain large quantities of sulfates, chlorides, fluorides, total dissolved solids (TDS), total hardness and color. The development of potable surface water supplies requires treatment facilities designed to reduce these constituents to acceptable levels, and also to remove trace contaminants and biological pollutants which may exist in the stream. Expensive treatment techniques, such as demineralization and defluoridation, may be required to reduce high concentrations of fluorides and TDS.

Hillsborough River

The Hillsborough River originates in the Green Swamp and flows southwesterly into Hillsborough Bay. The river's drainage basin encompasses approximately 690 square miles of which approximately 120 square miles are located in Hillsborough County.

The Hillsborough has five main tributaries which flow into it at various points. Blackwater Creek rises west of Lakeland and meets the Hillsborough just east of the Hillsborough River State Park. Flint Creek, whose outlet is Lake Thonotosassa, flows from the lake and joins the river approximately two miles north of the lake. The New River rises south of St. Leo and flows southward to join the Hillsborough just west of the Hillsborough River State Park. Trout Creek rises southwest of Wesley Chapel and enters the Hillsborough about three miles north of Temple Terrace. Cypress Creek rises in Pasco County northwest of San Antonio, flowing first to the southwest and then southward through a region of lakes and marshes to join the Hillsborough River near S. R. 582. Together, these tributaries account for approximately 65% of the total drainage basin area.

The water quality of the Hillsborough River at the reservoir varies seasonally, but is normally in compliance with State water quality standards. Most of the surface runoff occurs in the summer wet season when rainfall totals are highest. Flow in the Hillsborough River varies significantly during the year, from approximately 9,500 million gallons per day (MGD) during the wet season to less than 30 MGD at the end of the spring dry season. The average flow entering the Tampa reservoir is approximately 368 MGD. During periods of low flow, the river is primarily maintained by base flow from Crystal Springs, in southeastern Pasco County. Its discharge is about 40 MGD. In addition, Sulphur Springs can be used by the City to add up to 20 MGD into the reservoir, if necessary.

Presently, there are two flow controlling structures on the Hillsborough River. The first is the City of Tampa Water Works Dam, which is located on the river at 30th Street. The water below the dam is brackish and tidally influenced by Hillsborough Bay. The water above the dam forms a reservoir which contributes to the City's overall potable water supply. The second structure is located just north and east of Interstate 75 in the vicinity of Fletcher Avenue. This structure (S-155) is operated by the Southwest Florida Water Management District to control flooding. When the river level reaches 28 feet above mean sea level at Fowler Avenue, the flood gates are closed and the excess flow is diverted into the Lower Hillsborough Flood Detention Area where the water is temporarily stored and systematically discharged through the Tampa Bypass Canal system.

The upper Hillsborough River is classified as a Class I-A (potable) water, while the remainder of the river is classified as Class III waters (suitable for propagation of fish and wildlife). The portion of the river passing through Hillsborough River State Park is further designated as Outstanding Florida Waters (OFW). The upper Hillsborough is largely publicly owned and as such is not presently available for major land development.

Alafia River

The Alafia River flows westward from Polk County and eastern Hillsborough County into the Hillsborough Bay near Gibsonton; the drainage basin consists of approximately 420 square miles. The Alafia River is comprised of the North and South prongs, which join nearly 20 miles from the mouth at Hillsborough Bay. The Alafia River has numerous tributaries throughout its course, the most notable being Turkey Creek, Fishhawk Creek, Bell Creek and Rice Creek. Also found along the Alafia are natural springs, the most well-known being Lithia Springs and Buckhorn Springs.

The current average flow of the Alafia at the Lithia gauging station is approximately 233 MGD. Historical average readings range from 200 MGD to 235 MGD. Average flow at the mouth of the Alafia is approximately 300 MGD.

Two reservoirs have been constructed in the Alafia River basin, including the Edward Medard Reservoir and Lake Grady. Lake Grady was built in 1960 by damming Pelleham and Bell creeks for recreation and flood retention, and it remains private. Medard Reservoir was created in 1970 for water management and recreation by damming the Little Alafia River and flooding a phosphate pit. Medard Reservoir has become the most popular Hillsborough County park and has had no significant water quality problems for public recreation. During high-flow periods, Tampa Bay Water pumps water from the Alafia River to help meet water demands at their regional Water Treatment Plant or is pumped to their reservoir in Southeast County for storage and later use.

The quality of water in the Alafia River varies greatly with location and season. In general, the water quality is poor due to high concentrations of sulfates, fluorides, and total dissolved solids.

Little Manatee River

The Little Manatee River discharges to Tampa Bay at Ruskin after descending from some of the County's highest ground. This tri-county (Polk, Hillsborough, Manatee) river basin contains 225 square miles, and the river has a mean flow of more than 150 MGD. This system, with its relatively unimpacted floodplains, swamps and tributaries, is more pristine than the other rivers of Hillsborough County. The Little Manatee is, however, threatened by phosphate mining in its upper reaches. Rich deposits of phosphate matrix lie near the surface along the river's bed, and the easy extraction makes these areas extremely attractive for future mining.

At present, water quality in the Little Manatee River is generally good. The river is classified as a Class III water body and is an Outstanding Florida Water (OFW) from S. R. 674 west to the mouth. West of U. S. 301, the river is designated as an Aquatic Preserve.

The Little Manatee River is also used to supply a reservoir. Florida Power and Light (FP&L) pumps water from the Little Manatee River into its offstream reservoir, Lake Parrish, in Manatee County for cooling its thermoelectric power plant. The average discharge at Highway 301 is 169 CFS (1931-1981), uncorrected for the approximate 10 percent diversion by FP&L (SWFWMD, 1988).

Tampa Bypass Canal

The original Palm River was dredged and channelized to form the Tampa Bypass Canal. The Tampa Bypass Canal System was designed by the U. S. Army Corps of Engineers to provide flood protection for the Tampa metropolitan area. The system has three canal segments with a total length of approximately 37 miles. The canal segments are the Tampa Bypass Canal, the Harney Canal and the Thonotosassa Canal. Since this central pool extends

partially into the Floridan Aquifer, it acts as a sink for groundwater flow and, therefore, draws down the surrounding water table and potentiometric surface somewhat (SWFWMD, 1988). Currently, the Tampa Bypass Canal is used by the City of Tampa to augment their Hillsborough River Reservoir, and also used by Tampa Bay Water during high-flow periods to meet regional demands or is pumped to their reservoir in Southeast County for storage and later use.

Lakes

Many small lakes occur in Hillsborough County. Some lakes appear to be surface expressions of water tables perched on impermeable materials; others are interconnected to the Floridan Aquifer system through sinkholes and reflect the potentiometric surface of the aquifer. In an area north of Tampa, surface water is mainly internally drained through sinkholes and percolation through lake bottoms into the upper Floridan Aquifer.

Several lake levels in northern Hillsborough County are maintained by augmenting them with groundwater from the upper Floridan Aquifer. Artificially raising lake levels causes an increase in leakage through the lake bottoms because the hydraulic gradient between the lakes and the Floridan Aquifer is increased. Water quality differences may also cause shifts in the predominant fauna. Another possible effect is increased dissolution of limestone beneath the lakes (SWFWMD, 1988).

Lake Thonotosassa is the largest body of freshwater within the County and one of the few lakes offering public access. Lake Thonotosassa is 819 acres with the entire 55 square mile watershed completely contained within Hillsborough County. The lake is connected to the Hillsborough River system via Flint Creek. The lake's water quality is considered poor (SWFWMD, 2000). The lake has been severely degraded by urban and agricultural runoff and by point source discharge from the Plant City wastewater treatment plant. Lake Thonotosassa has experienced frequent algal blooms and low dissolved oxygen levels in the past, and is considered to be in a highly advanced trophic state. SWFWMD identified Lake Thonotosassa as a priority surface water for clean-up under the Surface Water Improvement and Management (SWIM) program. Specific management guidelines have been established through the Surface Water Improvement and Management (SWIM) Plan for Lake Thonotosassa SWFWMD is in the process of implementing a number of the restoration efforts identified in the plan.

Wetlands

The County is achieving its objective of a no net loss of wetlands functions. Through 2003, approximately 4,789 acres of wetlands were lost, while approximately 6,060 acres of wetlands were gained through mitigation/compensation/re-creation (In addition many wetland disturbances

were avoided because of alternative mitigation suggestions). Wetlands continue to be protected in accordance with the Rules of the Environmental Protection Commission of Hillsborough County, which are consistent with and generally more stringent than the rules of the Southwest Florida Water Management District, the Florida Department of Environmental Protection, and the U. S. Army Corps of Engineers, all of which exercise wetlands protection jurisdiction throughout Hillsborough County. Beginning in 2004, the Florida Legislature required all state and local wetlands regulatory programs to use a uniform mitigation assessment method to determine the amount of mitigation needed to offset adverse impacts to wetlands and other surface waters. This methodology was promulgated through Chapter 62-345, F.A.C., the Uniform Mitigation Assessment Method (UMAM). Chapter 62-345, F.A.C., requires the replacement of the ecological value of impacted wetlands and other surface waters but not the direct replacement of these impacted areas.

Wetlands are protected at the time of platting as Conservation or Preservation Areas. The County applies, through its Land Development Code, setback and buffer requirements intended to protect water quality and aesthetics and provide open space. Many wetlands are also protected through Development of Regional Impact development orders, their location along the River, in parks and preserves, and through processes such as the ELAP and Save-our Rivers Programs.

Floodplains

Hillsborough County has developed historically along the Hillsborough, Alafia and Little Manatee Rivers, numerous streams and creek, and Tampa Bay. As such, over one third of the County's land area is physically located in the historical 100-year floodplain. Because of this, significant steps have been taken throughout the County's history to protect the residents and structures from flood damage. Most notable is the construction of the Tampa Bypass Canal and Lower Hillsborough Flood Detention Area system, built by the U. S. Army Corps of Engineers and managed by the Southwest Florida Water Management District in accordance with Corps guidelines. In the event of a major storm in the upper watershed, a series of locks can be closed to back water up into the Flood Detention Area, which is a 17,000+ acre tract upstream of the urban area managed as the Wilderness Park system by the Hillsborough County Parks and Recreation Department in agreement with the District. The Bypass Canal system is designed to then slowly release water from the Detention area around the Cities of Temple Terrace and Tampa into Tampa Bay as the potential for flood damage wanes. This considerable investment of federal, state and local effort provides multiple public benefits, not least of which is protecting the lives and properties of urban residents.

The County, often in conjunction with the District, has also built canals and other flood management structures to address both coastal and inland

flooding. The Bypass Canal System is the most notable of a number of flood control projects built pursuant to the U.S. Army Corps of Engineers' Four River Basins study, undertaken in the late 1960's to address regional flood problems that became most apparent after significant tropical storms caused serious flood damage in the summers of 1960-61.

GROUNDWATER RESOURCES

The groundwater system is the principal source of water for domestic, agricultural, and industrial use in Hillsborough County. The groundwater system in Hillsborough County is divided into three distinct aquifer systems: the surficial, intermediate, and Floridan. The Floridan Aquifer system is the principal source of groundwater production and is capable of yielding greater than 5,000 gallons per minute (GPM) from fully penetrating wells.

Surficial Aquifer System (SAS)

A surficial aquifer system in Hillsborough County is composed primarily of clastic deposits of medium to fine-grained, well-sorted quartz sand, silty sand, kaolinitic clay, gravel, shells, and limestone, the composition of which may vary laterally and vertically. The water table in the surficial aquifer generally follows the topographic relief. Flow patterns are usually local in nature, following surface water basins. The direction of groundwater flow in the water table is generally west and south. The average depth to the water table is about 5 feet. In some instances, due to natural chemical processes in the SAS, water from shallow wells may not be of potable quality.

The surficial aquifer supplies the least quantity of water in the County. Small volumes of water are used for domestic use, lawn irrigation, or stock watering. Most wells that tap the surficial aquifer have small diameters and yield less than 25 GPM. In the Brandon Karst Terrain, an area in central Brandon, the surficial aquifer does not exist due to relic sinkholes allowing for a relatively close connection between surface water and groundwater.

Intermediate Aquifer System (IAS)

Where present, the intermediate aquifer system is comprised of sandy clay, clay, and marl, with discontinuous interbedded permeable sand, gravel, shell, and limestone in Hillsborough County. The permeable sand and shell beds, primarily quartz, phosphate minerals, and shell fragments, are generally less than 10 feet thick. The permeable limestone beds are hard, sandy, fossiliferous, and dolomitic, and are thickest in the southern areas of the County. The top of the aquifer system is near sea level throughout much of the County. The entire system thickens to about 200 feet near the Manatee County line.

The quality of water in the intermediate system in the County is generally good except near the coast, where saltwater or residual seawater has not been completely flushed. Water from the intermediate aquifer is primarily used for domestic supply in extreme southern Hillsborough County. Other uses include stock watering, irrigation, and small domestic supplies. Most irrigation wells that penetrate the Floridan Aquifer in the southern areas of the County are also open to the productive zone of the intermediate aquifer.

Small diameter wells (2 inches) may produce 25 to 30 gallons per minute (GPM). Large diameter wells (6 inches or larger) that fully penetrate the aquifer usually yield more than 200 GPM in southern areas. The aquifer is most productive in the eastern and southern parts of Hillsborough County.

Floridan Aquifer System (FAS)

The upper Floridan Aquifer is the principal source of groundwater in Hillsborough County. The altitude of the top of the aquifer ranges from near land surface in the northern part of the County to about 200 feet below sea level in the southern areas. The aquifer thickens from less than 1,000 feet in the northern areas of the County to greater than 1,200 feet in the southern areas. Water in the upper Floridan Aquifer is generally more mineralized than water from the surficial and intermediate aquifer systems.

Floridan Aquifer well yields vary from less than 500 GPM for six inch or smaller diameter wells partially penetrating the aquifer system to greater than 5,000 GPM for 12-inch or greater diameter wells which fully penetrate the aquifer system. The wells range in depth from about 100 to 1,500 feet, depending on the quality and quantity of water needed. Well depths are generally less than 700 feet, primarily because of poor water quality at depth greater than 700 feet.

The upper Floridan Aquifer is the principal source of groundwater in Hillsborough County. Based on existing data, areas most suitable for groundwater development from the Floridan Aquifer in Hillsborough County appear to be in the extreme northeastern and southeastern areas of the County. Poor water quality along the coast, and heavy use in central, northwestern, and southwestern areas, make these areas least suitable for water resource development.

Groundwater Levels

The potentiometric surface of a confined aquifer is the elevation that water would rise to if it were unconfined, and is generally an expression of the "hydraulic head" or recharge pressure within the confined aquifer. The potentiometric surface of the Floridan Aquifer varies seasonally, with highest and lowest levels occurring in September and May, respectively. September is normally the end of the wet season; May, the end of the dry season. Generally, more stress is placed on the aquifer in May because seasonal rains have not

yet begun and crop irrigation is heaviest. Also, tourism is at its peak in late winter and early spring and places additional demands on the freshwater supply at a time when rainfall is least. However, the amount of rainfall is the most important factor affecting the elevation of the potentiometric surface of the Floridan Aquifer. Figure 7 shows the general potentiometric surface elevations in the Floridan Aquifer during the spring dry season.

Groundwater flow in the Upper Floridan Aquifer in Hillsborough County is generally west and southwest. Seasonal water-level fluctuations range from less than 10 feet in northeastern areas to more than 20 feet near Wimauma. The depression in the Upper Floridan potentiometric surface in the south-central part of the County probably results from groundwater withdrawals for irrigation. Hydrographs of observation wells indicate a general decline in water levels since 1955. The greatest declines appear between 1965 and 1975. Declines range from about 9 feet in eastern areas of the County to 3 feet along coastal areas of the County. Excessive groundwater withdrawals have resulted in significant wetland and lake drawdowns leading to both temporary and permanent ecological damage to these natural systems (SWFWMD, 1988). To address this, permanent reductions in wellfield pumping, in the interest of the ecological recovery in lakes and wetlands, have taken place over the past ten years. Furthermore, the SWFWMD has documented saltwater intrusion occurring along coastal Hillsborough County and extending to counties to the south.

AQUIFER RECHARGE

Aquifer recharge can generally be defined as the replenishment of water in an aquifer system. There are two basic dimensions to the issue of recharge area protection: water quantity and water quality. From the quantity perspective, it is desirable to ensure enough recharge to sustain projected ground-water requirements for natural systems and the future population of the region. But in terms of water quality, recharge areas are sensitive zones, because water moving downward from the surface can transport contaminants to the aquifer.

In general, the most productive recharge areas are uplands with highly permeable soils and poorly developed surface drainage. Most wetlands are not highly productive recharge areas, due to their tendency to hold water above ground. Many wetlands are in fact discharge areas, where ground water seeps to the surface.

Areas of recharge to the Floridan Aquifer in Hillsborough County have been mapped by numerous investigators, using a variety of methods, which have often lead to conflicting results. The Southwest Florida Water Management District has generally accepted the maps compiled by Aucott (1988) as the most definitive source. Figure 9 illustrates the areas of natural recharge to Floridan Aquifer in Hillsborough County.

The areas of generally no recharge, under natural conditions, are mostly where the potentiometric surface of the Floridan Aquifer is above land surface much of the time; these areas coincide with areas of artesian flow. The areas of known very low recharge are where the Floridan is known to be overlaid by relatively impermeable confining beds, generally more than 25 feet thick. In these areas, recharge rates are estimated to be less than 2 inches per year.

The areas of very low to moderate recharge are where the confining beds are generally less than 25 feet or breached, but include unknown areas where the confining bed may be more than 25 feet thick and unbreached. Areas of very low to moderate recharge also include areas where the confining bed is absent, but where the water table and the potentiometric surface of the Floridan Aquifer are both close to the land surface, so that little recharge occurs. Recharge rates of very low to moderate recharge are estimated to range from less than 2 inches to as much as 10 inches per year.

Areas of high recharge represent only about 15 percent of the entire State of Florida, and in these areas recharge rates are estimated to range from 10 to 20 inches per year. In comparison to the State as a whole, there are no known areas of high recharge in Hillsborough County, although there are areas of relatively high aquifer contamination potential. However, it should be noted that natural recharge rates can be greatly influenced by groundwater withdrawals, which have the effect of lowering the potentiometric surface and thus potentially increasing recharge rates, within the cones of influence of wellheads. Consequently, maps indicating areas of 'natural' recharge may be very misleading in situations where significant groundwater withdrawals are taking place.

Aquifer Contamination

The Southwest Florida Water Management District (1988) has delineated areas in Hillsborough County deemed prone to aquifer contamination or overdraft due to current or projected development. Two sources of this information exist. The first is contained in SWFWMD's Water Resource Assessment Project (WRAP) reports for the northern Tampa Bay and Eastern Tampa Bay areas. For the other SWFWMD utilized the DRASTIC methodology developed by the U. S. Environmental Protection Agency to develop a map series. This acronym is based on the criteria for the methodology: Depth to water, net Recharge, Aquifer media, Soil media, Topography, Impact of the vadose zone and hydraulic Conductivity. DRASTIC maps are constructed by individually mapping variations of the seven DRASTIC parameters.

Once the seven parameters are individually mapped and assigned ranks, the seven maps are superimposed, and composite DRASTIC areas are formed. These composite areas are assigned DRASTIC indices. These indices are the sum of the products of the rankings and weights of the seven parameters for

the individual composite areas. The DRASTIC indices of the composite areas are then grouped in categories for ease of map discernibility. These categories are listed below:

Category	Color
200+	Red
188-199	Orange
160-179	Yellow
140-159	Light Green
120-139	Dark Green
100-119	Light Blue
80-99	Indigo
79-and below	Violet

Interpreting DRASTIC maps is quite simple. The higher the DRASTIC index, the greater the groundwater pollution potential.

The SWFWMD prepared maps of the surficial, intermediate, and Floridan Aquifer systems for Hillsborough County. Figure 16 is the Floridan Aquifer DRASTIC map. In general, the Floridan Aquifer in Hillsborough County has a low susceptibility to contamination in the southern portion of the County and a moderate to high susceptibility to contamination in the northern areas of the County.

Hillsborough County has been identified as an area experiencing some aquifer contamination. Recent studies conducted by SWFWMD have detected pollutants seeping into the Floridan aquifer and returning through springs. Rising levels of nitrogen and phosphate-based nutrients have been detected in regional surface waters. (Hillsborough County Integrated Plan, SWFWMD, 2003).

The findings of a study entitled Origin of Nutrients in Groundwater Discharging from Lithia and Buckhorn Springs point to inorganic fertilizers and dairy wastes as causes for increased nitrogen loadings in Lithia and Buckhorn Springs located in northeast Hillsborough County and in the groundwater of the Brandon karst terrain (SWFWMD, September 1993).

Measures to limit the threat of groundwater contamination include reducing the number of septic tanks and continuing policies that require such facilities to connect to centralized sewer systems, prohibiting activities that breach the confining layers of the Floridan aquifer through land development, and not supporting the use of deep-well injection as a method for effluent or waste disposal, except where it can be demonstrated that the injection will not impact potential potable aquifers. The County's continued efforts with these policies will continue to reduce the potential for groundwater contamination.

Pollution Sources

The major pollution sources to the waters of Hillsborough County include stormwater, industrial operations and domestic wastewater treatment plants. The Hillsborough County Environmental Protection Commission (EPC), in cooperation with the Florida Department of Environmental Protection (DEP), uses a "Permit Process" as the primary tool for controlling water pollution from industrial and domestic sources. The stormwater management permitting process has been delegated to the Southwest Florida Water Management District (SWFWMD).

Industrial Sources. There are over 20 different types of major industries requiring regulatory permits from DEP for wastewater management, treatment or discharge. An additional 145 facilities located throughout Hillsborough County are covered by general permits. Each industrial type poses a different potential threat to the environment. The regulatory permitting process seeks to control this potential harm by setting strict standards or limitations on the discharge. Since 1995, to ensure compliance with these limitations, inspections are conducted at 100 of the permitted facilities twice a year. Inspections include sample collection, permit review, operation report reviews, and overall operation. (EPC, 2003)

An unusual and unique problem for Tampa Bay is the high level of phosphorus and nitrogen associated with the phosphate industry. The fertilizer industry has made improvements over the last several years which has resulted in reducing the nutrient loads discharged.

There are currently 139 domestic wastewater treatment plants operating in Hillsborough County. Eleven of these plants discharged to surface waters in 2003. The greatest improvements in surface water pollution abatement have been made as a result of improved domestic wastewater treatment. Florida requires all wastewater treatment plants which discharge to Tampa Bay or its tributaries to meet advanced waste treatment (AWT) standards. In 1973, there were 103 domestic wastewater treatment plants with 55% discharging to surface waters; in 2003, only 7% of the 139 plants discharged to surface waters. Although the number of plants decreased, the total volume permitted for discharge increased, due to population growth. Even with this increased permitted discharge, the requirement for AWT by surface water permit holders has brought about a decrease in pollution loading to the bay. (EPC, 2003)

Stormwater Sources. Stormwater is a major source of pollutants to lakes, streams and bays. Unlike domestic or industrial sources, stormwater is a non-point pollution. Undeveloped uplands and wetland systems help maintain good water quality by filtering, settling and/or assimilating these pollutants as stormwater flows through and across them. Land development with its accompanying increased impervious surfaces (roads and roof tops) fundamentally disrupts the natural treatment of rainfall and runoff. The quantity of runoff and rate of runoff is increased because roads and storm

sewers provide a direct, unimpeded conduit to the receiving water. The problem is further compounded because there is less vegetation which results in lower nutrient uptake/assimilation. Thus, stormwater is laden with nutrients which are readily available to aquatic vegetation and algae, exacerbating the eutrophication problems evident in our lakes and bays.

In practical terms, water quality refers to the fitness of water for both human and natural uses, and can be described by concentrations of specific parameters (such as bacteria) or by the relation of observed concentrations to State standards (e.g., allowable levels of bacteria). Several parameters are important from the standpoint of human uses of the Bay.

In 1991, the Board of County Commissioners (BOCC) approved the Stormwater Fee Program which made stormwater management a utility. The fee is $12 per year for single family parcels and variable rates for other land uses. The total revenue from the fee was approximately $5.0 million in FY2005 which was utilized for Stormwater Capital Improvement Projects, Stormwater culvert replacements, National Pollutant Discharge Elimination System Permit requirements and Watershed Management Master Plan updates. In addition, unincorporated general funds in the amount of approximately $11.4 million in FY 2005 were utilized for stormwater maintenance funding.

The Southwest Florida Water Management District tracks groundwater quality through their Ambient Ground Water Monitoring Program.

Individual Watershed Management Master Plans, which collectively comprise the comprehensive Countywide Watershed Management Master Plan, were completed for all of unincorporated Hillsborough County from 1998 through 2002. The plans are used to establish existing levels of service within the unincorporated area of the County, and to provide project recommendations for alleviating stormwater LOS deficieincies where they occur, as well as general recommendations for improving the overall Stormwater Management Program.

The order in which the individual Watershed Management Master Plans were completed, previous updates, and future updates is indicated below and shown in the Watershed Management Master Plans Map of the Comprehensive Plan Map Series. The priorities reflect the need for the studies to address known flooding problems, to precede development in expected growth areas, and to maximize the benefits of the scheduled stormwater management capital improvements.

Table 1 Watershed Plan Priorities

Watershed Plan	Initial Completion	Previous Update	Future Update
Brooker Creek	1998	2001	2006

Double Branch	1998	2001	2008
Rocky/Brushy	1998	2001	2010
Lower Sweetwater	1998	2001	2009
Sweetwater	1998	2001	2010
Pemberton/Baker	1998	2001	2008
East Lake	1999	N/A	2006
Curiosity Creek	2000	N/A	2006
Cypress Creek	2001	N/A	2007
Bullfrog/Wolf Branch	2000	N/A	2011
Delaney/Archie	2001	N/A	2007
Silver/Twin Lake	2001	N/A	2009
Duck Pond	2001	N/A	2006
Hillsborough River	2002	N/A	2009
Tampa Bypass Canal*	2002	N/A	2008
Little Manatee River	2002	N/A	2011
Alafia River	2002	N/A	2007

* - Tampa Bypass Canal was done with the Hillsborough River

Specific policies are included in Chapter IV of the Stormwater Management Element of the Comprehensive Plan (Goals, Objectives, and Policies) which outline the commitment of the County to the development, maintenance,and updating of the comprehensive Countywide Watershed Management Master Plan.

Total Maximum Daily Loads (TMDL)

Section 303(d) of the Clean Water Act (CWA) requires states to submit lists of surface waters that do not meet applicable water quality standards (impaired waters) after implementation of technology-based effluent limitations, and establish Total Maximum Daily Loads (TMDLs) for these waters on a prioritized schedule. TMDLs establish the maximum amount of a pollutant that a water body can assimilate without causing exceedances of water quality standards. As such, development of TMDLs is an important step toward restoring our waters to their designated uses. In order to achieve the water quality benefits intended by the CWA, it is critical that TMDLs, once developed, be implemented as soon as possible.

Chapter 99-223, Laws of Florida, sets forth the process by which the 303(d) list is refined through more detailed water quality assessments. It also establishes the means for adopting TMDLs, allocating pollutant loadings among contributing sources, and implementing pollution reduction strategies.

Implementation of TMDLs refers to any combination of regulatory, non-regulatory, or incentive-based actions that attain the necessary reduction in pollutant loading. Non-regulatory or incentive-based actions may include development and implementation of Best Management Practices (BMPs),

pollution prevention activities, and habitat preservation or restoration. Regulatory actions may include issuance or revision of wastewater, stormwater, or environmental resource permits to include permit conditions consistent with the TMDL. These permit conditions may be numeric effluent limitations or, for technology-based programs, requirements to use a combination of structural and non-structural BMPs needed to achieve the necessary pollutant load reduction.

Basin Management Action Plans

Basin Management Action Plans (BMAPs) are an important step in the TMDL process. These document are developed in cooperation with local stakeholders and attempt to reach consensus on detailed allocations and on how load reductions will be accomplished. The BMAP will include the following:

- Appropriate allocations among the affected parties,
- A description of the load reduction activities to be undertaken,
- Timetables for project implementation and completion,
- Funding mechanisms that may be utilized,
- Any applicable signed agreement,
- Local ordinances defining actions to be taken or prohibited,
- Local water quality standards, permits, or load limitation agreements, and
- Monitoring and follow-up measures.

WATER SUPPLY SOURCES AND ALTERNATIVES

Water Supply and Current and Projected Water Use

Potable water is currently supplied to residents of Hillsborough County from a combination of sources, including the City of Tampa's Hillsborough River Reservoir, the Tampa Bypass Canal (TBC), Sulpher Springs, the Alafia River, a new 15-billion gallon regional reservoir and a network of public supply wellfieds and private wells, located within and outside the County. A desalination plant is currently under repair and is expected to be operational in October of 2006 and provide 25 million gallons per day (mgd).

Water Use Caution Areas (WUCAs), created by SWFWMD, utilize workgroups comprised of representatives from agriculture, industry, public supply, and environmental interests to develop short-term water managment tools. In 1992, our Governing Board designated a 5,100-square-mile area in the southern region of the District as the Southern Water Use Caution Area (SWUCA). This area includes all of DeSoto, Hardee, Manatee, Sarasota, and portions of Charlotte, Highlands, Hillsborough and Polk counties. SWUCA water resource concerns include depressed aquifer levels which cause saltwater intrusion and contribute to reduced flows in the upper Peace River, and lowered lake levels in

upland Polk and Highlands counties. As part of developing a recovery strategy, a SWUCA Work Group was formed to review resource management approaches. Work Group deliberations and public meetings started in October 1998 and continue today.

The draft *Southern Water Use Caution Area Recovery Strategy* outlines the District's strategy for ensuring adequate water supplies are available to meet growing demands, while at the same time protecting and restoring the water and related natural resources of the area.

Wellfields

Tampa Bay Water (TBW), a regional water supply authority, is responsible for the development of water supply for Hillsborough County's potable water supply needs. TBW was established in 1998 by a Five Party Interlocal Agreement among Hillsborough, Pinellas and Pasco counties and the cities of St. Petersburg and Tampa that reorganized the existing West Coast Regional Water Supply Authority. TBW provides potable water to six member governments at a unitary rate. These governments in turn distribute the water to their residents.

In July of 1991, the Authority's Board of Directors and the governing bodies of its members approved the Regional System Water Supply Contract, which for the first time in the history of the TBW, joined every member of the Authority into a regional network of wellfields to serve the entire membership. Previously, TBW facilities served individual members of the Authority through separate agreements. Under the reorganization, TBW acquired ownership of all water supply facilities with the exception of the City of Tampa's Hillsborough River Reservoir.

Under TBW's Master Water Plan the regional system was expanded to include a new set of sources including the Brandon Dispersed Wells, Alafia River Pump Station, Tampa Bypass Canal Pump Station, Regional Reservoir, Desalination Plant and an expanded network of transmission mains between facilities to create a "Loop System," which allow for increased movement of water within the system, redundant interconnects for emergencies, and greater options for wellfield rotation to better manage the resource and protect the environment. (Additional information on potable water supply can be found in the Potable Water Element.)

Water Conservation

Water conservation is expected to play an important role in the County's efforts to plan for future water supplies, wastewater disposal, and environmental protection.

The County has responded to the need for water demand management by strengthening its Water Conservation Program. Building codes were modified to require low-flow fixtures and low-volume toilets (1.6 gallons per flush) in new construction. A program to retrofit existing residences with low-flow/volume fixtures was initiated with joint funding from the SWFWMD Basin Boards in Fiscal Year 1995. Maintenance of that program continues independent of funding from the District.

The County adopted all SWFWMD water use restrictions by Ordinance and increased enforcement and public education activities. Mobile irrigation labs are used to assess the efficiency of residential irrigation systems. The Land Development Code has been modified so as to require design and construction standards for irrigation systems. Conservation staff play an active role in implementing water efficiency standards throughout the region, state and nation.

In 1992 the County installed an inverted block rate structure that encourages water conservation by charging higher user fees on usages above reasonable beneficial use while lowering user fees for essential uses. The County's water conservation rate is the most progressive in the tri-county area, having the highest rates for the high-usage categories.

Using funding from collected penalties for violations of water use restrictions, the County is sponsoring research of weather-based irrigation controllers in hopes of implementing alternatives to day of week water use restrictions.

Objective A. of the County's Strategic Plan Goal #7 requires the County to maintain the average per capita potable water use at 107 gallons per day in a wet weather year, 120 gallons per capita in an average rainfall year, and 130 gallons per capita per day in a dry weather year.

Reclaimed Water Reuse

The County has developed an aggressive Reclaimed Water Reuse Program. At present over 45 percent of the water reclaimed at the County's subregional wastewater treatment plants is reused. The use of reclaimed water reduces groundwater withdrawals and the demand on potable water supplies by substituting reclaimed water for certain industrial processes and turf irrigation.

The County is expanding the reclaimed water distribution system through the CIP to make the resource available to more users. In addition, the County has initiated a Reclaimed Water Improvement Unit (RWIU) program that enables existing residential development to finance the installation of reclaimed water distribution facilities within their subdivisions over a 20-year period through

special taxing districts. The RWIU program results in the direct replacement of potable water use for irrigation with reclaimed water.

Desalinization
A regional Desalination Plant is currently under repair. Upon completion in October of 2006, it is expected to yield 25 million gallons per day of potable water.

FLORA AND FAUNA

The State's variable climate and geography, combined with soil composition, rainfall patterns and coastal influences, provide a mosaic of habitats, each with a unique association of flora and fauna.

Hillsborough County, due to its size, extensive estuarine shoreline, and location in a transitional climate zone (temperate to sub-tropical), contains representative examples of over half of the major plant communities in the State. Fourteen plant communities occur in Hillsborough County. They include pine flatwoods, dry prairies, sand pine scrub, sandhills, xeric hammocks, mesic hammocks, hardwood swamps, cypress swamps, freshwater marshes, wet prairies, coastal marshes, mangrove swamps, coastal strand, and marine grassbeds.

Regulation**,** specifically through the upland habitat protection program and EPC's Wetlands Rule, is designed to protect the most sensitive portions of private parcels that have been identified as a Significant or Essential Wildlife Habitat. Hillsborough County is home to 34 different plants, mammals, reptiles, amphibians, and birds that are listed on Florida's endangered, threatened, and species of special concern official list. Wetlands and other environmentally-sensitive areas are also protected in accordance with plan provisions through Code requirements including buffers and other techniques. Wetlands county-wide are protected in accordance with the Rules of the Environmental Protection Commission of Hillsborough County (EPC), which was created through a special state act (Chapter 1-11, Laws of Florida, the Environmental Protection Act of Hillsborough County). EPC has received delegation for wetlands protection from the Florida Department of Environmental Protection (FDEP); all wetlands disturbances must be first approved by the EPC.

The state's Environmental Resource Permit (ERP) process, administered primarily by the Southwest Florida Water Management District locally, is also intended to improve the protection of both upland and wetlands ecosystems, partially through improved coordination with the Florida Fish and Wildlife Conservation Commission. The Hillsborough River Greenways Task Force, in coordination with the FDEP's Ecosystems Management Initiative and the

SWFWMD's watershed management process, is working towards ecosystem-wide protection of the environmentally-sensitive upper Hillsborough River corridor. SWFWMD's watershed management process, titled the Comprehensive Surface Water Management (CSWM) initiative, is a watershed aproach to surface water management which seeks to enhance watershed planning and management through the integration of a wide variety of resource activities for all watersheds in Hillsborough County including the Alafia River and Little Manatee River. The Tampa Port Authority's Sovereign Lands Management Advisory Committee is working with the Port Board and staff to implement the Aquatic Resource Protection Area (ARPA) process, whereby the Port Authority has committed to help implement management plans for the ten identified ARPAs over the next ten years. The Cockroach Bay Aquatic Preserve Management Advisory Team (CAPMAT) is developing a management strategy for their Area of Concern; the Cockroach Bay Area Restoration Alliance (COBRA) is working towards implementation of a restoration strategy for over 800 acres north of Cockroach Bay, the largest restoration project in the Tampa Bay region. In addition, the Strategic Management Initiative for McKay Bay, which includes provisions for further protecting ecosystems around this renowned bird sanctuary, is being implemented by the Bay Area Environmental Action Team, through the City of Tampa in conjunction with a number of entities. There are three ELAPP parcels around McKay Bay, and other areas predominated by mangrove forests. Many preserves and conservation areas are protected through non-public processes, such as the dedication of conservation easements, designation of Conservation Areas on plat maps, and as regulated and monitored mitigation areas. Finally, the Tampa Bay Estuary Program, in which the County is a significant participant, has developed numerous strategies for improved land/water management throughout the Tampa Bay watershed.

The Natural Systems and Land Use Inventory map delineates significant wildlife habitat within County boundaries; this information forms an overlay on the Future Land Use Plan Map(See the Future Land Use Element). Areas of essential wildlife habitat (those areas critical for the survival of endangered and threatened species, and species of special concern) are mapped where known. Figures 13 and 14 are FGFWFC Biodiversity Hot Spots and Strategic Habitat Conservation Areas, respectively.

Commercially and Recreationally Important Fish and Shellfish

Once a highly productive ecosystem, Tampa Bay has sustained considerable damage due to urban development. There are only two shellfish harvesting areas in Tampa Bay. They are both classified by the state as "conditionally approved," meaning that they are subject to ongoing water quality analysis due to conditions which frequently alter the water quality including flooding and

urban runoff. One area is in Boca Ciega Bay and the other is in Lower Tampa Bay. Oysters and clams are no longer commercially harvested due to the inability of the few approved shellfish harvesting areas to produce harvests large enough to support a commercial industry. In addition, recreational harvesting of clams and oysters is extremely limited due to these conditions. Scallop harvesting is strictly prohibited as efforts are underway to reestablish the species. Other shellfish populations, which do support significant harvests, include: blue crabs, stone crabs, lobster and shrimp.

Many fish are commercially harvested in Tampa Bay, the most significant of these include: grouper, jack, mullet, shark and snapper. Although a wide variety of fish are taken recreationally, the most significant are spotted seatrout, red drum and snook. The Bay supports a diversity of recreational fishing opportunities including: boat, pier, bridge and shore fishing. (see also the Coastal Management Element)

NATURAL PRESERVES

Natural preserve lands are those lands which are maintained and managed in essentially their natural state with the primary objective of conserving and protecting their environmentally unique, irreplaceable and valued ecological resources. Natural preserve lands also provide recreation and aesthetic benefits and are open to public use and enjoyment to the extent that such uses are compatible with the conservation and protection of these lands.

In 1987, Hillsborough County voters passed a referendum to create the Environmental Lands Acquisition and Protection program (ELAPP) with the purpose of acquiring, preserving and protecting endangered and environmentally sensitive lands, beaches, parks and recreational lands in Hillsborough County. In 1990, the voters approved another ELAPP referendum authorizing the County to issue bonds up to $100 million that would be retired by the levy of ad valorem taxes not to exceed 0.25 mil in any one year, to designate a portion of such funding for site restoration and management, and to permit the conveyance of such lands to other public agencies for the purpose of preservation, provided the proceeds be used to acquire additional land or retire bonds. Through 2005, 47 sites, totaling approximately 41,300 acres, have been acquired or preserved.

In addition to the ELAPP program, the Conservation and Recreation Lands (CARL), and Save Our Rivers (SOR) programs, administered by the Florida Department of Environmental Protection (FDEP) and the Southwest Florida Water Management District (SWFWMD), respectively, offer additional alternatives to local acquisition. SWFWMD has coordinated with the County's ELAPP program to acquire several projects.

AIR QUALITY

Clean air is a vital natural resource that is necessary for life and should be safeguarded for public safety and wellbeing. The components of air directly affect the health and welfare of the County's residents. Hillsborough County is home to the Port of Tampa, the Florida's largest seaport and one of the nation's fastest growing cruise homeports. Not surprisingly, almost twenty percent of Florida's industries are located in Hillsborough County. Coal-fired power plants, phosphate fertilizer complexes, municipal waste-to-energy incinerators, gasoline and other bulk commodity terminals are just a few of the industrial facilities located within Hillsborough County. (2004 State of the Environment, Annual Report, EPC, 2004).

Air quality in Hillsborough County is regulated at the federal level by the U. S. Environmental Protection Agency (EPA), at the state level by Florida Department of Environmental Protection (FDEP), and at the local level by the Environmental Protection Commission of Hillsborough County (EPC). In February 1993, the EPC became the first local program in Florida to receive full air permitting delegation from the State. FDEP retained primary permitting jurisdiction for some major facilities; however, EPC maintains significant involvement in the permitting of these facilities through field inspections and drafting permit conditions.

In 2004, EPC's Air Monitoring Section operated 23 air monitors for national and state air quality standard assessments, and 28 special purpose monitors which collect specific air quality data on pollution problems unique to Hillsborough County. These air monitors measured levels of several criteria pollutants such as, sulfur dioxide, nitrogen oxides, ozone, particulate matter, carbon monoxide and lead. These pollutants are the most prevalent and have the greatest overall adverse impacts on health. The table below illustrates the Air Quality for the Tampa Metropolitan Area over the past ten years.

Table 2 Air Quality For Tampa Metropolitan Area

Air Quality was Measured in Terms of Unhealthy Days for Sensitive Individuals
(1995-2004)

YEAR	Number of Unhealthy Days
1995	7
1996	13
1997	2
1998	10
1999	13
2000	4
2001	6
2002	0

2003	4
2004	1
2005	5

Source: Air Quality Technical Reports, EPC, 1995-2005.

Pollution Sources

Title V of the Clean Air Act Amendments of 1990 (CAAA) requires major sources of air pollution to obtain a State or an EPC permit. In Hillsborough County, most of these facilities were already being regulated by the EPC. For those sources currently in the system, Title V requires a more complete accounting of their emissions and improved compliance monitoring of activities. For those facilities not regulated prior to Title V, they are now required to obtain controls and to begin reporting what the facilities are emitting. Title V became effective in 1997. There are thirty-two (32) Title V facilities in Hillsborough County. Industrial facilities holding permits in the County include the following types of operations:

- Electrical generating plants;
- Phosphate fertilizer manufacturers;
- Incinerators/resource recovery operations;
- Gasoline and bulk commodity terminals; and
- Utility boilers.

Another major source of area pollution are non-point sources, which include highways, construction sites, and forest fires. Non-permitted facilities or individual citizen's activities which emit excessive dust, odor, noise or smoke are also regulated by the Rules of the Environmental Protection Commission. In 2004, the EPC Air Division Citizen's Response Section responded to over 629 complaints.

Asbestos regulation is an additional program administered by EPC. Asbestos, one of the first Harzardous Air Pollutants (HAP) to be regulated, is a naturally occurring mineral that is found in many products throughout the world. Once asbestos is disturbed, the mineral crystals separate into long thin fibers. Disturbance of asbestos-containing materials may lead to inhalation exposure to asbestos fibers, which can potentially cause severe health problems. Proper asbestos handling and disposal is required for all demolition and renovation projects on commercial as well as industrial facilities in the county.

Past and Projected Impacts

Air pollution levels have improved or remained constant since the initiation of monitoring and permitting programs in the mid-1970's. Ozone continues to be a particular concern for the residents of Hillsborough County. Since

Congress enacted the Pollution Prevention (P2) Act of 1990, the national focus of pollution control has broadened to include environmentally beneficial ways to deal with pollution. Each year the EPC Air Division identifies P2 goals and objectives for each department: Air Toxics, Citizen's Response, Air Compliance, Enforcement, and Permitting. These goals are measured in terms of accomplishments and re-evaluated annually.

Abatement Potential

The current local, State, and Federal efforts have made progress in improving air quality in the City of Tampa and Hillsborough County. However, efforts must be continue to reduce pollution levels.

HAZARDOUS WASTE AND HAZARDOUS MATERIALS

Please refer to Solid Waste Element Technical Report for information regarding hazardous waste.

IV. GOALS, OBJECTIVES, AND POLICIES

Goal 1: Preserve, conserve, restore, and appropriately manage the natural resources of Hillsborough County and maintain or enhance environmental quality for present and future generations.

AIR QUALITY

Issue: Hillsborough County is currently designated as an attainment area for 5 out of the 6 criteria pollutants. This attainment area designation means that the County meets national and state ambient air quality standards for those pollutants. The County is a maintenance area for the pollutant lead. The lead maintenance area is a small geographical site that is currently meeting the air quality standard but requires continuous monitoring. There are two types of standards established by the Clean Air Act: primary standards and secondary standards. Primary standards address and set pollutant limits to protect public health. Secondary standards are designed to limit pollutant levels to protect public welfare, such as damage to animals, crops, vegetation, and buildings.

Automobile emissions continue to constitute nearly one-third of the air pollution sources in the county. However, point source emissions, primarily coal-burning power plants, also contribute significantly to air pollution. Modern changes are on the horizon though. In 2003, Tampa Electric Company's (TECO) Bayside Power Station shut down the last of its coal-fired units to complete the process of re-powering the plant to natural gas. The change resulted in emission reductions of 99 percent for SO_2 and NOx, and 92 percent for particulate matter (PM). Future growth in the county will add automobile traffic, as well as increase the demand for electric generating facilities. Compliance with existing regulations and innovative voluntary air pollution control measures are needed to improve and safeguard the County's air quality.

The Environmental Protection Commission of Hillsborough County (EPC) is the local environmental regulatory agency charged with enforcing air quality regulations throughout both incorporated and unincorporated Hillsborough County. Through an interlocal agreement with the Florida Department of Environmental Protection (FDEP), to which the Environmental Protection Agency has delegated enforcement of the Federal Clean Air Act, the EPC processes and enforces the Florida Department of Environmental Protection's air quality permits. The EPC also implements its own programs, such as regulation of open burning to ensure that burning does not add to air quality problems during periods of air stagnation or temperature inversions.

The EPC was created by a special legislative act, and is not administered by the Office of the County Administrator. Staff does report to the Board of County Commissioners sitting as the EPC Board. For that reason, language in this Plan does not mandate the EPC to implement the Plan's provisions, but rather seeks a cooperative association between the County and the EPC to ensure that the Plan is implemented and enforced.

Objective 1: Hillsborough County shall continue to maintain compliance with all national and state ambient air quality standards, and take appropriate steps to do so. Such steps may include coordinating with the state and adjacent communities, promoting clean fuels and alternative fuel technology, instituting transportation demand management strategies, and establishing improved transit opportunities, among others.

Policy 1.1:

The County shall continue to actively promote the use of ride-sharing, car pooling, mass transit systems, walking, safer bicycle facilities, employer-option transportation control measures such as flexible work hours, employer based car-pooling, compressed work weeks, and other techniques for reducing total motor vehicle emissions.

Policy 1.2:

The County shall support the EPCHC in the continuation and enhancement of a local mobile source control program to promote the reduction of mobile source emissions through voluntary measures.

Policy 1.3:

When planning and implementing transportation system improvements, the County shall give priority to traffic flow improvements that reduce air pollution concentrations, particularly in areas where ambient standards are violated. The County shall also work with the Florida Department of Transportation, the Metropolitan Planning Organization, the Environmental Protection Commission of Hillsborough County and other agencies in the transportation planning and funding process to ensure that priority is given to traffic flow improvements that reduce air pollution concentrations, particularly in areas where ambient standards are violated and the County has no jurisdiction.

Policy 1.4:

The County shall cooperate with the Environmental Protection Commission to ensure that an air quality monitoring program to monitor compliance with all ambient air quality standards is maintained.

Policy 1.5:

The County, in coordination with the EPCHC, shall ensure continued regulation of open burning for nonagricultural purposes for the maintenance

of public health and safety, and to ensure continued compliance with air quality standards.

Policy 1.6:

The County shall continue to meet national ambient air quality standards.

Policy 1.7:

The County shall not support the lowering of existing local, state or federal ambient air quality standards to accommodate the conversion of electric generating facilities from oil or gas burning to coal burning, unless necessary for the public health, safety and welfare.

Policy 1.8:

The County, in coordination with the Environmental Protection Commission of Hillsborough County, shall continue to actively promote energy conservation measures and alternative energy sources to reduce the demand for electricity and to minimize power plant emissions from the burning of fossil fuels. For example, the County will actively participate in the U.S. Environmental Protection Agency's Energy Star for Buildings program, which promotes energy conservation in major public and private structures and facilities.

Policy 1.9:

The County shall continue to support the Environmental Protection Commission's program to inventory and regulate previously unregulated small stationary sources and facilities which generate emissions of volatile organic compounds (VOCs), oxides of nitrogen (NOx), and hazardous air pollutants (HAPs).

Policy 1.10:

The County shall continue to monitor air quality impacts from its solid waste to energy facility, in accordance with its air emissions permit.

Policy 1.11:

The County shall ensure continued support of a local hazardous and toxic air pollutants program to implement and enforce the Federal National Emission Standards for Hazardous Air Pollutants Program, which regulates sources of hazardous substances; including asbestos and Title III of the Clean Air Act Amendments which develops control strategies for toxic and hazardous air pollutants.

Policy 1.12:

The County shall provide public education regarding air quality issues.

Policy 1.13:

The County shall communicate and work with federal, state, and local agencies and governments, especially Pinellas County, in pursuing regional compliance with ambient air quality standards.

Policy 1.14:

The County shall request that the local Chambers of Commerce work to attract clean, non-smokestack industries in new industrial developments.

Policy 1.15:

The County shall cooperate with the Environmental Protection Commission to ensure enforcement of fugitive dust control measures used during non-agricultural land clearing and development.

Policy 1.16:

The County shall cooperate with the Environmental Protection Commission of Hillsborough County and the Department of Environmental Protection to institute the most effective procedure to alert the public of an air pollution episode.

Policy 1.17:

The County shall, as allowed by general law, continue to coordinate with the State to update building code requirements which minimize the risk of radon gas emissions and accumulation in residential developments.

LINKING LAND AND WATER MANAGEMENT

Issue: Water as rain, in rivers, streams and lakes, under ground and, ultimately, in Tampa Bay - is a critical component of Hillsborough County's natural resource base, its ecology, its economy and its residents' quality of life. The citizens of Hillsborough County will not accept environmental degradation. They have historically furthered environmental protection through their strong support of: the Environmental Protection Act, the Environmental Lands Acquisition and Protection program (ELAPP), the policies of the comprehensive plan, the Linking Land and Water Management in Northwest Hillsborough County Study, the programs and initiatives outlined in SWFWMD's Hillsborough County Integrated Plan; and many other plans, programs, policies and actions.

Hillsborough County "manages" its natural resources through the policies and actions described in the Comprehensive Plan. A structure, road or other facility can only be permitted in accordance with this comprehensive plan and the land development regulations that are adopted and enforced consistent with plan directives. Likewise, the County's infrastructure, public facilities and services are planned and provided in accordance with this plan. The County's

holistic approach towards growth management eliminates the concept of "waste" water; all water must be managed as a resource and used to accomplish a wide range of multiple public objectives. Growth and development can only take place consistent with environmental protection. County government, in coordination with other governments, the private sector and its citizens, must continue to take an approach which coordinates land and water management in an effort to manage stormwater, wastewater and provide potable water supplies in a manner that protects, improves and restores the natural environment.

Objective 2: The County shall continue to implement a coordinated land and water management process, in part through the integration of environmental protection practices in the planning of public facilities and the provision of public services.

Policy 2.1:

Through a coordinated land and water management approach, including the consideration of a full range of multiple uses of water in the development and implementation of public facilities and services, the County shall preserve the character of rural communities in Hillsborough County while providing for orderly development, the protection and conservation of natural resources and the public welfare.

Policy 2.2:

Hillsborough County shall develop and implement community plans, as necessary, to: ensure orderly and manageable growth, the efficient and cost-effective provision of public services, the preservation of the character of communities and the conservation, and protection of natural resources.

Policy 2.3:

Rural, suburban and urban areas shall be designated and planned through methods including the application of urban services boundaries and appropriate design standards.

Policy 2.4:

Hillsborough County shall develop and implement level of service standards for rural development, consistent with the establishment of urban services boundaries and the preservation of the rural character of the community.

Policy 2.5:

Recognizing the design and character differences of rural, suburban and urban communities, Hillsborough County shall appropriately plan and foster economic growth and the development of community activity centers consistent with urban services boundary designations and the character of the community.

Policy 2.6:

The County, recognizing the limits of groundwater in localized areas and the renewable nature of the potable water supply, shall manage its land and water resources in a manner that protects, conserves, improves and restores, as appropriate, terrestrial and aquatic ecological systems and ensures the perpetuation of potable water supplies into the future.

Policy 2.7:

The County shall review, amend and implement regulations which protect and conserve surface water, ground water, aquifer recharge areas and wellfields to ensure a coordinated land and water policy approach including: considerations of land use types and densities, impervious surface limitations, stormwater management plans, and alternative site planning and engineering techniques.

Policy 2.8:

The County shall protect the public against the threat of sinkholes through its planning and land development process, including publishing available sinkhole data and providing for consideration of sinkhole risk in the land suitability analysis of the Comprehensive Plan.

Policy 2.9:

The County shall include the sinkhole phenomenon in its consideration of the suitability of land for development through the review process of land development codes, including appropriate stormwater management measures.

Policy 2.10:

The County shall cooperate in an intergovernmental approach with the Southwest Florida Water Management District to provide technical expertise to the public with regard to sinkhole risks.

SURFACE WATER RESOURCES

Issue: In the past, surface water quality in Hillsborough County has been degraded due to a variety of unregulated water uses and adjacent land uses. The most prominent sources of water pollution have included point source discharges of domestic and industrial wastewater, mining operations, and urban and agricultural runoff. The passage of state and local laws aimed at controlling these sources of pollution has resulted in improved local water quality. However, at times, some surface water bodies in the County still do not meet state standards for their designated uses. Improved compliance with existing point and non-point source and stormwater regulations is needed, and more stringent regulations for septic tank discharges should be considered. **NOTE:** The preservation, protection, restoration and proper management of the surface water resources of Tampa Bay and associated saltwater wetlands are specifically and

more comprehensively addressed in the Coastal Management Element of the Comprehensive Plan, except Cockroach Bay Aquatic Preserve, which is addressed in the Future Land Use Element. In addition, goals, objectives and policies pertaining specifically to the county's major rivers (the Hillsborough, the Alafia and the Little Manatee Rivers), are included in the River Resources section of this Element. There are also goals, objectives and policies relative to the management and regulation of surface water resources in the Sanitary Sewerage, Potable Water and Stormwater Management Elements.

The Environmental Protection Commission of Hillsborough County (EPC) is the local environmental regulatory agency charged with controlling water pollution throughout Hillsborough County. Through interlocal agreement with the Florida Department of Environmental Protection (FDEP), the EPC processes and enforces FDEP's permits to ensure compliance with state and local water pollution standards. The EPC also implements its own programs regulating activities that are reasonably expected to cause or contribute to water pollution. The EPC was created by Florida Statute, and is not administered by, nor directly responsible to, the Board of County Commissioners or the County Administrator. For that reason, language in this Plan does not mandate the EPC to implement the Plan's provisions, but rather seeks a cooperative association between the County and the EPC to ensure that the Plan is implemented and enforced.

Objective 3. The County shall develop its stormwater management program to be consistent with the goals, plans and programs of the State and the Water Management District and work to improve surface water quality as measured by data collected by the EPC. The water quality of natural surface water bodies in Hillsborough County that do not meet state and water management district water quality standards for their designated use shall be improved or restored to the applicable water quality standard.

Policy 3.1:

The County shall not support the reclassification of any surface water body within County boundaries to acknowledge lower water quality conditions, unless necessary to protect the public health, safety or welfare. Where economically feasible, the County shall support the reclassification of surface water bodies to accommodate higher standards, where it can be demonstrated that improved water quality conditions will prevail in the future.

Policy 3.2:

The County shall require that all domestic wastewater treatment plants discharging effluent into Tampa Bay or its tributaries provide advanced wastewater treatment, or if specific alternative criteria developed by the Surface Water Improvement and Management Program can only be met by removing a surface water discharge, such a program shall be implemented, where economically feasible and in accordance with **Policy 3.3 below.**

Policy 3.3:

The County shall continue to develop and promote environmentally acceptable effluent disposal alternatives to surface water discharge, including, but not limited to, reuse for irrigation and industrial purposes.

Policy 3.4:

The County shall support the maintenance and expansion of the Environmental Protection Commission's scientifically defensible surface water quality monitoring program in order to monitor progress towards compliance with state water quality standards.

Policy 3.5:

Where economically feasible, the County shall provide improved domestic wastewater treatment service to developed areas where persistent water quality problems are clearly attributable to poorly functioning septic treatment systems.

Policy 3.6:

The County shall work with the appropriate agencies to develop scientifically-defensible siting criteria, performance standards, and density limitations for septic systems, to ensure protection of surface water quality. The County shall request that special criteria and standards be developed for those septic systems to be located in areas adjacent to Class I and Class II Waters and Outstanding Florida Waters. Within one year after such criteria and standards are developed, the County shall amend appropriate development regulations to include these criteria and standards.

Policy 3.7:

The County shall support the development of a nutrient monitoring and control program for those land uses that are located adjacent to natural surface water bodies and that contribute significant nutrient loadings, by appropriate regulatory agencies. Where economically and environmentally feasible, the County shall support requiring the implementation of Best Management Practices (BMPs) for controlling nutrient loadings, including retrofitting, if needed, to meet specific alternative criteria as established by the Surface Water Improvement and Management Program. (See **Policy B-11.1, Future Land Use Element)**

Policy 3.8:

The County shall require that existing developments planned for expansion, modification or replacement provide or support stormwater treatment improvements within the affected drainage basin where treatment facilities are lacking. Where economically and environmentally feasible, the County shall require retrofitting of stormwater treatment facilities in urbanized areas lacking such facilities

Policy 3.9:

The County shall monitor emerging stormwater treatment technology and Best Management Practices and shall cooperate with the Southwest Florida Water Management District and the Department of Environmental Protection to ensure that water quality objectives are met through the most appropriate and effective methodologies.

Policy 3.10:

The County shall cooperate with the School Board, the Environmental Protection Commission, the Planning Commission, and the Southwest Florida Water Management District to distribute public education materials aimed at residential homeowners, that address the surface water quality and wetland impacts of improperly managed lawn litter and fertilizer/herbicide/pesticide applications.

Policy 3.11:

a. The County shall continue a comprehensive surface water protection program that shall include the determination of Surface Water Resource Protection Areas (SWRPAs) surrounding surface water bodies used as part of the public potable water supply system and criteria for restrictions and prohibitions to be applied within the SWRPAs.
b. Surface water bodies designated as part of the potable water supply system shall be protected by a SWRPA which is based on the 100-year flood plain and any buffers as may be required by law/regulation to protect the surface water resource. The County shall maintain SWRPAs using available data and analysis, on a map adopted as part of the Future Land Use Map (FLUM) series, showing where land uses, regulated or associated activities may be regulated or prohibited to prevent potential degradation of public potable water supply sources.
c. The County shall protect existing and planned future sources of public potable water supply adopted in Tampa Bay Water's Master Water Plan through the regulation of land use activities, and the regulation and/or prohibition of substances or associated activities that have been established to be significant threats to the present or future use of such natural resources for potable water purposes.
d. The County shall protect existing and planned future sources of public potable water supply through the identification of prohibited activities in SWRPAs. Such prohibited activities are those that have been established to be significant threats which can degrade or contaminate the water resources of the County, such as and including, but not necessarily limited to: new and expanding sanitary landfills, phosphogypsum piles, industrial land use designations, concentrated animal feeding operations dairy farm storage and treatment facilities, interim wastewater treatment plants, stormwater discharges to the Floridan Aquifer, land applications of sludge and septage, and underground storage tanks. Additionally, the

County shall continue to require that handling of regulated substances in a SWRPA be in accordance with local, state and federal mandates. Regulated substances shall be those substances listed in 40 CFR, Chapter 1 Table 302.4, as amended.

e. The County shall maintain a permitting, inspection and enforcement program for the County's policies and regulations to protect surface water resources for public potable water supplies in SWRPAs.
f. No additional areas shall be designated with industrial land use plan categories within the SWRPAs.

Policy 3.12:

Consistent with the Clean Water Act, Hillsborough County, in cooperation with Tampa Bay Water and the Environmental Protection Commission, shall support the established process involving the Florida Environmental Regulation Commission for evaluation and potential reclassification of the Alafia River generally upstream of the intake at Bell Shoals and the Tampa Bypass Canal, including the Harney Canal, generally upstream of Structure 160 to Class I for potable water use.

WETLANDS AND FLOODPLAIN RESOURCES

Issue: The Environmental Protection Commission of Hillsborough County (EPC) has adopted, pursuant to Chapter 84-446, Laws of Florida, as amended, rules relating to activities affecting wetlands. All wetlands in Hillsborough County fall within the protective jurisdiction of the EPC, whether or not they are also within the jurisdiction of the Southwest Florida Water Management District (SWFWMD), the Florida Department of Environmental Protection (FDEP) and/or U.S. Army Corps of Engineers (USACE). The EPC was created by Florida Statute, and is not administered by, nor directly responsible to, the Board of County Commissioners or the County Administrator. For that reason, language in this Plan does not mandate the EPC to implement the Plan's provisions, but rather seeks a cooperative association between the County and the EPC to ensure that the Plan is implemented and enforced.

Beginning in 2004, the Florida Legislature required all state and local wetlands regulatory programs to use a Uniform Mitigation Assessment Method to determine the amount of mitigation needed to offset adverse impacts to wetlands and other surface waters. This methodology was promulgated through Chapter 62-345, F.A.C., the Uniform Mitigation Assessment Method (UMAM). Chapter 62-345, F.A.C., requires the replacement of the ecological value of impacted wetlands and other surface waters but not the direct replacement of these impacted areas.

Objective 4: The County shall continue to apply a comprehensive planning-based approach to the protection of wetland ecosystems assuring no net loss of

ecological values provided by the functions performed by wetlands and other surface waters authorized for projects in Hillsborough County, consistent with the Uniform Mitigation Assessment Method. The County shall work with the Environmental Protection Commission, the Southwest Florida Water Management District, the Florida Department of Environmental Protection, and the Tampa Bay Estuary Program to achieve a measurable annual increase in ecological values provided by the functions performed by wetlands and other surface waters. It shall be the County's intent to maintain optimum wetland functions as well as acreage.

Policy 4.1:

The County shall, through the land use planning and development review processes, and in cooperation with the Environmental Protection Commission, continue to conserve and protect wetlands from detrimental physical and hydrological alteration.

Policy 4.2:

Channelization or hardening (e.g., paving, piping) of natural stream-courses shall be prohibited except in cases of overriding public interest. The County shall continue to request appropriate regulatory agencies implement this policy in cases where its implementation would be more stringent than enforcement of these agencies' regulations.

Policy 4.3:

The County shall, through the land planning and development review processes, and in cooperation with the Environmental Protection Commission, continue to prohibit unmitigated encroachment into wetlands.

Policy 4.4:

RESERVED.

Policy 4.5:

RESERVED

Policy 4.6:

The County, in cooperation with the Environmental Protection Commission and the Southwest Florida Water Management District, shall continue to promote, through the development review process, the use of desirable native wetland plant species for the creation of wetland habitat and for biologically enhancing filtration and treatment of pollutants in newly constructed stormwater retention and detention ponds.

Policy 4.7:

RESERVED.

Policy 4.8:

The County shall cooperate with the Southwest Florida Water Management District to ensure that minimum freshwater flows and levels are scientifically determined and maintained to support natural optimal diversity and productivity in wetlands.

Policy 4.9:

All wetland mitigation projects must restore the ecological values provided by the functions performed by impacted wetlands and other surface waters.

Policy 4.10:

The County, in conjunction with the Environmental Protection Commission, shall continue to protect wetlands and hydric soils in accordance with EPC Wetlands Rule, Chapter 1-11, Rules of the EPC.

Policy 4.11:[i]

During the development review process, wetlands shall be designated as conservation or preservation on all development plans and plats. Minimum buffers shall be required for wetlands to protect these resources from the impacts of development or as determined by an adopted technical manual pursuant to policy 19.1.

Policy 4.12:

Priority shall be given to avoiding the disturbance of wetlands in the County and to encourage their use only for purposes which are compatible with their natural functions and environmental benefits.

Policy 4.13:

Development which impacts wetlands may be deemed appropriate only as a last resort; where:

1. reasonable use of the property is otherwise unavailable and/or onsite preservation of a functioning wetland system is deemed unsustainable;
2. the adverse impact is offset by the benefit of the development to the public such that it is reasonable, in the public interest and an acceptable mitigation plan is proposed.

This determination shall be made by Hillsborough County and/or the Environmental Protection Commission of Hillsborough County.

Policy 4.14:

The development review process, part of a comprehensive program for the protection of wetlands, shall make every effort to maintain natural

undisturbed wetlands by way of a sequential review process that first evaluates all means of avoiding wetland impacts in regard to a particular project; if necessary, secondly, evaluates and requires measures to minimize wetland impacts; and if necessary, thirdly, evaluates and requires the mitigation of wetland impacts.

Objective 5: The County shall continue to prevent net loss of 100-year floodplain storage volume in Hillsborough County. The County shall continue to protect and conserve natural wildlife habitat attributes where they exist within the 100-year floodplains of major rivers and streams.

Policy 5.1:

The County shall protect the functions and values of all riverine wildlife corridors along rivers in the county as well as along creeks, such as those that may be associated with Rocky Creek, Bullfrog Creek, Cypress Creek, Blackwater Creek, Trout Creek, Double Branch Creek, and other creeks of similar size. Protected functions and values shall include floodwater conveyance, water storage, water quality enhancement, wildlife habitat, wildlife corridors, groundwater recharge, and minimum stream-flows. The degree of protection may vary depending on the location. Protection methods may include, but are not limited to, density and intensity restrictions of "non-water dependent" land uses**.**

Policy 5.2:

The County, through the land planning and development review processes, shall continue to prohibit unmitigated encroachment into the 100-year floodplain of riverine systems.

Policy 5.3:

Hillsborough County shall encourage clustering to preserve open space to protect floodplains.

Policy 5.4:

Hillsborough County shall reduce repetitive (flood) loss properties, through methods such as at risk property acquisition or elevation, as feasible.

Policy 5.5:

Hillsborough County shall review the efficacy of requiring that all new structures built in the 100-year floodplain include at least 1 foot freeboard elevation.

LAKE RESOURCES

Issue: The County's lakes are important natural and community resources that serve as scenic and recreational amenities while performing a number of

beneficial environmental functions. Lakes serve as important fisheries and as parts of wildlife habitat mosaics, providing sources of food for a variety of wildlife, including listed species, as well as to filter and attenuate (reduce, slow down) stormwater and provide reliable recharge to the surficial and, in some cases, the Floridan Aquifers. They also serve as sources of scenic beauty and provide various forms of recreation.

Lakes are an important part of Hillsborough County's natural heritage, and the maintenance of their integrity is crucial. Natural and man-made lakes (as opposed to stormwater retention ponds) are protected as Waters of Hillsborough County in accordance with Environmental Protection Commission rules. Lake Keystone and Lake Thonotosassa are 'managed' as sovereign submerged lands by the Tampa Port Authority. There are currently no land use or management guidelines specific to lakes in effect county-wide.

The SWFWMD has published a lake management technical information booklet. The County has also established several policies relevant to lakes.

Objective 6: The ecological integrity of natural lakes and ponds shall be maintained or improved through the development and implementation of Stormwater Management Master Plans.

Policy 6.1:

The County shall strive to achieve water quality consistent with Class III (or better) standards for all natural lakes. (Class III standards provide for the propagation and survival of fish and wildlife and imply good water quality.)

Policy 6.2:

Wetlands associated with lakes shall be maintained and managed for optimum fisheries and other environmental values.

Policy 6.3:

The County, in conjunction with the Environmental Protection Commission, shall condition land use approvals and regulate activities affecting lakes such that the lake will continue to provide the optimum number and types of uses maintaining or improving the lake's existing environmental quality, in accordance with established development standards and regulations.

Policy 6.4:

Where present, existing natural areas on lake shorelines shall be retained in as natural a state as feasible. Minimal encroachment for physical access to the water shall be permitted, such that the landowner retains reasonable beneficial use of the property without degrading the lake's existing environmental quality. Developmental activities should be compatible with

the adjacent natural or built environment and sensitive to the need to provide maximum natural/open space proximate to the lake.

Policy 6.5:

A development project's potential impact on a lake's existing environmental quality shall be assessed during the planning and development review process. Standards ensuring compatibility with maintaining or improving the lake's existing environmental quality shall be developed and applied.

Policy 6.6:

The County shall implement individual Stormwater Management Master Plans.

Policy 6.7:

RESERVED

Policy 6.8:

Educated citizen involvement will be crucial to the success of any lake ecosystems management effort. In order to help waterfront property owners manage their lands in ways that are not detrimental to a lake's environmental quality, the County will continue a technical assistance process designed to provide information regarding the management, hydrology and ecology of lakes.

Policy 6.9:

Hillsborough County, in cooperation with the Southwest Florida Water Management District, shall review the adequacy of current stormwater design standards, including vegetated buffer requirements, in relation to lake water quality and implement changes as necessary.

GROUNDWATER RESOURCES

Issue: Hillsborough County is underlain by a multi-layered freshwater aquifer system that includes the surficial, intermediate, and Floridan Aquifer systems. In northern Hillsborough, the Floridan Aquifer is in some instances hydraulically connected to surface waters. This leads to two problems: 1) draw-downs due to wellfield pumpage can lead to draw-downs of surface waters, and 2) contamination of surface waters can lead to contamination of potable water supplies. In eastern and southern Hillsborough, the Floridan Aquifer is protected from surface contamination by thick clay units, but threatened by saltwater intrusion from Tampa Bay or from below, caused by over-pumping in the Southern Water Use Caution Area (SWUCA) basin.

The Southwest Florida Water Management District (SWFWMD) is responsible by statute for protecting ground and surface waters, including wetlands, throughout the County. Tampa Bay Water (TBW) is responsible for supplying the County's potable water, under permit from SWFWMD. The Environmental Protection Commission of Hillsborough County (EPC) and the Florida Department of Environmental Protection (FDEP) have jurisdiction over discharges to groundwater in Hillsborough County. The FDEP has delegated the Underground Storage Tank (UST) programs to the EPC. EPC is also responsible for protecting surface waters and wetlands from any impacts, including draw-downs from wellfield pumpage, in accordance with its rules. Hillsborough County also administers a land development permitting program in compliance with SWFWMD and EPC rules and its own surface water and natural resource protection programs, as established through this Plan and the Land Development Code.

The State permits septic tank placement in accordance with Chapter 10D-6, Florida Administrative Code. There is no conclusive evidence, however, that State rules governing septic system placement are adequate for eliminating the likelihood of groundwater pollution, particularly in areas of demonstrated high recharge/contamination potential. The question of whether or not existing septic system locational standards and operational procedures are adequate is unresolved, but there is mounting evidence that poorly-sited and maintained septic systems and disposal of septage and other sewerage by-products may lead to increased water quality problems.

The Southwest Florida Water Management District has delineated areas in Hillsborough County deemed prone to aquifer contamination or overdraft due to current or projected development. Two sources of this information exist. The first is contained in SWFWMD's Water Resource Assesment Project (WRAP) reports for the northern Tampa Bay and Eastern Tampa Bay areas. For the other SWFWMD utilized the DRASTIC methodology developed by the U. S. Environmental Protection Agency to develop a map series. This acronym is based on the criteria for the methodology: Depth to water, net Recharge, Aquifer media, Soil media, Topography, Impact of the vadose zone and hydraulic Conductivity.

Additional objectives and policies affecting the management and regulation of groundwater resources are included in the Potable Water, Sanitary Sewerage and Future Land Use Elements.

Objective 7: Under all future growth scenarios, and to the extent it has the authority to do so, the County shall ensure compliance with State groundwater quality standards and maintain or improve current groundwater quality conditions within county boundaries.

Policy 7.1:

Prior to permit approval, the County shall consider the Southwest Florida Water Management District's Water Resource Assessment Project (WRAP) and/or DRASTIC information for determining the potential for impacts of proposed land use changes and developments in areas with high aquifer recharge/contamination potential. The County shall also use this information when planning and siting public facilities.

Policy 7.2:

Under the supervision of the U.S. Environmental Protection Agency and the Florida Department of Environmental Protection, the County shall continue to implement and fund investigations of closed landfills under the Proactive Closed Landfill Investigation Program.

Policy 7.3:

To maximize recharge to potable water aquifers, the County shall use alternative site-planning and engineering techniques, such as establishing recharge zones in Resource Protection Areas, and may apply specific regulations, standards and criteria to new development in such areas including the use of Best Management Practices (BMP). Such regulations and performance standards may include, but are not limited to: control of land use types and densities, impervious surface limitations, additional requirements for onsite retention of stormwater, and groundwater discharge controls.

Policy 7.4:

A program to maximize recharge through the use of private and public stormwater management facilities shall be developed and implemented. This program may require, among other things, that pre-development groundwater recharge volumes and rates be maintained on site after development, if the site is located in an area of known or identified average annual recharge potential of at least two surface inches of water, and may include restrictions on the lowering of groundwater levels to meet stormwater management regulations. The County shall encourage stormwater retention rather than stormwater detention for new development projects in these areas through Best Management Practices (BMPs) in the land development and review process.

Policy 7.5:

RESERVED

Policy 7.6:

a. The County shall continue a comprehensive wellhead protection program that shall include the determination of wellhead resource protection areas (WRPAs) surrounding potable water supply wells and criteria for

restrictions and prohibitions to be applied within the delineated wellhead resource protection area.

b. Public potable water supply wells included in the County's wellhead resource protection program shall include public water wells and aquifer storage and recovery (ARS) wells that are intended for drinking, culinary or domestic purposes, and are permitted by a consumptive/water use permit with a daily amount of 100,000 gallons-per-day (gpd) or greater.
c. The County shall maintain wellhead resource protection areas using available data and analysis, on a map adopted as part of the Future Land Use Map (FLUM) series, showing where land uses, regulated or associated activities may be regulated or prohibited to prevent potential degradation of public potable water supply wells. Regulated substances shall be those substances listed in 40 CFR, Chapter 1, Table 302.4, as amended.
d. The County shall protect existing and planned future wellheads of public potable water supply wells through the identification of prohibited activities in wellhead resource protection areas. Such prohibited activities are those that have been established to be significant threats which can degrade or contaminate the water resources of the County, such as and including, but not necessarily limited to: new and expanding sanitary landfills, phosphogypsum piles, industrial land use designations, concentrated animal feeding operations, dairy farm storage and treatment facilities, interim wastewater treatment plants, stormwater discharges to the Floridan Aquifer, land applications of sludge and septage, and placement of underground storage tanks within 1000 feet of a public potable water supply well.
e. The County shall continue a permitting, inspection and enforcement program for the County's policies and regulations to protect wellhead resources for public potable water supplies in wellhead resources protection areas. (**Policy revised per Final Order of the Governor and Cabinet)**
f. No additional areas shall be designated with industrial land use plan categories within the WRPAs.
g. The County shall protect potable water wellfields with a potable water well protection area of a 500 foot radial setback from a potable water well. Potable water wellfield means the site of one or more water wells which supply potable water for human consumption to a water system which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents. Florida Department of Environmental Protection Chapter 62-521, as amended, protection measures shall apply in the potable water wellfield protection area. The potable water wells and the 500 foot radial setback shall be shown on a map adopted as part of the FLUM series.

Policy 7.7:

Through the land development review process, the County shall continue to prohibit land excavations that would breach the confining layers of the Floridan Aquifer.

Policy 7.8:

RESERVED

Policy 7.9:

RESERVED

Policy 7.10:

The County shall cooperate with state and local environmental regulatory agencies to ensure maximum compliance with the Underground Storage Tank (UST) Program, especially in areas of demonstrated high aquifer recharge/contamination potential, by including these agencies in the appropriate development approval processes.

Policy 7.11:

The County shall cooperate with the Environmental Protection Commission and the Southwest Florida Water Management District to ensure that excessive consumptive use of groundwater or excessive drainage does not significantly lower water tables or surface water levels, reduce base flows, adversely affect lakes or wetlands, or increase current levels of saltwater intrusion by including these agencies in the appropriate development approval processes.

Policy 7.12:

The County shall not support the re-classification of any groundwater aquifer within County boundaries to acknowledge lower groundwater quality unless necessary to protect the public health, safety or welfare. Where economically feasible, the County shall support the reclassification of groundwater aquifers to accommodate higher standards where it can be demonstrated that improved water quality conditions will prevail in the future.

Policy 7.13:

The County shall not support the use of deep-well injection as a method of effluent or waste disposal, except where it can be demonstrated that the capacity for receiving injection is adequate and that such disposal will have no adverse effect upon existing or potential potable water aquifers.

WATER CONSERVATION

Issue: Potable water is currently supplied to the residents of Hillsborough County through an agreement with Tampa Bay Water, a regional public potable

water wholesaler. Tampa Bay Water has developed a diversified system of water resource development facilities. Although these sources are adequate to meet all current demands, future population projections indicate that municipal and domestic water demands will significantly increase over the next several decades, while at the same time the water demands of industry and agriculture will continue to compete for the supply of potable water. Public education will be critical to the success of all future water conservation efforts.

Objectives and policies dealing with water conservation are also included in the Potable Water, Sanitary Sewerage and Stormwater Management Elements.

Objective 8: The County, as a member of Tampa Bay Water, shall meet its potable water demands under all future supply and demand scenarios through the expansion of reuse and the conservation and appropriate use of groundwater, surface water, desalination and other alternative sources; while preventing significant environmental degradation due to excessive groundwater, surface, desalination and other alternative source withdrawals.

Policy 8.1:

The County shall request that Tampa Bay Water cooperate with the Southwest Florida Water Management District ("District") to establish scientifically and legally defensible minimum flows and levels using the best information, analyses and modeling available and to implement and prevent the violation of minimum flows and levels through the District's Water Use Permitting and Environmental Resource Permitting programs. Once established, the County shall cooperate with the District and Tampa Bay Water to ensure that new and existing water supply development projects do not exceed safe yields limits and are permitted at quantities that will not violate established minimum flows and levels and that recovery strategies are developed and implemented to achieve and prevent violation of minimum flows and levels where water levels or flows are currently below established minimum flows or levels.

Policy 8.2:

The County shall continue and expand its comprehensive water conservation program, including enhanced public education, enforcement of specific building code requirements, incentives for water saving devices, measures and requirements for controlling and reducing potable water consumption and promoting Florida Friendly Landscaping techniques; the use of the lowest quality water reasonably, safely and feasibly available.

Policy 8.3:

The County shall continue to implement a comprehensive Water Reuse Program that maximizes the use of treated sewage effluent for residential and recreational irrigation purposes.

Policy 8.4:

The County shall, through the development review process, ensure compliance with state law regarding irrigation and recommend the use of the most practical, economically feasible and efficient irrigation methods available for new residential, recreational and agricultural irrigation systems; and shall promote the replacement of less efficient systems with more efficient ones through educational efforts. This policy should not be interpreted to require replacement of existing systems.

Policy 8.5:

The County shall assist the Southwest Florida Water Management District in enforcing water conservation measures.

Policy 8.6:

The County shall assist the Southwest Florida Water Management District in the Quality Water Improvement Program (QWIP) through the identification, capping or reconstruction of abandoned artesian wells.

Policy 8.7:

RESERVED

Policy 8.8:

The County shall continue its inverted block rate structure to discourage non-essential uses of potable water. Information stressing the need for conservation, and providing conservation tips, will be included in the billing process.

Policy 8.9:

The County shall, through the development review process, restrict the substantial lowering of the water table to meet stormwater treatment or storage requirements.

Policy 8.10:

Through the development review process, the County shall continue to require Florida Friendly landscaping and low-volume irrigation in commercial and industrial projects and require low-flow plumbing fixtures in new developments. The County shall also promote these and other water conservation measures in existing developments.

Policy 8.11:

RESERVED

Policy 8.12:

The County shall promote the evaluation and use of the Aquifer Storage and Recovery (ASR) concept and other means of minimizing the adverse

environmental impacts of peak demand for ground and surface water resources.

Policy 8.13:

The County will protect water quality and quantity by restricting activities and land uses which would adversely affect the quality and quantity of identified water sources used as a source of public water supply.

Policy 8.14:

RESERVED

Policy 8.15:

RESERVED.

Policy 8.16:

RESERVED

Policy 8.17:

In meeting future demands for potable water while minimizing impacts on natural resources, Hillsborough County, as a member of Tampa Bay Water, shall support the use of fiscal cost/benefit analysis, as well as the environmental, social and general welfare costs and benefits of water management projects, programs and new potable water sources.

Policy 8.18:

Hillsborough County, as a member of Tampa Bay Water, shall support new and alternative water sources that will not result in individual or cumulative adverse impacts to natural resources.

MINERAL RESOURCES AND LAND EXCAVATION

Issue: Hillsborough County contains a significant base of economically valuable phosphate deposits. The mining of phosphate in the County has, in past years, generated significant economic benefits throughout the entire Tampa Bay region. However, the relatively unregulated mining industry of the past was also responsible for significant environmental damage, including the destruction of wetlands, floodplains, and wildlife habitat, and the siltation and eutrophication of rivers and streams. The following three objectives and their policies were developed specifically to provide guidance in the planning, management and regulation of phosphate mining and land excavation - development activities with unique characteristics and problems. Priority should be given to this section when considering policies seemingly in conflict. Phosphate mining operates under the concept of sequential land use, whereby areas with known deposits of economically viable materials are first protected from urban development, then

mined in accordance with federal, state and local regulations, permits and procedures, and finally restored to a productive land use in a timely manner.

Objective 9: The County shall continue to provide opportunity for and require the prudent operation of mining activities and timely reclamation of mined areas.

Policy 9.1:

The County shall, through the land use planning process, implement sequential land use in areas known to be underlain by economically valuable mineral deposits.

Policy 9.2:

The County shall require the phasing of mining to ensure that limited land areas are affected by excavation and settling ponds at one time and that reclamation occurs in the most effective manner.

Policy 9.3:

Through the land use planning process, the County shall encourage expeditious mining in areas which are crucial to the provision of essential public services to ensure the recovery of mineral resources as well as the creation of the properly reclaimed land forms in such areas.

Policy 9.4:

The County shall continue to provide a zoning category that allows phosphate mining activities and shall continue to implement the Phosphate Mining Regulations to require prudent operation of mining activities.

Objective 10: Mining activities in Hillsborough County shall comply with, or exceed, state and local regulations related to land reclamation and the protection of wetlands, water quality and quantity, and wildlife habitat, and shall protect the public health, safety and welfare.

Policy 10.1:

The County shall require demonstration that natural habitats, particularly environmentally sensitive areas, can be successfully restored prior to mining unit approvals in such areas.

Policy 10.2:

The County shall require consideration and, where appropriate, incorporation of County-approved conceptual greenway and wildlife corridor plans into reclamation plans where corridors are proposed in areas to be mined. Reclamation plans shall address responsibility for preservation, restoration, and management of the corridors, with an emphasis on maintaining and restoring contiguous natural systems.

Policy 10.3:

The County shall continue to prohibit mining within the 25-year floodplain and to restrict mining activities in the 100-year floodplain of rivers and streams, and shall provide for stream-side buffers for mining and mining-related activities to protect perennial streams that normally flow 1 cubic-foot-per-second (cfs) or more or contain water a minimum of nine (9) months a year.

Policy 10.4:

The County shall restrict mining in documented listed species habitat.

Policy 10.5:

RESERVED

Policy 10.6:

The County shall, with the assistance of the Florida Department of Environmental Protection and the Environmental Protection Commission, periodically review, and amend if necessary, the Phosphate Mining Regulations to ensure that the best available technology to restore natural land forms and vegetative communities and the most cost effective, efficient and timely clay settling and land reclamation methods are being utilized to minimize natural resource impacts.

Policy 10.7:

The County shall require demonstration of the capability of restoring essential wildlife habitat prior to permitting mining in areas that support listed species.

Policy 10.8:

The County shall continue to require proof of long-term financial responsibility for the reclamation of mined lands.

Policy 10.9:

The County shall continue to require appropriate setbacks between mining activities and adjacent existing and future land uses to ensure public health and safety, as well as economic and aesthetic attributes.

Policy 10.10:

The County shall provide the public with factual information regarding health hazards associated with reclaimed lands and radon gas emissions.

Issue: The demand for fill material for construction in Hillsborough County has resulted in an increasing number of land excavation projects, especially in outlying rural areas. In the past, land excavation projects were not regulated and may have resulted in local surface water problems. In addition, land excavation areas were sometimes left as non-productive open water bodies with little or no

fish and wildlife habitat value. Development of the Land Excavation Regulations has improved the public safety requirements and reduced the hydrologic impacts of land excavations, but the productive reuse of such areas still remains an issue. In addition, land excavations must be located and operated in a manner that minimizes negative impacts on surrounding property, and must be appropriately reclaimed.

Objective 11: The County shall continue to regulate the location and operation of land excavations to minimize negative impacts on surrounding properties, ensure that land excavations are appropriately reclaimed, and encourage the productive reuse of such areas.

Policy 11.1:

The County shall continue to prohibit land excavation activities that adversely impact surface or groundwater levels or wetlands on surrounding property.

Policy 11.2:

The County shall require reclamation plans to ensure environmentally acceptable and economically viable reuses of excavated lands.

Policy 11.3:

The County shall require the preparation of wetland/lake management plans for the reclamation of land excavation projects to be reclaimed as lakes to ensure that such areas become viable and productive aquatic systems. The County, with the assistance of the Environmental Protection Commission, shall provide technical assistance to prepare such plans.

Policy 11.4:

The County shall encourage the recreational development of reclaimed land excavations.

Policy 11.5:

The County shall periodically review, and amend, if necessary, the Land Excavation Regulations to ensure adequate standards and requirements are in place to minimize the negative impacts of land excavations, and to ensure that land excavations are appropriately reclaimed.

Policy 11.6:

The County shall require setbacks between land excavations and adjacent land uses to protect public health, safety and welfare.

Policy 11.7:

The County shall restrict land excavations in documented listed species habitat.

Policy 11.8:

The County shall require demonstration of restoration of essential wildlife habitat prior to permitting land excavations in areas that support listed species.

SOIL RESOURCES

Issue: With few exceptions, the soils of Hillsborough County can be generally characterized as poorly drained fine sands which are relatively nutrient poor. Because there is minimal topographic relief in the County, natural erosion has not been a problem in the past. However, temporary soil erosion during land clearing for agriculture and development often results in localized erosional problems when best management practices and erosion control measures are not followed. In utilizing soils for development and agricultural activities, proper planning is imperative to ensure consideration of soil suitability for a given land use, and to avoid depletion of valuable soil resources.

Objective 12: The County shall continue to require soil conservation and protection measures, consistent with best management practices, be applied during land alteration and development activities.

Policy 12.1:

During the land development review process, the County shall recommend the use of soils in accordance with the soil suitabilities identified by the USDA Soil Conservation Service. Prior to the commitment of resources to development and land use activities, the County shall continue to require site-specific analyses when the proposed use and the identified soil suitabilities appear to be incompatible.

Policy 12.2:

The County, in cooperation with the USDA Soil Conservation Service, shall require that topsoil best management practices be observed during all land alteration activities. To the greatest degree practicable, erosional soil loss due to construction and agricultural activities shall be minimized.

Policy 12.3:

During the land development review process, the County shall continue to evaluate and utilize, where appropriate, soil capability analyses for flood hazard, stability, permeability, and other relevant soil characteristics when permitting new development.

HAZARDOUS MATERIALS AND WASTES

Issue: Numerous large and small quantity generators of hazardous materials and wastes, including both commercial and industrial facilities, are located within Hillsborough County.

The Environmental Protection Commission of Hillsborough County (EPC) is the local environmental regulatory agency charged with controlling air and water pollution throughout Hillsborough County, by interlocal agreement with the Florida Department of Environmental Protection. The EPC is responsible for keeping an inventory of small quantity hazardous waste generators in Hillsborough County. Local fire departments are also active in hazardous materials emergency programs.

Objectives and policies addressing hazardous materials and waste issues are contained in the Solid Waste Element.

FLORA AND FAUNA

Issue: Due to its subtropical climate and variable hydrology and geology, Hillsborough County supports a wide variety of plant and animal species. However, the rapidly growing human population and its associated urbanization has resulted in a substantial loss of natural wildlife habitat, especially in the coastal portions of the County, while the cumulative impacts of development continue to divide and isolate large contiguous natural areas. In addition, the spread of exotic nuisance plant species has displaced large numbers of birds and other animal species not adapted to utilize such habitats. As a result of habitat destruction and alteration, the natural populations of many wildlife species have declined dramatically. Advancing urbanization has so increased property values in outlying areas that it is becoming increasingly difficult to publicly purchase lands necessary to protect wildlife habitat. The Comprehensive Plan identifies the following types of environmentally sensitive areas and calls for their protection: Conservation Areas, which include freshwater marshes, wet prairies, hardwood swamps, cypress swamps, natural shorelines (other than beaches and dunes), Class III Waters, and significant wildlife habitat; and Preservation Areas, which include coastal marshes, mangrove swamps, marine grassbeds, natural beaches and dunes (coastal strand), Class I and II Waters, aquatic preserves, essential wildlife habitat for threatened and endangered species and species of special concern (listed species), and State wilderness areas.

Significant wildlife habitat is defined in this Plan as contiguous stands of natural plant communities which have the potential to support healthy and diverse wildlife populations. Essential wildlife habitat is land that supports listed species, whether or not the land is significant wildlife habitat or is part of a natural plant community or other natural system. Listed species are plant or animal species in Hillsborough County that are listed as Endangered, Threatened, or a Species of Special Concern by a state or federal wildlife agency. (See definition of listed species)

The County's program to protect significant and essential wildlife habitat includes development regulation, land acquisition, habitat management, and education. The County also cooperates with and seeks assistance from state and federal wildlife agencies to protect wildlife resources.

Objective 13: The County shall protect and conserve significant wildlife habitat, and shall ensure a no net loss of essential wildlife habitat in Hillsborough County.

Policy 13.1:

The County shall continue to implement a local wildlife and wildlife habitat protection and management program to protect significant and essential wildlife habitat, and shall coordinate with state and federal wildlife programs.

Policy 13.2:

The County shall maintain and update its map of natural plant communities that potentially provide significant wildlife habitat and wildlife corridors in Hillsborough County. The Florida Fish and Wildlife Conservation Commission's natural systems and land use cover inventory shall serve as the basis for this map. Areas of significant wildlife habitat shall be indicated as environmentally sensitive areas on the Future Land Use Plan Map.

Policy 13.3:

RESERVED

Policy 13.4:

RESERVED

Policy 13.5:

The County shall continue to implement a comprehensive program to conserve and protect significant wildlife habitat from development activities. The program may include, but not be limited to, the following:

- Transfer of development rights;
- Clustering and buffer requirements;
- Conservation easements;
- Post-acquisition disposition mechanisms (e.g., lease back options);
- Fee simple purchase;
- Land or mitigation banking; and
- Tax incentives.

Policy 13.6:

The County shall continue to restrict development activities that adversely affect areas identified as essential wildlife habitat. Where development

activities are proposed in such areas, applications for land development will be sent to the FWC for review. The County may also require site-specific wildlife surveys and other field documentation, as needed, to assist in assessing potential impacts. To assure the protection of natural resources, recommendations of the FWC will be incorporated as conditions of development approval.

Policy 13.7:

During the land use planning and development review processes, the County shall consider the effects of development on significant wildlife habitat, to protect wildlife corridors from fragmentation. Where necessary to prevent fragmentation of wildlife corridors, the County shall require the preservation of effective wildlife corridors within development projects.

Policy 13.8:

RESERVED

Policy 13.9:

RESERVED

Policy 13.10:

Off-site preservation as mitigation for on-site development shall not be permitted for field-verified Significant Wildlife Habitat that is capable of being managed or restored on-site as a high quality natural plant community or communities, except in the case of a public project, such as a road or stormwater facility, for which there is no prudent and feasible alternative. In such case, the project must incorporate appropriate design features, as recommended by the Florida Fish and Wildlife Conservation Commission or other appropriate entity, that provide for the safe passage of wildlife or provide other significant environmental benefits.

Policy 13.11:

The County shall continue to identify, adopt and preserve a wildlife corridor greenway, generally north of the City of Tampa's northern boundary to the Pasco County line, connecting Cypress Creek and the Hillsborough River.

Policy 13.12:

During the development review process, the County shall require the development and implementation of management plans for those areas of significant or essential wildlife habitat determined during site review to provide particularly valuable and manageable habitat qualities**.** In such cases, the County shall provide technical assistance in preparing a management plan, if requested

Policy 13.13:
RESERVED

Policy 13.14:
Hillsborough County shall protect the integrity of Shoreline Wildlife Corridors and promote the understanding of the importance of these areas.

Objective 14: Populations of listed species occurring in Hillsborough County shall be maintained through the preservation and management of essential wildlife habitat and the implementation of the following policies. Where feasible and appropriate, the abundance and distribution of populations of such species shall be increased.

Policy 14.1:
The County shall consult with and consider the recommendations of the Florida Fish and Wildlife Conservation Commission in determining the issuance of, and conditions to be placed on, land development approvals that would impact upon listed species. Conditions of approval shall ensure the maintenance and, where feasible and appropriate, increase the abundance and distribution of populations of such species.

Policy 14.2:
The County shall recommend specific management and recovery strategies for key listed species, as they are developed by the Florida Fish and Wildlife Conservation Commission and the U.S. Fish and Wildlife Service, and shall assist in their implementation. These management techniques shall also be incorporated into the management plans of natural preserve lands owned or managed by the County.

Policy 14.3:
The County shall assist the U. S. Fish and Wildlife Service, the Florida Fish and Wildlife Conservation Commission and the Florida Department of Environmental Protection in the implementation of recovery programs for listed species occurring in Hillsborough County.

Objective 15: The County shall minimize the spread of exotic nuisance species and shall incorporate programs to control such species into the management plans for County-owned lands, with the objective of a 90 percent reduction of exotic nuisance plants from previously uncontrolled levels. The County shall conserve and use, and shall continue to require the conservation and use of native plant species in the developed landscape. The County shall also continue to protect lands designated Conservation and Preservation Areas within pending and approved development projects.

Policy 15.1:

The County shall assist the Florida Department of Agriculture and Consumer Services, the Southwest Florida Water Management District and the Florida Department of Environmental Protection in eliminating exotic nuisance plant species (e.g. punk tree, Brazilian pepper).

Policy 15.2:

The County shall continue to require the conservation of trees and existing native vegetation and the use of Florida Friendly Landscape principles and native plants in the landscaping of new development projects.

Policy 15.3:

The County shall continue to maintain and distribute information about recommended Florida Friendly Landscape principles and native plants and other educational materials to increase public awareness of the need to reduce the use of potable water for irrigation and to provide habitat for wildlife in the developed landscape.

Policy 15.4:

RESERVED

Policy 15.5:

During the land use planning and development review processes, the County, in conjunction with the Environmental Protection Commission, shall continue to protect lands designated Conservation or Preservation Areas within approved development projects from activities that would significantly damage the natural integrity, character, or ecological balance of said areas.

Policy 15.6:

RESERVED

Policy 15.7:

The County shall develop a program to utilize Florida Friendly Landscape principles in conjunction with native plants and trees in public rights-of-way and other public lands, whenever practical, thereby conserving water, improving habitat for urban wildlife, conserving Central Florida flora, and improving the county's aesthetic appeal and environmental quality.

Policy 15.8:

The County shall improve programs on County-owned lands to control, and eliminate where feasible, exotic nuisance species, and shall incorporate these programs into the management plans of natural preserve lands.

NATURAL PRESERVES

Issue: A significant amount of environmentally sensitive or ecologically important land in Hillsborough County is currently held in private ownership. The management objectives of many private landowners are generally oriented towards maximizing agricultural or silvicultural production, rather than the maintenance of abundant fish and wildlife resources. The County is working with various agencies and landowners to promote better land management and preservation practices and has developed and implemented a wildlife habitat protection program.

As urbanization advances into outlying areas, increasing property values encourage the sale and subdivision of large tracts of land for development. In the past, County park lands have been purchased fee simple or have been donated for recreational management. Public education and awareness of the problem, along with the development of more creative mechanisms for preservation, protection, and management of natural preserve lands, and economic incentives for maintaining private lands for wildlife benefits, will allow for the continuation and expansion of the County's Environmental Lands Acquisition and Protection (ELAP) Program. Areas of significant and essential wildlife habitat have been identified for preservation and improved public and private management. The County's ELAP Program needs to be continued and other protection and management options utilized.

Objective 16: The County shall continue to increase the acreage of natural preserve lands and to ensure their protection and proper use.

Policy 16.1:

The County shall continue to implement the Environmental Lands Acquisition and Protection program, at funding levels equal to or greater than the current funding level of one-quarter mill.

Policy 16.2:

RESERVED

Policy 16.3:

The County shall use and promote, through public awareness efforts, the use of protection alternatives for acquiring and protecting environmental lands, including: public purchase, conservation easements, transfer or purchase of development rights, and long-term leases. These alternatives shall be used to protect lands qualifying for acquisition under the Environmental Lands Acquisition and Protection program.

Policy 16.4:

The County shall continue to request assistance in public acquisition of natural preserves under federal, State and regional programs including, but not limited to, the Florida Forever, Florida Communities Trust, and Save Our Rivers (SOR) programs.

Policy 16.5:

The County shall continue to manage natural resources on publicly owned County lands in cooperation with the U.S. Fish and Wildlife Service, Florida Fish and Wildlife Conservation Commission, the Florida Department of Environmental Protection, the Southwest Florida Water Management District, and the Florida Department of Agriculture and Consumer Services, as appropriate.

Policy 16.6:

The County shall provide multiple use opportunities on County-owned natural preserve lands consistent with natural resource protection and conservation, to provide for passive recreation, wildlife habitat, watershed protection, erosion control, maintenance or enhancement of water quality, aquifer recharge and aquifer recharge protection.

Policy 16.7:

The County shall discuss with landowners the alternatives for protecting ecologically valuable lands which have qualified for acquisition by federal, state, regional, or local land management agencies, in an effort to discourage more intense land uses.

Policy 16.8:

Through the land use planning and development review processes, the County shall restrict incompatible development activities adjacent to publicly owned or managed natural preserves.

Objective 17: The ability of the County to qualify for matching funds from state and regional land acquisition programs, such as Florida Communities Trust, Florida Forever, and Save Our Rivers, shall be enhanced through the implementation of the following policies:

Policy 17.1:

The County shall protect natural resources, coastal resources, and outdoor recreational areas from adverse impacts attributable to adjacent land uses.

Policy 17.2:

The County shall preserve rare and threatened native vegetative communities and protect listed species from development.

Policy 17.3:

The County shall continue to seek available funding to assist the County's efforts to protect and enhance beach and shoreline ecosystems.

Policy 17.4:

The County shall seek to restore and enhance degraded natural areas on lands acquired for preservation, including: removal of noxious exotics, reforestation, and restoration of shorelines and natural hydrology, as needed.

Policy 17.5:

The County shall protect and enhance surface and ground water resources through acquisition, protection, and management of lands with important water resources, including, but not limited to, reducing non-point source pollution through enhanced stormwater treatment accomplished by best management practices of natural systems and/or restoration of altered habitats or where appropriate, stormwater treatement facilities.

Policy 17.6:

The County shall seek to protect and restore aquatic vegetation in areas acquired for preservation, including exotic weed control, and aquatic grass-bed restoration.

Policy 17.7:

Where appropriate, the County shall enhance public access to publicly-owned natural areas, including water bodies.

Policy 17.8:

The County shall provide appropriate outdoor recreational facilities for activities on lands acquired for preservation, including hiking trails, boardwalks, interpretive picture displays, educational programs and wildlife observation areas.

Objective 18: The County shall seek to measurably improve the management of all natural preserves within County boundaries by implementing the following policies.

Policy 18.1:

RESERVED

Policy 18.2:

RESERVED

Policy 18.3:

During the acquisition of ecologically important lands, the County shall give priority to acquiring the optimal acreage needed to maintain the integrity of the natural plant communities or ecological units involved, and to establishing a system of interconnected or contiguous wildlife corridors.

Policy 18.4:

The County shall encourage private land owners to utilize multiple-use management techniques to provide both economic (e.g., cattle grazing, silviculture) and ecological (e.g., provision of wildlife habitat) benefits.

LAND USE

Issue: In past decades, land use decisions were based primarily upon socio-economic and demographic factors, with little consideration given to preserving or conserving the natural attributes of the land. As a result, urban land uses were often allowed to replace or permanently alter environmentally sensitive lands and natural systems. Policies and regulations that appropriately preserve or conserve valuable natural resources while allowing for orderly economic growth should continue to be implemented.

Objective 19: The County shall continue to review, amend and implement land development regulations to ensure the protection of the attributes, functions and amenities of the natural environment under all projected growth scenarios.

Policy 19.1:

The County shall develop a technical manual identifying site-specific buffer design and maintenance criteria needed to maintain the hydrological and biological integrity of the County's wetlands, lakes, streams, rivers, and bays. The technical manual will be developed by Hillsborough County in cooperation with the Environmental Protection Commission of Hillsborough County (EPCHC) and considered for adoption and implementation by Hillsborough County by June, 2009. The technical manual will be developed using a technical advisory group process with broad-based representation.

Policy 19.2:

The County shall use techniques, which may include clustering and transfer of development rights, to encourage the location of development away from environmentally sensitive areas or economically important agricultural or mineral resources.

Policy 19.3:

During the development review process, the County shall promote the preservation of representative examples of upland native plant communities by encouraging the use of the upland forest density credit incentive provision of the Future Land Use Element.

Policy 19.4:

RESERVED.

Policy 19.5:

The County shall continue to review, and amend if necessary, those land development regulations that protect the natural environment from the adverse impacts of development, in order to better address the cumulative impact on the environment and shall incorporate provisions that mitigate any potentially cumulative adverse impacts. Consideration shall include a review of all past, present and foreseeable cumulative impacts. Past impacts shall include those that have occurred since the County began regulating environmental impacts

Policy 19.6:

The County shall continue to encourage infilling and growth within identified and environmentally acceptable 'activity centers', and shall discourage urban sprawl, through the application of the Urban Growth Boundary concept and other means.

Policy 19.7:

The County shall continue to discourage and minimize the removal of natural upland vegetation caused by site filling and shall maintain natural drainage patterns and water table levels, where feasible.

RIVER RESOURCES

"River Resources" is a section of the Conservation and Aquifer Recharge Element of the Comprehensive Plan that provides a special focus on the rivers in Hillsborough County: the Hillsborough, Alafia and Little Manatee Rivers. These rivers directly influence development patterns and provide economic opportunities, as well as environmental and recreational benefits. Because of the importance of these rivers, policies are included herein the Plan to address the need for their preservation and proper sustainable use.

Rivers in Hillsborough County are regulated and/or managed by a number of different federal, state, regional and local entities, each with different, not necessarily consistent agency mandates and missions. River resources are affected by the actions of these agencies and by landowners and the general public. The purpose of this section is to provide one place to focus the County's policies regarding river management and the protection of riverine corridor resources. In general, it is County government philosophy to manage river resources such that any development takes place when consistent with long-term protection of the natural attributes of a river, such as wildlife habitat and stormwater attenuation, storage, filtration and erosion control.

General policies that address river issues throughout Hillsborough County precede those which focus on each of the individual rivers. The general policies

address the conditions and issues the three rivers have in common. Policies for an individual river corridor address the unique qualities of that river.

Policies specifically addressing the Hillsborough River consist of management policies from the Hillsborough River Master Plan. The Plan promotes the adopted goal for the Hillsborough River, which is "To make the Hillsborough River cleaner, safer, and more attractive."

A distinct set of policies providing for management direction of the Alafia River recognizes the specific and individual needs of the Alafia River originally identified in the Alafia River Study. These policies will guide future development along the river corridor to achieve the overall goal for the Alafia River which is "To preserve, protect and promote the Alafia River and its natural resources and recreational benefits."

The Little Manatee River is the most pristine of the three rivers and requires special consideration. The policies included in this plan address the river's special attributes and are designed to achieve the overall goal, which is to "To recognize and maintain this unique water resource that provides economic and recreational opportunities as well as vital wildlife habitat."

RIVER RESOURCES:
General

GOAL 2: To make the rivers and primary tributaries of Hillsborough County cleaner, safer and more attractive, protect the natural functions and wildlife habitats in the river corridors and promote the economic and recreational benefits provided by these water bodies.

Objective 20: The County will continue to maintain or improve the quality of water in its rivers and primary tributaries where water quality does not meet or exceed state water quality standards for its designated use. Implementation of the following policies will accomplish this objective:

Policy 20.1:

The County shall, in conjunction with the Environmental Protection Commission of Hillsborough County (EPC) and other appropriate agencies, identify pollution sources that adversely affect rivers and develop strategies by which to mitigate or eliminate such sources and their effects.

Policy 20.2:

The developer of any project along a river shall provide stormwater management systems that filter out pollutants before the stormwater enters the rivers, in accordance with Florida Department of Environmental Protection and Southwest Florida Water Management District rules, including the exemption provisions of these rules. New drainage outfalls

along rivers shall be designed with stormwater treatment facilities rather than discharging stormwater directly into the rivers. Where environmentally feasible, the stormwater discharge from detention ponds shall flow into rivers through vegetated swales.

Policy 20.3:
RESERVED

Policy 20.4:
Solid waste landfills and hazardous material facilities in unincorporated Hillsborough County shall be sited and managed such that they will not adversely affect the rivers and tributaries.

Policy 20.5:
Septic tank and drainfield installation shall be prohibited within 200 feet of the EPC wetland lines of the Rivers and their tributaries, except in such cases where the 200-foot criterion cannot be met because of vested lot size or configuration. In such cases, placement and construction of such facilities shall be in accordance with State law and shall prevent adverse impacts to water quality to the greatest extent practicable. This policy shall not prohibit recommended maintenance of existing septic systems, if no alternative means of sewerage treatment is available.

Policy 20.6:
The Conservation and Aquifer Recharge Element River Resources section "Goals, Objectives and Policies" shall be known as the River Corridor Policy Overlay. Rivers and primary tributaries of the County shall be protected by a combination of Goals, Objectives and Policies as provided for in Care Goals 2, 3, 4, 5 and 6 as the River Corridor Policy Overlay.

Objective 21: The County will continue to preserve natural shorelines and reverse the trend toward hardened shores and channelization along rivers and primary tributaries. The County shall enforce a shoreline construction controls as provided by the Tampa Port Authority and state statute to address shoreline conservation. Implementation of the following policies, and other policies throughout this Plan, will accomplish this objective:

Policy 21.1:
Shore alteration which would harden riverbanks shall be prohibited, except in cases of overriding public interest. Regulatory agencies shall be directed to continue to implement this policy in cases where its implementation would be more stringent than enforcement of their regulations.

Policy 21.2:
Publicly-owned or controlled lands shall continue to be improved by the restoration of vegetated riverbanks, including the gradual replacement of

deteriorated seawalls and rip-rap with native vegetation. Planting over rip-rap riverbanks is encouraged, with proper preparation of the riverbanks to prevent erosion and ensure healthy vegetation. Improve existing County-owned/maintained boat ramps, where necessary.

Policy 21.3:
Natural riverbanks and natural levees along the rivers and tributaries shall be conserved, preserved, and restored except in cases of overriding public interest. This shall not be construed to require restoration by the private property owner.

Policy 21.4:
RESERVED

Policy 21.5:
Draining, clearing or filling wetlands hydrologically connected to the river shall be prohibited.

Objective 22: The County will control boat traffic, reduce the nuisances associated with boat traffic, and improve compliance with water safety laws along rivers and primary tributaries. Implementation of the following policies will accomplish this objective:

Policy 22.1:
RESERVED

Policy 22.2:
RESERVED

Policy 22.3:
To enhance public safety and natural resources, the County shall continue to establish and post marine regulatory speed zones, where appropriate, including in the vicinity of marinas, bridges, marine structures, navigably constricted areas and in areas of rivers where manatees are known to inhabit.

Objective 23: The County will follow established standards for development along rivers and primary tributaries. Implementation of the following policies will accomplish this objective:

Policy 23.1:
RESERVED

Policy 23.2:
Water-dependent uses such as docks, boathouses and boardwalks shall constitute the only private over-the-water structures allowed on rivers.

Structures that are clearly in the public interest, such as bridges, shall also be allowed.

Policy 23.3:
RESERVED

Policy 23.4:
Where river shoreline exists in a natural state, all new boat ramps shall be designed to preserve the integrity of the shorelines to the maximum extent possible.

Objective 24: The County will continue to preserve, enhance and restore wildlife habitats and archaeological resources along rivers and primary tributaries. Implementation of the following policies will accomplish this objective:

Policy 24.1:
The County shall continue to consult with and consider the recommendations of the Florida Fish and Wildlife Conservation Commission for preventing or mitigating probable impacts upon fish and wildlife resources when determining the issuance of development approvals that may impact endangered or threatened species or species of special concern.

Policy 24.2:
Encourage the creation and acquisition of conservation easements along rivers and tributaries, pursuant to Section 704.06 F.S.

Objective 25: The County will continue to minimize urban encroachment along the rivers by encouraging the establishment of a "green" river corridor through protection of the river banks and associated native vegetation along rivers and primary tributaries. Implementation of the following policies will accomplish this objective:

Policy 25.1:
The removal of healthy native trees, with a diameter at breast height of five inches or greater, shall be prohibited within 100 feet of the rivers' EPC wetland lines, except when reasonable property utilization is not possible without tree removal or in cases of overriding public interest.

Policy 25.2:
The use of public riverfront property shall preserve the riverbank where it exists in a natural state and shall protect associated natural resources.

Policy 25.3:

Hillsborough County recognizes the special character of, and shall not take any action which will impair the use or enjoyment of State-designated canoe trails in Hillsborough County. These areas include, but are not necessarily limited to: the Hillsborough River Canoe Trail, the Alafia River Canoe Trail, and the Little Manatee River Canoe Trail.

Policy 25.4:

No additional areas shall be designated with heavy or light industrial land use plan categories within 500 feet of the rivers' EPCHC wetland lines.

Policy 25.5:

In keeping with the natural character of the Rivers, parking lots and service roads shall be prohibited within 500 feet of the EPCHC wetland lines of the river and its tributaries, unless there is an Overriding Public Interest such as, but not limited to public facilities (parks, boat ramps, etc.), or reasonable use of the property would otherwise not be possible.

Policy 25.6:

Promote the use of mechanisms designed to bring private undeveloped lands along the rivers into the public ownership or management, focusing on programs such as the Trust for Public Lands, tax incentives, impact fees, density credits, wildlife conservation easements, transfers of development rights and long-term leases.

RIVER RESOURCES:
Hillsborough River

GOAL 3: To make the Hillsborough River cleaner, safer and more attractive, to protect its natural ecological functions which support plant and animal wildlife and to promote the enhancement of the river as a recreational and aesthetic asset to the surrounding community.

Objective 26: Continue to protect this major source of drinking water and promote the improvement of water quality in the river where it does not meet or exceed state water quality standards for its designated use. Implementation of the following policies will accomplish this objective:

Policy 26.1:

No person shall control or attempt to control aquatic plants by chemical or biological means in the Hillsborough River except as provided in a permit issued by the Florida Department of Environmental Protection. Alternative methods to chemical control, and side effects of current methods, shall be evaluated on a regular basis and reported to the Hillsborough River

Interlocal Planning Board in an effort to identify and promote less harmful methods of weed control.

Policy 26.2:
RESERVED

Policy 26.3:
Prevent further destruction of desirable natural vegetative buffers along the Hillsborough River and its tributaries.

Policy 26.4:
Prevent potential contamination by effluent disposal from a wastewater treatment plant within the drainage basin by requiring advanced treatment and viral reduction of all sewage in the drainage basin which is part of an effluent disposal program.

Objective 27: Reverse the trend toward hardened shores and channelization. Implementation of the following policy will support this objective:

Policy 27.1:
To preserve natural wildlife habitat, construction of vertical seawalls in the Upper Hillsborough River, north of Fletcher Avenue, shall be prohibited.

Policy 27.2:
Support the elimination of vertical seawalls and replacement with natural slopes and wetland vegetation along the river banks as existing bulkheads are repaired or replaced.

Objective 28: The County shall continue to cooperate with state and federal programs to provide for improved boat traffic control in the Hillsborough River and shall minimize public use conflicts and nuisances by promoting the enforcement of water safety laws. Implementation of the following policies will accomplish this objective:

Policy 28.1:
New marinas shall be prohibited on the upper Hillsborough River.

Policy 28.2:
RESERVED

Policy 28.3:
RESERVED

Policy 28.4:
The construction of new ramps shall be severely restricted by establishing criteria for justification and requiring any proposals to meet criteria.

Policy 28.5:
Water skiing on the river shall be allowed only between the dam (near the City of Tampa Water Treatment Plant), and the 56th Street bridge.

Policy 28.6:
To prevent riverbank erosion, protect wildlife habitat, and ensure public safety, especially during low water periods, that portion of the river north of 56th Street shall be posted with "Idle speed, no wake" signs.

Policy 28.7:
In recognition of the designation of a portion of the Hillsborough River that flows within or along the County's jurisdictional limits as a state recreational trail (canoe), from the Fletcher Avenue, southerly and downstream to River hills Park, the County shall recognize the special character of this part of the river and shall not take any action which will impair its use as designated by the state.

Objective 29: The County shall implement standards for development in the river corridor. Implementation of the following policies will accomplish this objective:

Policy 29.1:
Within 100 feet of the river's EPC wetland lines, existing publicly-owned parking lots, loading docks, and service areas (containing such items as trash receptacles and machinery) shall be screened from the river by dense planting using Florida Friendly Landscaping principles and native vegetation when appropriate.

Policy 29.2:
Reserved.

Policy 29.3:
The County shall support the guidelines and standards for riverfront development as recommended in the Hillsborough River Corridor Overlay Study.

Objective 30: Develop and implement construction and placement standards for ramps, docks, seawalls, and other marine construction. Implementation of the following policies will accomplish this objective:

Policy 30.1:

The number of docks in single family zoning districts shall be limited to one per zoning lot. Shared ownership of docks is encouraged in all new subdivisions adjacent to the river. Shared ownership may be accomplished by construction on the property line or by establishing the dock(s) as common property.

Policy 30.2:

Multifamily zoning districts shall be permitted one dock per zoning lot and one additional dock shall be permitted for every 100 feet of linear river frontage in excess of 100 feet. Where multiple docks are permitted, they shall be clustered with a maximum separation of 30 feet between docks. Each dock shall contain no more than two berths.

Policy 30.3:

Continue to support the multi-jurisdictional distribution of a pamphlet detailing proper marine construction by the Tampa Port Authority (TPA), the Environmental Protection Commission (EPC), the Department of Environmental Protection (DEP), the U.S. Army Corps of Engineers, local building departments and other appropriate entities that can effectively provide the pamphlet to contractors and the public.

Policy 30.4:

Support the requirement of a local specialty license for contractors involved in marine construction projects to assure the proper placement, methods and materials are used in the construction of seawall, docks, ramps and other marine-related structures.

Objective 31: Continue to manage the Hillsborough River as an important community asset and provide appropriate public access to this valuable natural amenity. Implementation of the following Policies will accomplish this Objective:

Policy 31.1:

Private landowners are encouraged to provide public vistas, dedications of land interests, and pedestrian/bike paths which link public and private property within the river corridor into a linear greenbelt system.

Policy 31.2:

At public access points, the County should provide information on laws created to minimize use conflicts and mitigate public nuisances along the Hillsborough River.

Policy 31.3:

Acquire vacant waterfront parcels as they are available and restrict the sale of County-owned riverfront property.

Policy 31.4:

The County shall not vacate dead-end roads on the riverfront and shall use them for passive open space and stormwater retention, where environmentally feasible.

Objective 32: Continue to preserve and enhance wildlife habitats and preserve archaeological resources. Implementation of the following policies will accomplish this objective:

Policy 32.1:

The removal of exotic nuisance plant species from the riverbank shall be encouraged, and may be required as a permitting condition.

Objective 33: Preserve the rural character of the Upper Hillsborough River by discouraging additional development within the river corridor except for those sites improved or developed that are dedicated to passive recreational pursuits. Implementation of the following policies will accomplish this objective:

Policy 33.1:

The upper Hillsborough River shall be managed as a wildlife habitat corridor to provide an area for wildlife passage.

Policy 33.2:

Recreation facilities in the upper Hillsborough River corridor shall be designed to minimize impacts upon wildlife habitat by encouraging less disruptive passive pursuits such as hiking, nature study, photography, picnicking, fishing, and canoeing. No buildings shall be constructed within 500 feet of the river's EPC wetland lines.

Policy 33.3:

To preserve the quiet pristine character of the upper Hillsborough River, additional boat docks and ramps in this section of the river are prohibited. This provision shall not apply to canoe launches.

RIVER RESOURCES:

Alafia River

GOAL 4: To preserve, protect and promote the Alafia River and its natural resources and recreational benefits.

Objective 34: The County shall maintain water quality, and improve water quality where it does not meet or exceed State water quality standards for its designated use, thereby protecting and improving habitat for marine life.

Objective 35: The County shall continue to preserve and restore natural vegetation and wildlife habitats, and preserve archaeological resources. Implementation of the following policies will accomplish this objective:

Policy 35.1:
Reserved.

Policy 35.2:
Encourage the reclamation of mined lands along the Alafia River with native vegetation and encourage public acquisition for wildlife corridors, where appropriate.

Policy 35.3:
Promote the use of mechanisms designed to bring private undeveloped lands along the river into the public ownership or management, focusing on programs such as the Trust for Public Lands, tax incentives, impact fees, density credits, wildlife conservation easements, transfers of development rights and long-term leases.

Policy 35.4:
Recognizing the aesthetic, biological and economic value of the natural river corridor, buffer requirements in connection with development along the Alafia River shall be applied in accordance with buffer policies established in the Conservation and Aquifer Recharge Element.

Objective 36: The County shall continue to protect terrestrial and marine wildlife and their habitats. Implementation of the following policies will accomplish this objective:

Policy 36.1:
Provide manatee protection on the Alafia River by posting reduced speed signs in areas of known manatee habitation and enforcing them.

Objective 37: The County shall minimize river use conflict and mitigate public nuisances that adversely affect inhabitants along the river. Implementation of the following policies will accomplish this objective:

Policy 37.1:
The Alafia River shall be recognized as important for canoeing as well as other recreational pursuits.

Policy 37.2:
The County shall seek state funding through the Marine Patrol derelict vessel removal program to remove all abandoned craft recommended for removal by the Marine Patrol or Tampa Port Authority.

Policy 37.3

All abandoned/deteriorated docks and seawalls shall be removed at the expense of the owner upon advisement of the Tampa Port Authority. Removal shall occur within an amortization period set forth by the Port Authority. Any replacement structures shall be constructed according to the recommended criteria specified by the Port Authority.

Objective 38: The County shall preserve the natural shoreline and prevent further channelization. Implementation of the following policies will accomplish this objective:

Policy 38.1:

Prohibit backfilling of waterfront properties or extension of these lots through artificial means.

Policy 38.2:

Increase public awareness of the ecological and economic implications resulting from hardening of shorelines and the removal of native vegetation and wildlife habitats along the river. Provide information through permitting agencies and appropriate parks and recreation entities.

Objective 39: Implement the following guidelines for development within the river corridor. Implementation of the following policies will accomplish this objective:

Policy 39.1:

The County shall support development of criteria for the Alafia River that protect the river corridor from visual intrusion. The County shall consider including criteria similar to that which has been established for the State Scenic Rivers System.

RIVER RESOURCES:

Little Manatee River

GOAL 5: To recognize and maintain this unique water resource which provides economic and recreational opportunities, as well as vital wildlife habitat.

Objective 40: The County shall continue to support maintaining and improving water quality in each appropriate water classification found in the Little Manatee River, or improving water quality where it does not meet or exceed state water quality standards for its designated use.

Objective 41: Preserve wildlife habitats and archaeological resources. Implementation of the following policies will accomplish this objective:

Policy 41.1:
Reserved.

Policy 41.2:
Until such time as scientifically defensible setbacks and buffers are determined and implemented in accordance with policy located in the Conservation and Aquifer Recharge Element, clearing or filling of natural plant communities within 50 feet of the Environmental Protection Commission wetland jurisdictional line or within 100 feet of the mean and ordinary high water line, whichever is greater, shall be restricted in urban and suburban land use categories.

Policy 41.3:
Provide manatee protection on the Little Manatee River by posting reduced speed signs in areas of known manatee habitation and enforcing them.

Objective 42: The County shall continue to minimize urban encroachment upon the river bank by encouraging the protection of the river corridor. River corridor preservation can best be achieved through protection of the natural shoreline, and associated wetlands and uplands. Implementation of the following policies will accomplish this objective:

Policy 42.1:
Reserved.

Policy 42.2:
The Little Manatee River shall be recognized as providing important wildlife habitat and managed as a corridor for wildlife passage.

Policy 42.3:
The Little Manatee River shall be recognized as an important recreational resource.

Policy 42.4:
Recreation facilities in the Little Manatee River corridor shall be designed to minimize impacts upon essential and significant wildlife habitat. This is to be achieved by encouraging passive river corridor uses, such as: hiking, picnicking, nature study, photography, fishing, and canoeing.

Policy 42.5:
Reserved.

Policy 42.6:
Recognizing the aesthetic, biological and economic value of the natural river corridor, new buffer requirements in connection with development along the

Little Manatee River shall be established in accordance with policy located in the Conservation and Aquifer Recharge Element.

Objective 43: The County shall continue to develop and review policies and strategies addressing the unique qualities, protection and use of the Little Manatee River. Implementation of the following policies will accomplish this objective:

Policy 43.1:
Appropriate Soil Conservation Service Best Management Practices shall continue to be reviewed and considered as appropriate tools to help implement this Plan.

Policy 43.2:
Appropriate provisions from the Cockroach Bay Aquatic Preserve Management Plan shall continue to be considered as appropriate tools to help implement this Plan or other applicable plans endorsed by the Board of County Commissioners.

RIVER RESOURCES:
Palm River

GOAL 6: To preserve, protect and promote the Palm River and its natural resources and recreational benefits.

Objective 44: The County shall maintain water quality, and improve water quality where it does not meet or exceed State water quality standards for its designated use, thereby protecting and improving habitat for marine life. Implementation of the following policy will support this objective:

Objective 45:
The County shall continue to preserve and restore natural vegetation, and wildlife habitats, and preserve archaeological resources. Implementation of the following policies will accomplish this objective:

Policy 45.1:
Recognizing the aesthetic, biological and economic value of the natural river corridor, setback/buffer requirements in connection with development along the Palm River shall be applied in accordance with setbackbuffer policy policies established in the Conservation and Aquifer Recharge Element.

Objective 46:
The County shall continue to protect terrestrial and marine wildlife and their habitats. Implementation of the following policies will accomplish this objective:

Policy 46.1:

Provide manatee protection on the Palm River by posting reduced speed signs in areas of known manatee habitation and enforcing them.

Objective 47:
The County shall minimize river use conflict and mitigate public nuisances that adversely affect inhabitants along the river. Implementation of the following policies will accomplish this objective:

Policy 47.1:
The Palm River shall be recognized as important for recreational pursuits.

Policy 47.2:
The County shall seek state funding through the Marine Patrol derelict vessel removal program to remove all abandoned craft recommended for removal by the Marine Patrol or Tampa Port Authority.

Policy 47.3:
All abandoned/deteriorated docks and seawalls shall be removed at the expense of the owner upon advisement of the Tampa Port Authority. Removal shall occur within an amortization period set forth by the Port Authority. Any replacement structures shall be constructed according to the recommended criteria specified by the Port Authority.

Objective 48:
The County shall preserve the natural shoreline and prevent further channelization. Implementation of the following policies will accomplish this objective:

Policy 48.1:
Prohibit backfilling of waterfront properties or extension of these lots through artificial means.

Policy 48.2:
Increase public awareness of the ecological and economic implications resulting from hardening of shorelines and the removal of native vegetation and wildlife habitats along the river. Provide information through permitting agencies and appropriate parks and recreation entities.

Objective 49: RESERVED

THE COCKROACH BAY AQUATIC PRESERVE PLANNING AREA

The Cockroach Bay Aquatic Preserve (CBAP) Planning Area is a unique area of special concern in Hillsborough County. The aquatic preserve designation is a recognition by the State of Florida of the area's outstanding biological resources

and overall environmental qualities. The first management plan for CBAP was published by the Florida Department of Environmental Protection in 1987. An update to this plan was adopted in 1999.

Despite the stated intent of the Plan, the lack of funding at the State level has not allowed the Florida Department of Environmental Protection, which has primary management responsibility for the Aquatic Preserve program, to implement and enforce the provisions of the Management Plan as aggressively as may be necessary to protect the Preserve's natural resources. It is the intent of Hillsborough County to assist the State in protecting and managing this important natural resource, to improve its natural viability, and to increase its benefits to the citizens of Hillsborough County by adopting the following Goal, Objective and Policies:

GOAL 7: To protect the natural resources of the Cockroach Bay Aquatic Preserve from environmental degradation and manage the Preserve's resources for the benefit and enjoyment of the citizens of Hillsborough County.

Objective 50: New permitted discharges likely to impact the Cockroach Bay Aquatic Preserve will be required to meet or exceed applicable federal, state, regional and local water quality standards through cooperation with the Environmental Protection Commission of Hillsborough County (EPC), the Southwest Florida Water Management District (SWFWMD), the Hillsborough County Public Health Unit (HCPHU) and the Florida Department of Environmental Protection (FDEP). As a means of ensuring this, the County will request these agencies to develop a system whereby 2-5% of permitted point and non-point discharge structures are monitored in the field (as-builts) to document that they are operating as permitted.

Policy 50.1:

The County shall participate with the Florida Department of Environmental Protection, the Cockroach Bay Aquatic Preserve Management Advisory Team and other applicable organizations to revise and implement the "Cockroach Bay Aquatic Preserve Management Plan."

Policy 50.2:

The County shall work with the Department of Environmental Protection, the Environmental Protection Commission of Hillsborough County (EPC) and the Hillsborough County Public Health Unit (HCPHU) to identify the sources of pollution responsible for the closure of the Cockroach Bay Aquatic Preserve to public shell fishing, and, upon identification, will develop a program to identify means of eliminating such sources in a timely but cost-effective manner.

Policy 50.3:

The County shall review, and mitigate or restrict as appropriate, all proposed development likely to impact the Cockroach Bay Aquatic Preserve to ensure that water quality or habitat degradation, either attributable to the development alone or in combination with other developments, does not occur.

Policy 50.4:

The County shall seek to establish a scientifically defensible protective buffer zone between the Cockroach Bay Aquatic Preserve and adjacent upland land uses to prevent degradation of water quality and aquatic vegetative habitats as part of the Cockroach Bay Aquatic Preserve Management Plan.

Policy 50.5:

The Board of County Commissioners shall continue to support preservation, restoration and monitoring goals in the Cockroach Bay Aquatic Preserve with those responsible agencies and stakeholders represented by the County, the Planning Commission, the Environmental Protection Commission, Hillsborough Community College, state and regional agency staff, concerned citizens and area landowners.

Policy 50.6:

The County will utilize a variety of mechanisms, such as the use of natural plant communities for the treatment of stormwater, detention of stormwater, and purchase of lands by the Environmental Lands Acquisition and Protection (ELAP) Program for multiple use as wildlife habitat and stormwater management.

Policy 50.7:

The County will continue to coordinate with Hillsborough Community College's efforts at the Cockroach Bay Environmental Studies Center to study land management practices such as exotic plant control and fire management. The Environmental Lands Acquisition and Protection Program can utilize the results of such studies to more effectively manage lands purchased throughout the area of concern.

Policy 50.8:

The County will request the ELAP Program to purchase suitable parcels in the Area of Concern and incorporate site restoration projects that achieve water quality and/or habitat benefits to the Preserve.

Policy 50.9:

The County will work with the appropriate authorities, including the Environmental Protection Commission and the Florida Department of

Environmental Protection, to implement means of protecting seagrasses from propeller dredging throughout the Cockroach Bay Aquatic Preserve.

Policy 50.10:

The County will encourage all appropriate agricultural or construction operations within the Cockroach Bay drainage basin to develop and apply soil conservation measures and implement Best Management Practices (BMPs). Upon completion of the County's Stormwater Management Master Plan for this area, the County will require the use of BMPs.

Sustainable Development

Issue: Key components of the County's overall commitment to make economical use of public dollars and protect the environment are improving energy conservation and efficiency and engaging in resource efficient sustainable development practices. With rising costs and increasing demands for energy and natural resources, the County will seek to reduce energy use and manage development in a more resource efficient manner. The County can motivate employees, residents and businesses to become more energy efficient and to apply sustainable construction practices. Acting to conserve energy and become resource efficient saves public money and benefits the environment.

Goal 8: The county shall have sufficient and reliable energy available to meet the future needs of Hillsborough County residents, businesses and government, and development practices shall be resource efficient.

Objective 51: Hillsborough County will engage in and promote practices that result in energy conservation and efficiency.

Policy 51.1:

The County will continue to offer energy conservation and efficiency information to enable residents, businesses and county employees to reduce electrical loads and demands on the electrical utility system.

Policy 51.2:

The County will continue to enhance employee awareness of energy efficiency through training and periodic notifications.

Policy 51.3:

The County will educate consumers about the importance of and need for energy conservation and efficiency, for example, running public service announcements about energy conservation and efficiency.

Policy 51.4:

The County will conserve energy and become more energy efficient within its operations by developing and adopting a comprehensive energy management plan.

Policy 51.5:
The County will study the potential for incorporating alternative energy sources at County-owned facilities.

Policy 51.6:
The County will continue to pursue energy-saving options for exterior lighting of County buildings and facilities.

Objective 52: The County will encourage energy efficient and sustainable development practices.

Policy 52.1:
The County will encourage builders and developers to exceed the minimum requirements for energy efficiency of the Florida Building Code by sharing information on available training, tools or literature on resource efficient development.

Policy 52.2:
The County will explore sponsoring or partnering with organizations such as the Cooperative Extension Service, University of Florida to educate consumers about emerging practices in energy conservation and sustainable development.

Policy 52.3:
The County will explore creating incentives for new homes, developments and commercial buildings to become certified under the U.S. Green Building Council's "Leadership in Energy and Environmental Design" (LEED) program, the Florida Green Building Coalition (FGBC), or meet similar standards of development.

Policy 52.4:
The County will seek to maintain and increase environmentally beneficial plant life.

Policy 52.5:
The County will work towards increasing the supply of recycled content materials by expanding curbside or dumpster recycling to business and commercial users.

Objective 53: The County will support the development of and consider use of alternative energy/fuel in order to achieve energy supplies that are secure, sustainable and not harmful to the environment.

Policy 53.1:

The County will support the adoption of federal, state and local polices that foster domestic production of environmentally safe energy sources.

Policy 53.2:

The County will seek to diversify its fuel supply and reduce its use of fossil fuels by using alternative energy technologies where feasible.

Policy 53.3:

The County will investigate the use of alternative energy technology for existing, new and renovated County facilities.

Policy 53.4:

The County will seek to stimulate economic growth of new business, business expansion and development of technology in alternative energy and alternative fuel in Hillsborough County.

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[i] CPA 12-22 – Economic Potential Policies Update – Remove impediments to economic development in the plan.

Future of Hillsborough

Comprehensive Plan for Unincorporated Hillsborough County Florida

FUTURE LAND USE

As Amended by the Hillsborough County Board of County Commissioners June 5, 2008 (Ordinance 08-13)

Department of Community Affairs Notice of Intent to Find Comprehensive Plan Amendments in Compliance published August 4, 2008 {DCA PA No. 08-1ER-NOI-2901- (A)-(l) }

August 26, 2008 Effective Date

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IV. GOAL, OBJECTIVES AND POLICIES

Goal: Ensure that the character and location of land uses optimizes the combined potentials for economic benefit and the enjoyment and the protection of natural resources while minimizing the threat to health, safety and welfare posed by hazards, nuisances, incompatible land uses, and environmental degradation.

GROWTH MANAGEMENT STRATEGY

The Sustainable Growth Management Strategy serves as a vehicle to structure County spending and planning policies to optimize investment for services and infrastructure, protect the vulnerability of the natural environment, reduce the exposure and risk to natural hazards and provide a clear direction for achieving an efficient development pattern. This strategy is comprised of three primary components, an environmental overlay, an urban service area and a defined rural area.

The rural area is that area planned to remain in long term agriculture, mining or large lot residential development. Within the rural area, some "rural communities" exist. These communities have historically served as a center of community activity within the rural environment. They include, Thonotosassa, Keystone, Lutz, and others. The diversity and unique character of these communities will be reflected through the application of "community-based planning" techniques specifically designed to retain their rural character while providing a level of service appropriate to the community and its surrounding environment. To foster the rural environment and reinforce its character, rural design guidelines will be developed to distinguish between the more urban environment. Additionally rural areas should have differing levels of service for supporting facilities such as emergency services, parks and libraries from those levels of service adopted in urban areas.

This Plan also provides for the development of planned villages within rural areas. These villages are essentially self supporting communities that plan for a balanced mix of land uses, including residential, commercial, employment and the supporting services such as schools, libraries, parks and emergency services. The intent of these villages is to maximize internal trip capture and avoid the creation of single dimensional communities that create urban sprawl.

Purpose

- Control Urban Sprawl.
- Create a clear distinction between long range urban and rural community forms.
- Define the future urban form through the placement of an urban service area that establishes a geographic limit of urban growth.
- Define areas within the urban service area where growth can occur concurrent with infrastructure capacities and where public investment decisions can be made more rationally in a manner that does not perpetuate urban sprawl.
- Identify a distinct rural area characterized by the retention of land intensive agricultural uses, the preservation of natural environmental areas and ecosystems

and the maintenance of a rural lifestyle without the expectation of future urbanization.
- Apply an overlay of ecosystems and greenways that preserve natural environmental systems and open space while simultaneously reducing exposure to natural hazards.
- Create compatible development patterns through the design and location of land uses.

Environmental Overlay
The preservation of the natural environment and ecosystems, and the mitigation of exposure to natural hazards apply to urban and rural areas alike. Local, State and Federal regulations all play a part in determining the extent to which development can occur within these sensitive areas. These environmental features should be respected in the land planning process through the use of an ecosystem approach. The Greenways Master Plan and the emerging Integrated Conservation Plan begin to define the linear corridors and connections that constrain the land form. The policies adopted within these planning programs should be viewed as major components of this growth management strategy.

Urban Service Area Boundary
This boundary is established to designate on the Future Land Use Map the location for urban level development in the County. The boundary shall serve as a means to provide an efficient use of land and public and private investment, and to contain urban sprawl.

Urban Service Area (USA)

Objective 1: Hillsborough County shall pro-actively direct new growth into the urban service area with the goal that at least 80% of all population growth will occur within the USA during the planning horizon of this Plan. Within the Urban Service Area, Hillsborough County will not impede agriculture. Building permit activity and other similar measures will be used to evaluate this objective.

Policy 1.1:
Hillsborough County will maintain and update as needed a master plan for public water and sewer services within the USA to ensure that public utilities will be available to serve these areas.

Policy 1.2: Minimum Density
All new residential or mixed use land use categories within the USA shall have a density of 4 du/ga or greater unless environmental features or existing development patterns do not support those densities.

Within the USA and in categories allowing 4 units per acre or greater, new development or redevelopment shall occur at a density of at least 75% of the allowable density of the land use category, unless the development meets the criteria of Policy 1.3.

Policy 1.3:

Within the USA and within land use categories permitting 4 du/ga or greater, new rezoning approvals for residential development of less than 75% of the allowable density of the land use category will be permitted only in cases where one or more of the following criteria are found to be meet:

- Development at a density of 75% of the category or greater would not be compatible (as defined in Policy 1.4) and would adversely impact with the existing development pattern within a 1,000 foot radius of the proposed development;
- Infrastructure (Including but not limited to water, sewer, stormwater and transportation) is not planned or programmed to support development.
- Development would have an adverse impact on environmental features on the site or adjacent to the property.
- The site is located in the Coastal High Hazard Area.
- The rezoning is restricted to agricultural uses and would not permit the further subdivision for residential lots.[i]

Policy 1.4:

Compatibility is defined as the characteristics of different uses or activities or design which allow them to be located near or adjacent to each other in harmony. Some elements affecting compatibility include the following: height, scale, mass and bulk of structures, pedestrian or vehicular traffic, circulation, access and parking impacts, landscaping, lighting, noise, odor and architecture. Compatibility does not mean "the same as." Rather, it refers to the sensitivity of development proposals in maintaining the character of existing development.

Policy 1.5:

Within the USA, the use of new private potable water wells and new septic tanks to serve new development will be extremely limited. New development must connect to publicly owned and operated systems. Exceptions to this policy will be limited to documented hardships approved through a variance procedure, or in situations where reasonable use of the property would otherwise be unavailable.

Policy 1.6:

Development can occur with existing zoning but still must adhere to utility connection policies outlined in this plan, that is, through the creation or extension of public systems to serve the project.

Policy 1.7:

The County will create incentives to make development within the USA desirable and cost affordable. Such incentives may include but are not limited to expedited review processes, retrofitting existing development, increased density bonuses, tax incentives, impact fee structuring and pre-zoning of vacant, underutilized lands to achieve planned densities.

Policy 1.8:[ii]

RESERVED

Policy 1.9: Properties Split by the USA

Any parcels of record as of July 26, 1989 split by the Urban Service Area (USA) line shall be considered within the USA in its entirety if one or more of the following criteria are met:

- Lots and blocks that are part of a platted subdivision are inside the USA.
- 50% or more of a platted subdivision or record as of July 26, 1989 is within the USA.
- For parcels of record as of July 26, 1989 that are 100 acres or greater, at least 50% of the parcel must be inside the USA. For parcels less than 100 acres, at least 25% of the parcel must be in the USA.
- The portion of the property that is outside the USA is water or conservation area.

If none of these criteria are met, the property will be considered to be part of the Rural Area.

Objective 2: Timing of Growth

To manage the timing of new development to coordinate with the provision of infrastructure, transportation, transit services, and other public services, such as schools, recreational facilities, etc., in a financially feasible manner.

Policy 2.1:

The timeliness of development within the Urban Service Area shall be evaluated by the County. A project is considered premature if any of the following indicators are present:

- There is a lack of planned or programmed urban services such as multi-modal transportation systems, central water and sewer, schools, fire, and emergency services.
- There are unaddressed LOS deficiencies for adequate public facilities.

Policy 2.2:

In the review of expansions to the Urban Service Area, each proposal shall be examined to determine if the project meets all of the following:

- The expansion is adjacent and contiguous to the established Urban Service Area.
- The expansion would be an extension of an existing suburban/urban development pattern and/or has a functional relationship to development within the Urban Service Area.
- Expansion of the Urban Service Area would result in development that would be compatible with its surroundings.
- Public water and sewer service exists within ¼ mile of the site.
- There is adequate capacity for infrastructure (including transportation, schools, parks, fire/EMS and sheriff's office) in place or planned to serve development within the expansion area. All improvements needed to support the proposed expansion of the Urban Service Area with adequate public facilities shall be

included by amendment into the Capital Improvements Element that is financially feasible.

- Expansion of the urban service area would include full cost recovery to the County for the services needed by the new development.
- The expansion would not adversely impact environmental, natural, historical or archaeological resources, features or systems to a degree that is inconsistent with the Plan
- Data is available to support the need for additional land within the Urban Service Area to provide for the projected population or economic development needs within the planning horizon of the Comprehensive Plan. The data methodology utilized shall be consistent with that used as the basis for the Comprehensive Plan.
- The expansion of the Urban Service Area would not conflict with any other goals, objectives or policies of the Comprehensive Plan and is consistent with the County's adopted build out plan or long term vision as outlined in Policy 11.2, if applicable.
- The expansions of 20 acres or greater shall include a mixed use development pattern that decreases the transportation impacts of the project; all other expansions should result in a mixed use development pattern when considered with the existing and/or planned land uses within ¼ mile of the project site.

Policy 2.3:

The County shall coordinate with adjacent local jurisdictions and conduct joint planning efforts for infrastructure to manage the timing and location of development.

Objective 3: Tools for Implementation

Implementation tools shall be provided to further support managing the timing of growth both inside and outside the USA, the rate of growth in the USA, and directing growth to areas with existing infrastructure.

Policy 3.1:

Hillsborough County shall evaluate implementation tools for their ability to direct growth and development to areas where public infrastructure investments have been made, and where facilities and services are available. The tools evaluated should include, but are not limited to, proportionate fair share mitigation and Multimodal Transportation Districts.

Rural Area

Rural areas will typically carry land use densities of 1 du/5 ga or lesser intense designations. There will be no new extension of public water or sewer service into the Rural Area unless there is a public health concern identified or the development is classified as a planned village as described in this Plan. New development will utilize private potable water wells and septic systems. In some cases, existing water and/or sewer lines may already be in place either by development approvals granted prior to

the adoption of these policies or due to public health/safety issues. Expansion of those systems should be prohibited and limited to cases where public health is at risk.

Within the rural area there are existing developments that are characterized as suburban enclaves or rural communities. These are residential developments which have a more dense development pattern and character, usually 1 or 2 du/ga. These enclaves are recognized through the placement of land use categories that permit densities higher than 1 du/5 acres. New development of a character similar to the established community will be permitted to infill in a limited manner, but not be permitted to expand into areas designated with lower land use densities.

Rural communities, such as Lutz, Keystone and Thonotosassa will specifically be addressed through community-based planning efforts. These communities, and others like them, have historically served as centers for community activities within the rural environment

Objective 4: The Rural Area will provide areas for long term, agricultural uses and large lot, low density rural residential uses which can exist without the threat of urban or suburban encroachment, with the goal that no more than 20% of all population growth within the County will occur in the Rural Area.[iii]

Policy 4.1: Rural Area Densities

Within rural areas, densities shown on the Future Land Use Map will be no higher than 1 du/5 ga unless located within an area identified with a higher density land use category on the Future Land Use Map as a suburban enclave, planned village, a Planned Development pursuant to the PEC ½ category, or rural community which will carry higher densities.

Policy 4.2:

For the purpose of this Plan, planned villages shall be considered areas identified as Residential Planned-2 or Wimauma Village-2 on the Future Land Use Map within the Rural Area. Rural communities are generally existing areas shown on the Future Land Use map at densities higher than 1 du/5ga and up to 1 du/ga outside the USA. Suburban enclaves are those existing areas shown on the Future Land Use Map as higher than 1 du/ga outside the USA.

Policy 4.3:

The Residential Planned-2 or Wimauma Village-2 land use category shall not be expanded outside of the Urban Service Area.

Policy 4.4:

Private wells and septic tanks are permitted for use in accordance with all adopted health regulations and the goals, objectives and policies of this Plan.

Policy 4.5:

Clustered development can only be used for projects where substantial open space can be maintained and still retain the rural character of the surrounding community or where clustering is used to achieve the requirements of the RP-2/WVR-2 or PEC ½ land use categories. The open space maintained in this case can be used for passive recreational use, bona fide agricultural purposes or placed into a conservation easement. These lands are not intended to be used for future development entitlements.

Policy 4.6:

Rural Levels of Service will be established for certain County services, such as emergency services, parks, and libraries.

Policy 4.7: Extension of Water and Sewer in Rural Area

Public water and sewer lines shall not be permitted to be extended into rural areas unless this extension occurs to:

- Serve a planned village (RP-2 or WVR-2) or Planned Environmental Community ½ as described in this Plan;
- Serve a project that has established vested rights for the use of these facilities;
- Address a public health hazard documented by the Health Department or other regulatory agency;
- Provide for the extension of centralized water or wastewater facilities to serve a school facility so long as the service lines are designed to accommodate solely the service demands of the school, consistent with the School Interlocal Agreement.

Policy 4.8:

The policies in this section do not prohibit the placement of transmission facilities through the Rural Area to serve development within the Urban Service Area. Nor shall these policies prohibit any maintenance of existing infrastructure systems within the Rural Area and/or other improvements intended to improve operational efficiency of those systems.

Policy 4.9:

Connections to existing water/wastewater systems in Rural Areas may be considered by the Hillsborough County Board of County Commissioners on a very limited basis, so long as such connections do not foster a development pattern that is in conflict with other Plan policies. The intent of this policy is to:

(1) Allow some utilization of existing infrastructure for those properties located along existing lines, not to allow extensions to those systems.

(2) Allow properties located within wellhead protection areas or Tampa Bay Water mitigation areas, to be developed for service by public utilities if adequate capacity is available and when public water and sewer service might provide an

additional level of protection to potable water resources. All such properties shall conform to the following criteria:

(A) New Development:

- Be the subject of an approved Planned Development Zoning;
- Contain building lots of not less than one-half (1/2) acre each;
- Located within 1000 feet of the urban service area boundary (inclusive of road rights-of-way and riverine systems);
- Utility service cannot be provided by any jurisdiction other than Hillsborough County unless provided for in pre-existing service area agreements e.g. City of Tampa or Temple Terrace;
- Maximum residential density cannot exceed 80% of the maximum density permitted under the comprehensive plan for properties where wetlands comprise less than 25% of the property; and
- Maximum residential density cannot exceed 90% of the maximum density permitted under the comprehensive plan for properties with at least 25% wetlands onsite (using wetland density calculations).

(B) Existing Development:

- Located within 1000 feet of the urban service area boundary, (inclusive of road rights-of-way and riverine systems).
- Utility service cannot be provided by any jurisdiction other than Hillsborough County unless provided for in pre-existing service area agreements e.g. City of Tampa or Temple Terrace.

These exceptions shall be permitted to promote the Goals, Objectives and Policies contained in the Conservation, Potable Water and Sanitary Sewerage sections of the Plan. Utilization of this provision could result in clustered development, achieving a greater amount of common open space in a project than projects using wells/septic systems. Such open space shall be identified on the zoning site plan as permanent conservation either through platting or other mechanism approved by Hillsborough County.

This provision shall not be available for use within the boundaries of the Keystone-Odessa Community Plan.

Any such connection and extension of lines shall be at the expense of the party requesting such service and permitted at the discretion of Hillsborough County.

The existence of water/wastewater lines in the Rural Area will not be considered a basis for rezoning to allow uses that otherwise require public utility connections, nor shall these provisions be used as a basis to increase densities and intensities on the Future Land Use Map.

Implementation of the Growth Management Strategy and Future Land Use Element

Growth Management Strategy and Land Use Allocation

Objective 5:
The County will continue to evaluate the growth management strategy and policies of the Future Land Use Element through visioning and evaluation of land use allocation for residential and non-residential development in order to optimize the use of infrastructure and services.

Policy 5.1
Hillsborough County and the Planning Commission will develop the needs/capacity analysis by land use category of land required to accommodate the projected population through the year 2025 using a professional acceptable methodology and evaluate it on an annual basis to coincide with the update of the Capital Improvements Element.

Relationship to the Concept Plan

Objective 6: The concept plan is the overall, conceptual basis for the long range, Comprehensive Plan, and all plan amendments must be consistent with, and further the intent of the concept plan, which advocates focused clusters of growth connected by corridors that efficiently move goods and people between each of the activity centers.

Policy 6.1:
All plan amendments and rezoning staff reports shall contain a section that explains how said report(s) are consistent with, and further, the intent of the concept plan and the Future of Hillsborough Comprehensive Plan.

Policy 6.2:
The development of a variety of employment areas and activity centers shall be encouraged at adopted locations and be preserved in mixed use categories, as defined by the concept plan and applicable development regulations, to provide employment opportunities throughout existing and planned development areas.

Policy 6.3:
The Hillsborough County City-County Planning Commission shall continue to assist developers with information in the location of development activities, wherever feasible, to fulfill the intent of the concept plan, and to facilitate the overall implementation process.

Relationship to the Future Land Use Map

Objective 7:
The Future Land Use Map is a graphic illustration of the county's policies governing the determination of its pattern of development in the unincorporated areas of Hillsborough County through the year 2025.

Policy 7.1:
The Future Land Use Map shall be used to make an initial determination regarding the permissible locations for various land uses and the maximum possible levels of residential densities and/or non-residential intensities, subject to any special density provisions, locational criteria and exceptions of the Future Land Use Element text.

Policy 7.2:
All land use category boundaries on the Future Land Use Map coinciding with and delineated by man-made or natural features, such as but not limited to roads, section lines, property boundaries, surface utility rights-of-way, railroad tracks, rivers, streams or other water bodies or wetlands are precise lines.

Policy 7.3:
The land use category boundaries may be considered for interpretation as flexible boundaries in accordance with the Flex Provision as follows:

- Through application of the flex provision, the land use category boundaries shall be deemed to extend beyond the precise line to include property adjoining or separated by a man made or natural feature from the existing boundary line.
- The line may be relocated a maximum of 500 feet from the existing land use boundary of the adopted Land Use Plan Map. Right-of-Way is not included in the measurement of the 500 foot flex.[iv]
- All flexes must be parallel to the land use category line.
- Flexes are not permitted in the Rural Areaor in areas specified in Community Plans.[v] Flexes are also not permitted from the Urban Service Area into the Rural Area. All flexes in the Rural Area approved prior to July 2007 are recognized and are not to be considered non-conforming.
- Flexes to increase residential density are not permitted in the Coastal High Hazard Area.
- Flexes are not permitted from a municipality into the unincorporated county.
- A flex must be requested as part of planned development or site plan oriented rezoning application. Major Modification to approved zoning that changes the intensity, density or the range of uses will require that the previous flex request be re-evaluated for consistency and a new flex request may be required.[vi]
- Applicants requesting a flex must provide written justification that they meet the criteria for a flex as outlined below.

- The Board of County Commissioners may flex the plan category boundary to recognize or grant a zoning district which is not permitted in the land use category but lies within the distance of a conforming land use category, as described above. Prior to the determination by the Board of County Commissioner, the staff of the Planning Commission shall make a recommendation on the consistency of the request with the Comprehensive Plan.

Policy 7.4:

The criteria for consideration of a flex request are as follows:

- The availability and adequacy of public facilities to serve the proposed development accommodated by the flex;
- The compatibility with surrounding land uses and their density and intensity;
- The utilization of the flex furthers other goals, objectives and policies of the Future Land Use Element.

Land Use Categories

Objective 8:

The Future Land Use Map will include Land Use Categories which outline the maximum level of intensity or density and range of permitted land uses allowed and planned for an area. A table of the land use categories and description of each category can be found in Appendix A.

Policy 8.1:

The character of each land use category is defined by building type, residential density, functional use, and the physical composition of the land. The integration of these factors sets the general atmosphere and character of each land use category. Each category has a range of potentially permissible uses which are not exhaustive, but are intended to be illustrative of the character of uses permitted within the land use designation. Not all of those potential uses are routinely acceptable anywhere within that land use category.

Policy 8.2:

Each potential use must be evaluated for compliance with the goals, objectives, and policies of the Future Land Use Element and with applicable development regulations.

Policy 8.3: Calculating Density

Densities are applied on a gross residential acreage basis which means that each development proposal is considered as a "project". Only those lands specifically within a project's boundaries may be used for calculating any density credits. Acreage dedicated to commercial, office and industrial land uses that fall within a project's boundaries are excluded.

Density may be transferred between non-contiguous parcels in accordance with the County's transferable development rights regulations or when the parcels are physically separated from each other by a roadway, wetlands, stream, river, lake or railway.

The following lands may be included when calculating gross residential density: planned but unconstructed roads and–road rights-of-ways, utility rights-of-way, public and private parks and recreation sites, sites for schools and churches, open space sites and land uses, and community facilities sites such as sewage treatment plants, community centers, well fields, utility substations, and drainage facility sites.

Policy 8.5: **Calculating Floor Area Ratio**

For purposes of calculating the maximum permitted gross building square footage for non-residential uses within a development proposal the following procedure shall apply:

In applying floor area ratios (FAR) to acreage, all residential land use types that fall within a project's boundaries are excluded. Also, only those lands specifically within a project's boundaries may be used for calculating maximum permitted gross building square footage. Except in accordance with the County's transferable development rights regulations, intensity cannot be transferred from one parcel of land to another when such parcels are physically separated from each other unless the separation is created by a roadway, wetlands, stream, river, lake or railway.

Gross non-residential intensity refers to gross building square footage of non-residential land use types within a given project or, in the case of mixed use projects, portion(s) of a project. A project's total non-residential acreage, for purposes of calculating its gross non-residential land uses to which the owner or owner's agent or developer has surface development rights, includes the following land within the non-residential portion(s) of the project to be used for: planned and unconstructed roads and road rights-of-way, public and private parks and recreation sites, sites for schools and churches, open space sites and land uses, and public facilities such as sewage treatment plants, community centers, well fields, utility substations, and drainage facility sites.

Policy 8.6:

In coastal areas and for properties including lakes, only land above the mean high water line may be used in determining acreage size.

Policy 8.7:

Calculation of density/intensity of conservation and preservation land must follow the provisions of the Environmentally Sensitive Land Credit outlined in Policy 13.3.

Policy 8.8:

For projects whose boundaries encompass more than one land use category, density and intensity calculations will allow for the blending of those categories across the entire project. All portions of the project must be contiguous to qualify for blending. Blending of densities and intensities is not permitted across improved public roadways or between the Urban Service Area (USA) and Rural Service Area (RSA) boundary.[vii] The combined total number of dwelling units and/or FAR possible under all the land use categories within the project will be used as a ceiling for review purposes. This provides maximum design flexibility for those projects, because the location or clustering of those units on the project site need not conform to the land use category boundary on the site as long as the maximum number of dwelling units permitted for the entire project are not exceeded.

Relationship to Land Development Regulations

Objective 9: All existing and future land development regulations shall be made consistent with the Comprehensive Plan, and all development approvals shall be consistent with those development regulations as per the timeframe provided for within Chapter 163, Florida Statutes. Whenever feasible and consistent with Comprehensive Plan policies, land development regulations shall be designed to provide flexible, alternative solutions to problems.

Policy 9.1:

Each land use plan category shall have a set of zoning districts that may be permitted within that land use plan category, and development shall not be approved for zoning that is inconsistent with the plan.

Policy 9.2:

Developments must meet or exceed the requirements of all land development regulations as established and adopted by Hillsborough County, the state of Florida and the federal government unless such requirements have been previously waived by those governmental bodies.

Policy 9.3:

In implementing this Comprehensive Plan, Hillsborough County shall continue to recognize legal non-conforming uses, and permit the rebuilding or expansion of existing legal non-conforming uses which do not have any significant adverse effects on adjacent properties. With the exception of principle residences, or uses or structures destroyed by an act of God, the expansion of non-conforming uses and rebuilding of non-conforming uses, shall not occur more than once. The expansion or rebuilding shall not result in an increase of the intensity of use which exceeds fifty (50) percent of the existing intensity or the maximum building square footage within the plan category. However, the expansion may permit the construction of a use that is less intense than the existing non-conforming use. The new use may still be non-conforming with the plan. All expansions or rebuilding shall be consistent with other plan policies.

Policy 9.4:

This plan permits the construction or reconstruction of residential structures (both single and multi-family) on legally established or vested lots of record which exceed the underlying density of the Plan. All other relevant provisions of this Plan shall apply including concurrency. To the greatest extent possible, the County shall require adjacent lots of record under single ownership to be combined to achieve as near to the underlying plan density as is attainable.

Policy 9.5:

In order to recognize that parcels may exist from prior to July 26, 1989, which cannot be subdivided due to a slight shortfall in area and for which, in some cases, variance relief is not possible due to density limits of the Comprehensive Plan, and in view of the de minimis effects posed by the subdivision of such parcels in certain circumstances and the substantial benefit that may be afforded the property owners, a maximum reduction of two percent of the minimum lot area required by the property's zoning shall be allowed, irrespective of density restrictions of the Comprehensive Plan, subject to the following provisions:[viii]

1. The parcel shall be a lawful lot created prior to July 26, 1989.
2. The parcel shall be located in the Rural Service Area.
3. The parcel shall be agriculturally zoned or have a required minimum lot size of one acre or greater.
4. The parcel shall be divided into a maximum of two lots.
5. The lot size reduction shall be limited to one lot in the subdivision.

Policy 9.6:

Development must meet or exceed all airport zoning regulations, as established by the Land Development Code and by the Aviation Authority, unless such requirements are waived through established procedures.

Policies Governing Development Activities

Land Use Suitability

Objective 10: Development orders shall not be issued unless development is suitable for the physical conditions of the land, including, but not limited to, topographical and soil conditions, and development mitigates those adverse impacts that it creates upon the physical conditions of the land that may affect the health, safety and/or welfare of the people who live and work within those particular areas.

Policy 10.1:
Development of land shall use appropriate methods, as adopted in the land development regulations, to control erosion and sedimentation to help minimize the destruction of soil resources.

Policy 10.2:
Soil capability analyses for flood hazards, stability, permeability and other relevant soil characteristics shall be considered when planning for new development.

Policy 10.3:
On-site sewage disposal facilities shall not be located on soils unsuitable for such uses, unless the soils on the site can be altered in a manner that meets state and local environmental land use regulations.

Policy 10.4:
Development within areas defined by the Hillsborough County as "volume or peak sensitive" shall require higher performance standards to mitigate stormwater runoff.

Policy 10.5:
If properties in the following areas, Section 25, Township 32, and Range 18 and in Section 19 and 30, Township 32, and Range 19, are developed utilizing septic systems, the development shall utilize the Performance-based Treatment System as defined in Rule 64E-6.025(10), F.A.C.

Policy 10.6: Bonuses Not Applicable in Coastal High Hazard Area
In order to further direct residential population growth from the vulnerable coastal areas of the County, all density bonuses outlined in the Future Land Use Element shall not be applicable to properties within the Coastal High Hazard Area.

Note: Development that has significant environmental conditions on-site must also be in conformance with the objectives and policies of the Conservation Element. Development proposed within the Coastal High Hazard Area must also be in conformance with the Goals, Objectives and Policies found in the Coastal Management Element.

Provision of Public Facilities To Serve Development

Objective 11: All new development and redevelopment shall be serviced with potable water, sewerage, stormwater management facilities, solid waste disposal and parks that meet or exceed the adopted levels of service established by Hillsborough County.

Policy 11.1:
New development or redevelopment must meet adopted levels of service for public facilities as established by the Future of Hillsborough Comprehensive Plan.

Policy 11.2:
The County shall promote partnerships among state government, local governments and the private sector to identify and build needed public facilities and allocate the costs of such facilities among the partners in proportion to the benefits accruing to each of them.

Policy 11.3:
The County shall support the development of innovative, cost effective potable water and wastewater treatment techniques, facility designs, and reclaimed water reuse programs which will allow for maximum flexibility in the design and construction of regional and sub regional systems.

Policy 11.4:
Recreational development must be compatible with and sensitive to the surrounding natural systems.

Policy 11.5:
For public facilities which can be designed in a linear fashion, such as utilities, drainage improvements, and parks, the County shall seek opportunities for combining the objectives and funding of these projects with the objectives of the Hillsborough Greenways Master Plan, particularly when doing so would provide a connection to an existing or planned greenway on adjacent land.

Provision of Public Facilities-Transportation

Objective 12: All new development and redevelopment shall be serviced with transportation systems that meet or exceed the adopted levels of service established by Hillsborough County.

Policy 12.1:
Coordinate land use and transportation plans to provide for locally adopted levels of service consistent with the Transportation and Capital Improvements Elements of the Comprehensive Plan.

Policy 12.2:
The County shall maximize arterial capacity by acquiring and/or protecting adequate rights-of-way, consistent with the Corridor Plan adopted as a part of the Transportation Element.

Policy 12.3:
Restrict direct access to arterial roadways from development projects when access can be provided via a collector or local facility.

Policy 12.4:
Protect the capacity and integrity of interstate highways as high volume interstate traffic corridors through the development of an adequate arterial and collector support system that meets the adopted levels of service of the Transportation and Capital Improvements Elements.

Policy 12.5:
Land use planning efforts shall make a distinction between the land uses that may be considered within land areas adjacent to limited access highways but not directly accessible to an interchange, and those land areas that are directly accessible to an interchange. These distinctions shall include, but not be limited to, compatibility of the land use with the interstate highway system, effect of the land use on highway system levels of service, and availability of the county collector and arterial systems to serve the proposed land use.

Policy 12.6:
Control curb cuts and intersections on new and existing arterial roadways through access management standards adopted as part of the Hillsborough County land development regulations and the Florida Department of Transportation.

Policy 12.7:
Development proposals shall address effective multi-modal transportation systems including provisions for carpooling, vanpooling, mass transit, bicycling, and walking, where needed.

Environmental Considerations

Objective 13 New development and redevelopment shall not adversely impact environmentally sensitive areas and other significant natural systems as described and required within the Conservation and Aquifer Recharge Element and the Coastal Management Element of the Comprehensive Plan.

Policy 13.1:[ix]
The County shall encourage the retention and preservation of upland natural plant community vegetation, including trees and understory vegetation. This shall be accomplished through the upland forest density/intensity bonus as outlined below.

Upland Forest Density/Intensity Bonus

Upland forests in unincorporated Hillsborough County include Pine Flatwoods, Sandhill, Sand Pine Scrub, Xeric Hammock and Mesic Hammock. Definitions of these forest communities and rationales for preserving representative tracts are provided in the Conservation and Aquifer Recharge Element. The requirements and calculations of this bonus are:

- Any upland forest acreage used to calculate this bonus shall be recorded as a permanent Conservation Easement pursuant to Section 704.06, FS and shall not be eligible for any future development rights.
- This density bonus would not be applicable in the Agricultural/Mining, Agricultural, or Agricultural/Rural land use categories.
- The density/intensity formula for protection of wetlands would remain as presently defined elsewhere in the Future Land Use Element. Before the upland forest density bonus could be considered, the wetland credit must be calculated.
- The density/intensity bonus for upland forest preservation would provide a 25% bonus for Sandhill, Pine Flatwoods, Sand Pine Scrub, Xeric Hammock or Mesic Hammock. This 25% bonus would be calculated in the following manner.
    - Acreage preserved multiplied by 1.25 = Acreage eligible for Density/Intensity Bonus
    - Acreage eligible for bonus multiplied by Intensity/Density of Future Land Use Category = Total FAR or Density for that Area
    - Density and intensity on the remaining acreage of the site not to be preserved would be calculated in the normal manner.
- It is intended that any increase in dwelling units resulting from the upland forest density bonus, would be clustered and compatible with surrounding uses. [x]

Policy 13.2:

In an effort to assist projects preserving upland significant and essential wildlife habitat and for the purpose of calculating density and intensity, a 100% density transfer may be allowed.

Policy 13.3: **Environmentally Sensitive Land Credit**

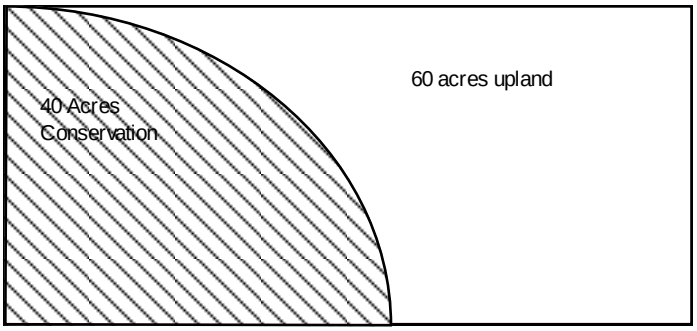
Density and FAR calculations for properties that include wetlands will comply with the following calculations and requirements for determining density/intensity credits.

- Wetlands are considered to be the following:
    - Conservation and preservation areas as defined in the Conservation and Aquifer Recharge Element
    - Man-made water bodies as defined (including borrow pits).
- If wetlands are less than 25% of the acreage of the site, density and intensity is calculated based on:
    - Entire project acreage multiplied by Maximum intensity/density for the Future Land Use Category
- If wetlands are 25% or greater of the acreage of the site, density and intensity is calculated based on:

- Upland acreage of the site multiplied by 1.25 = Acreage available to calculate density/intensity based on
- That acreage is then multiplied by the Maximum Intensity/Density of the Future Land Use Category

Example

Total project = 100 acres
Future Land Use Category – Residential-4



Over 25% of the 100 acre project site is classified as conservation/preservation area.
Calculations are as follows:
60 acres of uplands multiplied by 1.25 = 75 acres available to calculate maximum project density/intensity
75 acres multiplied by 4 units per acre = 300 units

Policy 13.4:

Areas that have a high potential for groundwater contamination, and/or areas of high aquifer recharge, as defined in the Conservation and Aquifer Recharge Element, and identified on the Natural Resources Map, shall be protected from the adverse impacts of development through the application of appropriate land use designations and by a system of performance standards.

Policy 13.5:

Sites identified for possible acquisition by the Environmental Land Acquisition and Protection (ELAP) Program shall be identified as such when such lands are wholly, or partially part of a land use plan amendment or rezoning request, and officials working with ELAP Program and appropriate County staff shall be notified that such lands are in the process of a land use plan amendment or rezoning.

Policy 13.6:

The County shall protect significant wildlife habitat, and shall prevent any further net loss of essential wildlife habitat in Hillsborough County, consistent with the policies in the Conservation and Aquifer Recharge Element and Land Development Code.

Policy 13.7:

The County will regulate land uses along the Tampa Bypass Canal in a manner that protects the potable water supply. The County will study techniques, such as the control of land use types, activities, densities and intensities and improved regulations for stormwater management and ground and surface discharges, and implement effective water quality protection strategies.

Policy 13.8:

a. The County shall continue a comprehensive wellhead protection program that shall include the determination of wellhead resource protection areas (WRPAs) surrounding potable water supply wells and criteria for restrictions and prohibitions to be applied within the delineated wellhead resource protection area.

Clustering for Conservation and Natural Resources[xi]

In many cases a proposed development will be designed to cluster structures together and leave large areas as open space. This generally results in small lot sizes with large areas of land retained as open space. Clustering can be a voluntary action on the part of a landholder or may be mandatory in certain other areas (pursuant to Administrative Commission Final Order AC-93-087). When a proposed development intends to use "clustering", the site plan should be designed to retain natural resources within the designated "open space". In some cases the Comprehensive Plan or land development regulations will require that structures be clustered together to achieve open spaces in specified areas. By permitting clustering of units, the Plan is attempting to insure that development will occur in a manner which protects existing natural resources, retains the character of the areas surrounding protected natural resources, creates a greenway or contributes to an integrated greenway system or achieves some other public purpose. When clustering is required by the Comprehensive Plan, or by land development regulations, the following policies must be adhered to. However, all projects which utilize clustering should do so with the intent of preserving and protecting natural resources. Specific clustering ratios are not applicable in projects that voluntarily cluster, but the objective below should be met.

Objective 14: New residential development and redevelopment shall provide open space that achieves one or more of the following purposes pursuant to requirements of the Land Development Code: protects natural resources (including wetlands, wildlife habitat, aquifer recharge, floodplains, and other resources), creates usable open spaces and/or permits the continuation of agricultural activities in areas suited for such uses.

Policy 14.1:

Clustering will be provided in a compact and contiguous fashion to the extent necessary to achieve the above referenced open space objective. Types of uses allowed in the open space areas must be consistent with the stated objective of clustering and open space. Clustering can be achieved as provided by the Land Development Code.

Policy 14.2:

For purposes of clustering, in the Rural Area, open spaces shall be conservation areas, preservation areas, mitigation areas, and passive recreational uses such as but not limited to nature observation and hiking.

For purposes of clustering, in the Urban Service Area, open space may include, natural preservation and mitigation areas, stormwater systems (non vaulted), landscaping, and other passive uses, consistent with the goal of clustered development to achieve open spaces.

Policy 14.3:

Whenever feasible, open space should include all, or as much as possible, the most significant, productive, or sensitive natural resources areas on the site. The siting of development should be controlled to minimize impacts on the functions of the open space and the natural resources therein.

Policy 14.4:

RESERVED

Policy 14.5:

RESERVED

Policy 14.6:

Certain areas of the county are indicated on the Future Land Use Map with a CL 50%. In these areas, up to 50% of the site may be required for open space based on the natural characteristics of the property. These open space provisions are not intended to supersede regulations regarding the preservation of wetlands, significant wildlife habitat or other environmental lands.

Policy 14.7:

Wherever possible, open spaces for individual projects shall be integrated into a greenway system, particularly when contiguous parcels have already been identified or reserved for such purposes, such as but not limited to a wildlife corridor, bicycling, hiking, inline skating, and horseback riding.

Policy 14.8:

RESERVED

Policy 14.9: [xii]

RESERVED

Historic Preservation

Objective 15: Hillsborough County's heritage shall be recognized through the preservation of historical and archaeological sites, structures and districts significant to Hillsborough County.

Policy 15.1:

Hillsborough County shall continue to implement the landmark ordinance to protect from demolition and significant alteration historical and archaeological resources listed in or considered eligible by the State Historic Preservation Officer for listing in the National Register of Historic Places and those resources designated as landmarks or considered eligible for landmark designation by Hillsborough County. The county will update the survey of properties with potential historical significance every 5 to 10 years.

Policy 15.2:

The County shall development techniques including public education and the development of incentives to encourage property owners to request historic landmark designations.

Policy 15.3:

The adaptive reuse of historically significant and structurally sound buildings shall be encouraged through reuse incentives adopted as part of the Hillsborough County development regulations.

Community Development and Land Uses

Neighborhood/Community Development [xiii]

Objective 16: Neighborhood Protection The neighborhood is the functional unit of community development. There is a need to protect existing, neighborhoods and communities and those that will emerge in the future. To preserve, protect, and enhance neighborhoods and communities, all new development must conform to the following policies.

Policy 16.1:

Established and planned neighborhoods and communities shall be protected by restricting incompatible land uses through mechanisms such as:

a) locational criteria for the placement of non-residential uses as identified in this Plan,
b) limiting commercial development in residential land use categories to neighborhood scale;
c) requiring buffer areas and screening devices between unlike land uses;

Policy 16.2:
Gradual transitions of intensities between different land uses shall be provided for as new development is proposed and approved, through the use of professional site planning, buffering and screening techniques and control of specific land uses.

Policy 16.3:
Development and redevelopment shall be integrated with the adjacent land uses through:
a) the creation of like uses; or
b) creation of complementary uses; or
c) mitigation of adverse impacts; and
d) transportation/pedestrian connections

Policy 16.4:
To prevent the bisecting of established communities, the impact of major roadway and similar corridor projects on existing communities shall be evaluated by citizens and other affected parties through their inclusion in the pre-design evaluation of alternatives, including route selection.

Policy 16.5:
Development of higher intensity non-residential land uses that are adjacent to established neighborhoods shall be restricted to collectors and arterials and to locations external to established and developing neighborhoods.

Policy 16.6:
Incompatible, non-residential land uses within established neighborhoods that are not in conformance with the Future of Hillsborough Comprehensive Plan shall be given incentives to adaptively reuse or replace structures to uses that are compatible with the residential area through incentives such as the use of residential density credits for infill development and non-conforming use incentives.

Policy 16.7:
Residential neighborhoods shall be designed to include an efficient system of internal circulation and street stub-outs to connect adjacent neighborhoods together.

Policy 16.8:
The overall density and lot sizes of new residential projects shall reflect the character of the surrounding area, recognizing the choice of lifestyles described in this Plan.

Policy 16.9:
All land use categories allowing residential development may permit clustering of residences within the gross residential density limit for the land use category.

Policy 16.10:

Any density increase shall be compatible with existing, proposed, or planned surrounding development. Compatibility is defined as the characteristics of different uses or activities or design which allow them to be located near or adjacent to each other in harmony. Some elements affecting compatibility include the following: height, scale, mass and bulk of structures, pedestrian or vehicular traffic, circulation, access and parking impacts, landscaping, lighting, noise, odor and architecture. Compatibility does not mean "the same as." Rather, it refers to the sensitivity of development proposals in maintaining the character of existing development.

Policy 16.11:

Within residential projects, site planning techniques shall be encouraged to ensure a variety and variation of lot sizes, block faces, setbacks and housing types.

Policy 16.12:

Future roadway construction and reconstruction shall be designed and planned to avoid adverse impacts on adjacent residential neighborhoods through such techniques as, but not limited to, landscaping to buffer visual effects and the use of sound and barrier walls.

Policy 16.13:

Medium and high density residential and mixed use development is encouraged to be located along transit emphasis corridors, potential transit corridors on the MPO 2050 Transit Concept Map and collector and arterial roadways within the Urban Service Area.

Policy 16.14:

Community gathering places shall be provided within residential developments, where feasible and necessary, to improve and enhance the quality of life within neighborhoods by providing areas that promote and encourage interaction among residents by allowing for neighborhood gatherings and providing for enhanced community cohesiveness. These places shall be functionally designed and improved to allow for leisure activity, and be accessible to the residents of the proposed development.

Policy 16.15:

Single family detached, single family attached, and townhome residential development of 50 units or greater shall include gathering places in accordance with requirements of the Land Development Code. Community gathering places shall be provided in a proportionate manner based on the size of the project, density of dwelling units, amount of private open space in the project or other similar manner. A minimum square footage shall be established ensuring a functional gathering place for residential developments at or near the threshold of 50 units. Community gathering places shall not be required in residential subdivisions with platted lot sizes of 1/3 acre or greater. To ensure minimum density policies can be achieved or greater, minimum lot size reductions may be considered. Incentives for a higher

quality of design of the gathering places should be provided. The Land Development Code should address the location of gathering places to ensure compatibility with adjacent uses. Most community gathering places that do not require parking should be within walking distance of residences. The Land Development Code should include a process such as but not limited to variances or waivers to consider reductions in the gathering place requirement.

Policy 16.16: Application of Densities to Lands Fronting Water Bodies

In addition to the restrictions on the calculations of densities and on the prohibition against the use of naturally occurring open water bodies for density credits, the determination of the appropriate levels of density during the development review process for lands fronting on water bodies, as previously defined, shall be further limited to a density level comparable and compatible with other development parcels and lots fronting on lakes, streams and rivers. In the case of lakes, comparable and compatible development shall be determined by at least 51% of the land area adjacent to the lake having been developed in a similar fashion. In the case of streams and rivers, the 51% development pattern described above shall extend one-half mile from the subject parcel along either side of the stream or river. The purpose of this restriction is to insure the continuation and protection of the established large lot, lower density residential land uses and character of lands fronting on Hillsborough County's lakes, streams and rivers, and to prevent the application of other provisions in the Land Use Element from being construed as granting higher density uses in those locations[xiv].

Objective 17: Neighborhood and Community Serving Uses

Certain non-residential land uses, including but not limited to residential support uses and public facilities, shall be allowed within residential neighborhoods to directly serve the population. These uses shall be located and designed in a manner to be compatible to the surrounding residential development pattern.

Policy 17.1:

Residential support uses (child care centers, adult care centers, churches, etc.) is an allowable land use in any of the residential, commercial and industrial land use plan categories consistent with the following criteria:

a) The facility shall be of a design, intensity and scale to serve the surrounding neighborhood or the non-residential development in which it occurs, and to be compatible with the surrounding land uses and zoning;

Policy 17.2:[xv]

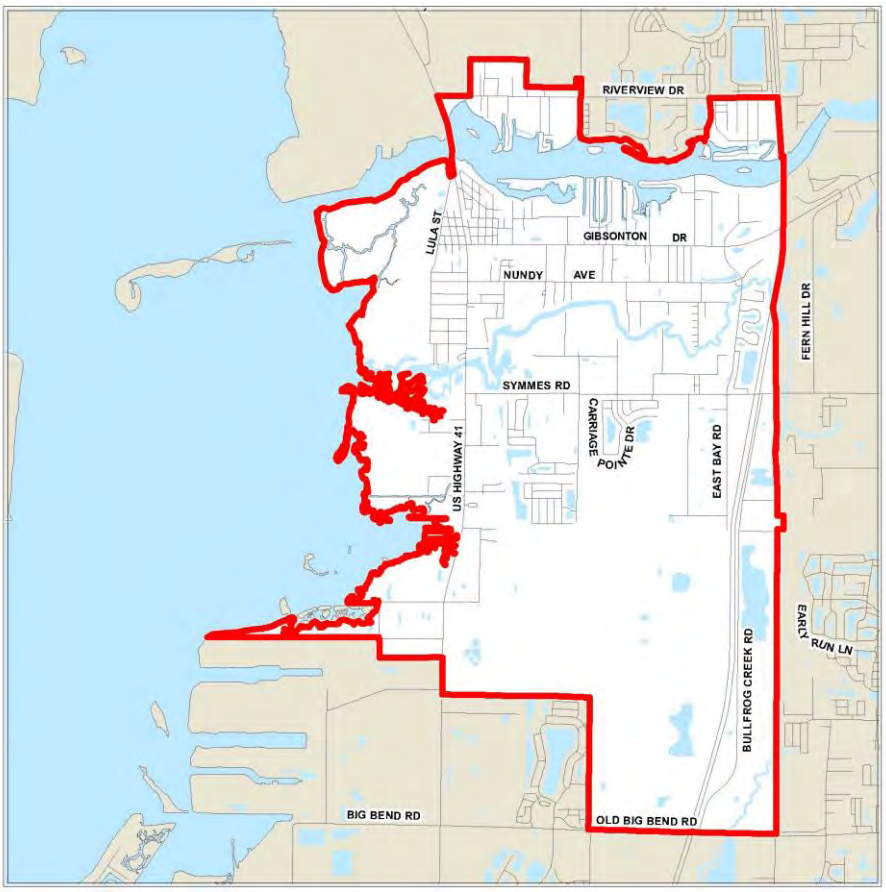
In order to accommodate the special needs of show business residents including limited storage, attendant servicing of show business equipment, and group quarters, show business uses may only be considered within the Gibsonton community as depicted on the map below within zoning districts that allow residential uses.

In order to recognize the suburbanization of Gibsonton, and to provide for the future expansion of show business uses, a future study should be conducted to determine if the boundary can be expanded or additional areas could be added.

A. The Land Development Code shall provide locational criteria to ensure compatibility with surrounding uses.

B. Show business zoning and overlays outside of this boundary remain in effect and approval of this boundary is not intended to make these zonings and overlays non-conforming.

Residential Show Business Use Map – Future RSB uses may be considered with this boundary



Policy 17.3:

Prior to the location of any new or expanded major public facility or public building or grounds, the proposed site and possible impacts shall be evaluated in accordance with the criteria specified below:

General Criteria

a) The County shall provide opportunities at the time of planning and site selection for citizens and neighborhoods to express their viewpoints on major facility siting and design; and in order to ensure neighborhood preservation, the County shall take into consideration the viewpoints of citizens and neighborhoods in the final decision making process in major facility siting and design.

b) In the planning, siting, land acquisition and development of major public facilities the County shall consider alternatives, including not siting the facility. The alternatives evaluation shall include consideration of such factors as technical aspects of the facility, costs, design, impacts on the environment and availability of public facilities and services, including transportation impacts and future operation and maintenance costs of alternative sites as well as public safety and welfare factors.

c) Opportunities shall be provided for adjacent property owners and neighbor-hoods to choose to participate in the review process.

d) The siting process for these facilities shall also avoid any detrimental effects on existing and planned development in the study area as well as consider the ancillary impacts associated with the particular facility and ensure that those uses also will not negatively affect the community.

Policy 17.4:

Hillsborough County will continue to develop master plans for community facilities to ensure that those facilities are provided to serve anticipated population growth. Community facilities include but are not limited to: community centers, parks and recreation areas, libraries, sheriff substations and EMS/Fire stations.

Policy 17.5:

Community facilities should be a focal point(s) in residential neighborhoods, and shall be designed in a scale that is compatible with the surrounding residential area and integrated into the residential neighborhoods to create a more walkable neighborhood with a greater sense of place.

Policy 17.6:

The County will coordinate the location of community facilities between agencies and departments to identify opportunities for collocation of facilities. In addition, the county will explore opportunities to partner with private and non-profit organizations during the planning and development of community facilities and programs.

Policy 17.7:

New development and redevelopment must mitigate the adverse noise, visual, odor and vibration impacts created by that development upon all adjacent land uses.

Community Planning

Objective 18: Hillsborough County is comprised of many diverse communities and neighborhoods, each with its own unique identity. While the comprehensive plan is effective in providing an overall growth management strategy for development within the entire County, it does not have detailed planning strategies for individual communities. The County shall develop strategies that ensure the long-range viability of its communities through a community and special area studies planning effort.

Policy 18.1:

The County shall assist the Hillsborough County City-County Planning Commission in developing community plans for each planning area that are consistent with and further the Comprehensive Plan. The community plans will be adopted as part of the Comprehensive Plan in the Livable Communities Element; these more restrictive community-specific policies will apply in guiding the development of the community.

Additional policies regarding community planning and the adopted community plans can be found in the Livable Communities Element.

Mixed Use Land Use Categories

Objective 19: The County will establish techniques in the Comprehensive Plan, which will ensure mixed use development in the mixed use categories.

Policy 19.1[xvi]

New projects proposed in the all of mixed use plan categories shall be required to develop with a minimum of 2 land uses within a single building or within a single project in separate buildings in accordance with the following.

- Requirements for 2 land uses will apply to properties 20 acres or greater in the RMU-35, UMU-20, and CMU-12 land use categories, and to properties 40 acres or greater in the SMU-6 and NMU-4 land use categories.
- These acreage thresholds will not apply to properties that have adopted plan amendments to a mixed use category after January 1, 2008.
- At least 50% of the site shall be the primary use.
- Percentages will be determined based on land area for primarily residential projects or square footage for primarily non-residential projects.
- The possible land uses for a mixed use project include: retail commercial, office, light industrial (if permitted in the land use category), residential and civic uses including residential support uses.
- These requirements do not apply within identified "economic development areas" or within Community Activity Centers (if other mixed use standards have been adopted for that area).

Policy 19.2:

In the mixed use land use categories, planned development districts or mixed use standard zoning districts are required for all new rezonings, except as provided for in applicable land development regulations.

Policy 19.3: Incentives for Mixed Use[xvii]

The following incentives are available to encourage mixed use and vertically integrated mixed use projects within the Urban Service Area:

- Parking structures shall not count towards the FAR for projects that include 3 or more land uses or vertically integrate two land uses.
- Projects that either include 3 or more land uses or vertically integrate two land uses may utilize a density bonus to the next higher land use category or the following FAR bonus:

    - Property with a Future Land Use Category of 35 units per acre and/or 1.00 FAR and higher and within the USA – may increase up to 50 units and/or an additional .50 FAR
    - Property within a Future Land Use Category of 9 units per acre and/or .5 FAR and higher and within the USA – Increase in FAR by .25
    - Property within a Future Land Use Category of 4 units per acre and/or .25 FAR and higher and within the USA – Increase in FAR by .10

- When considering mixed use projects of 3 or more land uses, a different housing type (multi-family, attached single family or detached single family) may be considered as one of the uses.

Policy 19.4: [xviii]

By 2014, the County will update the Land Development Code to permit mixed use development in standard or "Euclidean" zoning districts and to allow greater flexibility for site design regulations (such as parking standards) for mixed use development. Additional incentives to promote mixed use development shall be considered for inclusion in the land development code.

Policy 19.5:

The Planning Commission staff shall review the locations of the mixed use categories on the Future Land Use categories on the Future Land Use Map and their appropriateness given existing and approved development patterns. Any needed amendments to the location of the mixed use land use categories on the Future Land Use Map shall be initiated by the end of 2009.

Residential-Targeted Groups & Incentives

There are a number of target groups of people in the County that have special needs that require additional attention in order to allow them the opportunity to enjoy an improved quality of life.

The high cost of land and housing has made it difficult for low and moderate income residents to find affordable housing. The proportion of elderly people to the total population will increase in the future, and special considerations must be given to the needs of those who will live in adult congregate living facilities or on their own. The number of two income earning households and the single parent households is increasing, and the demand for day care facilities will be unprecedented. The Housing and Economically Disadvantaged/Minority and Non-Minority Groups Elements address target groups too, and residential development proposals must also be consistent with the goals, objectives and policies described in those elements.

Ninety-five percent (95%) of the housing stock is provided by the private sector. The public sector is limited in its ways to encourage the private sector to build specific types of residential development. From a land use perspective, the incentive comes from lowering the cost of land and developing the site. Another incentive comes from the removal of blighting factors whose adverse impacts lower the property values and begin a downward spiral of decline within residential areas. These types of incentives must be used in combination with those discussed within the Housing and Economically Disadvantaged Groups Elements to achieve the fullest effect possible.

Objective 20: The County shall encourage new development and redevelopment of residential housing for special target groups of people. The provisions specified within the Housing Element of the Comprehensive Plan shall be applied with respect to the following policies.

Policy 20.1:

The provision of affordable housing shall be given high priority consideration by Hillsborough County. By 2009, development incentives shall be explored and implemented by Hillsborough County that will increase the housing opportunities for very low, low income households and workforce housing that are consistent with and further the goals, objectives and policies within the Housing Element.

Policy 20.2:

Density bonuses will be utilized as an incentive to encourage the development of more affordable housing. These density bonuses are outlined in the Housing Element.

Policy 20.3:

Manufactured housing shall be recognized as a viable means to provide affordable housing.

Policy 20.4

By 2009, a study shall be conducted to determine the feasibility of utilizing land owned by Hillsborough County for the provision of affordable housing.

Policy 20.5:

The development of congregate living facilities will be allowed within each of the land use plan categories that permit residential development; however, the locations of facilities shall be considered to prevent excessive concentration in any one area.

Policy 20.6:

The Land Development Code shall include appropriate development standards and/or placed persons-to-dwelling unit conversion factors shall be utilized for congregate living facilities to allow for the consistent application of residential densities otherwise established in this element. The resulting application of density equivalents to proposed congregate living facilities shall be utilized to ensure that cumulative impacts upon surrounding residential land uses are reasonable and to ensure compatible densities between congregate living facilities and other residential land uses in the surrounding area. Consideration should be given to having conversion factors which vary depending on the land use designation, to ensure compatibility with surrounding areas.

Policy 20.7:

Group quarters, temporary housing, and other residential structures for the use of permanent and/or temporary farm workers may be permitted in areas of agricultural activity, although such uses may exceed the maximum densities specified in the applicable land use category on a site. In no case shall a density in excess of 8 dwelling units per gross acre be permitted. This provision is intended to preserve and promote agricultural uses by making it possible for farm workers to both work and reside on or near property devoted to agricultural uses. Land development regulations shall specify density limits for farm worker housing projects based on land use categories as well as other design standards.

Policy 20.8:

In the event a farm worker housing project is no longer needed for farm workers, the County shall encourage the reuse of such projects into housing units for other persons in need of affordable housing.

Innovative Housing Options

Objective 21:
The County will encourage innovative means of providing housing.

Policy 21.1:

The County shall continue to allow for an accessory dwelling unit associated with an owner occupied single family residence to be built on the single deeded lot.

Policy 21.2:

For the purpose of calculating residential density in this plan, the following shall not be considered as a separate dwelling type:

(1) an accessory residential unit associated with an owner occupied single family residence, and
(2) an individual room of a Community Residential Home where kitchen facilities are accessory or cooking facilities are auxiliary to the required main kitchen;

Policy 21.3

Residential units that are located above office or commercial uses or that meet the commercial apartment definition in the Land Development Code may be calculated on the basis of Floor Area Ratio as opposed to units per acre.

Commercial-Locational Criteria

Objective 22: To avoid strip commercial development, locational criteria for neighborhood serving commercial uses shall be implemented to scale new commercial development consistent with the character of the areas and to the availability of public facilities and the market.

Policy 22.1:

The locational criteria for neighborhood serving non-residential uses in specified land uses categories will:

- provide a means of ensuring appropriate neighborhood serving commercial development without requiring that all neighborhood commercial sites be designated on the Future Land Use Map;
- establish a maximum square footage for each proposed neighborhood serving commercial intersection node to ensure that the scale of neighborhood serving commercial development defined as convenience, neighborhood, and general

types of commercial uses, is generally consistent with surrounding residential character; and
- establish maximum frontages for neighborhood serving commercial uses at intersections ensuring that adequate access exists or can be provided.

Policy 22.2:

The maximum amount of neighborhood-serving commercial uses permitted in an area shall be consistent with the locational criteria outlined in the table and diagram below. The table identifies the intersection nodes that may be considered for non-residential uses. The locational criteria is based on the land use category of the property and the classification of the intersection of roadways as shown on the adopted Highway Cost Affordable Long Range Transportation Plan. The maximums stated in the table/diagram may not always be achieved, subject to FAR limitations and short range roadway improvements as well as other factors such as land use compatibility and environmental features of the site.

In the review of development applications consideration shall also be given to the present and short-range configuration of the roadways involved. The five year transportation Capital Improvement Program, MPO Transportation Improvement Program or Long Range Transportation Needs Plan shall be used as a guide to phase the development to coincide with the ultimate roadway size as shown on the adopted Long Range Transportation Plan.

Maximum Building Square Footage Permitted For Neighborhood Serving Commercial Uses Per Quadrant of the Intersection

Land Use Category	Major Local/ 2 Lane or 4 Lane	2 Lane /2 Lane	2 Lane/4 Lane	4 Lane/ 4 Lane
Rural-Agriculture Scale Distance	**300 ft**	**660 ft**	**660 ft**	**660 ft**
Residential				
AM-1/20	5,000	20,000	30,000	40,000
A-1/10	5,000	20,000	30,000	40,000
AR-1/5	5,000	20,000	30,000	40,000
Rural-Residential Scale Distance	**300 ft**	**660 ft**	**660 ft**	**660 ft**
Residential				
AE-1/2.5	5,000	15,000	15,000	20,000
RES-1	5,000	20,000	25,000	30,000
RP-2	5,000	50,000	75,000	110,000
PEC -1/2	*	*	*	*
Non-Residential				
HI	5,000	30,000	30,000	300,00
RCP	5,000	30,000	30,000	30,000

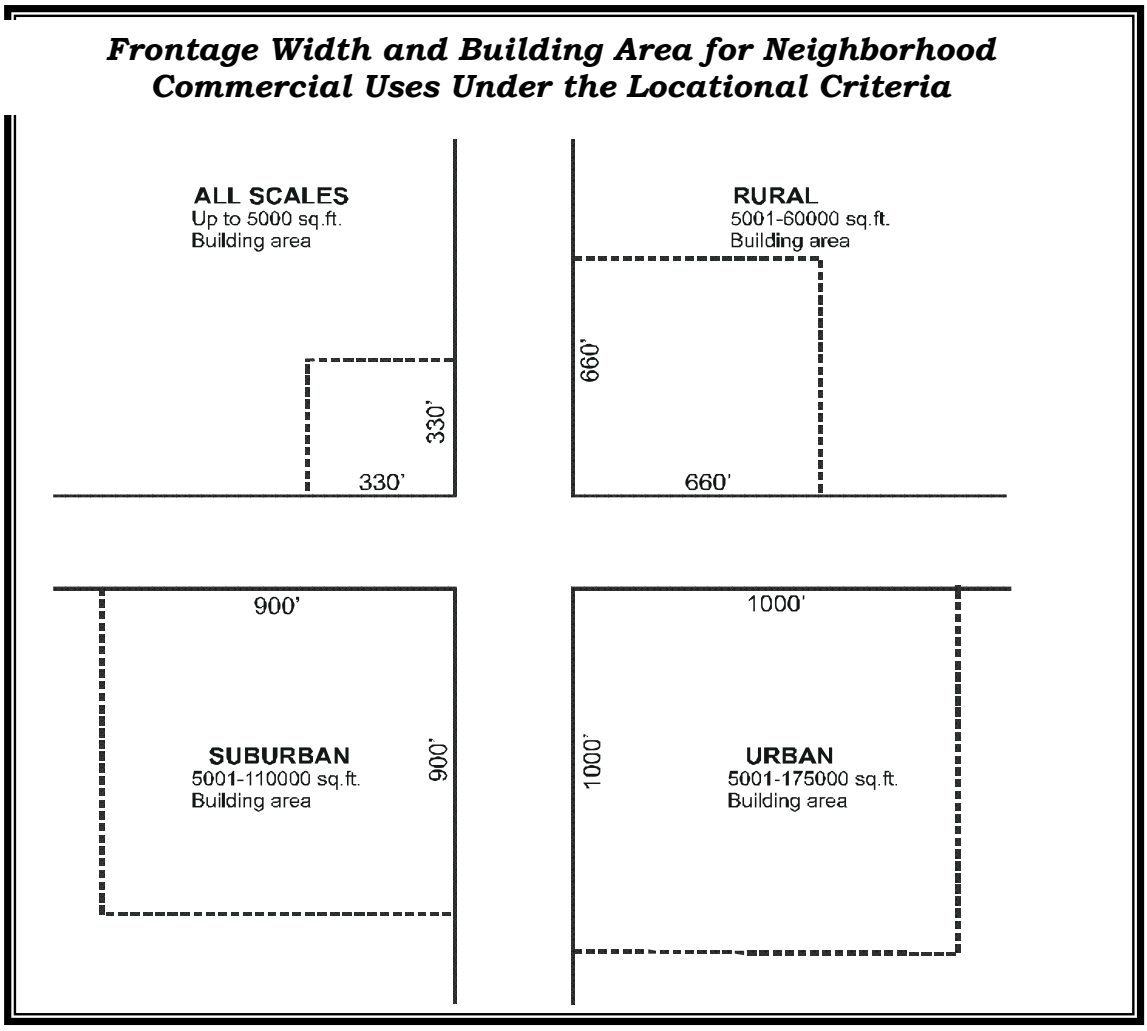
Suburban Scale Distance	**300 ft**	**900 ft**	**900 ft**	**900 ft**
LI	5,000	30,000	50,000	75,000
LI-P	5,000	30,000	50,000	75,000
RES-2	5,000	50,000	75,000	110,000
RP-2	5,000	50,000	75,000	110,000
NMU-4(3)	5,000	50,000	75,000	110,000
RES-4	5,000	120,000	150,000	175,000
SMU-6	5,000	120,000	150,000	175,000
RES-6	5,000	120,000	150,000	175,000

Urban Scale Distance	**300 ft**	**1000 ft**	**1000 ft**	**1000 ft**
RES-9	5,000	120,000	150,000	175,000
RES-12	5,000	120,000	150,000	175,000
RES-16	5,000	120,000	150,000	175,000
RES-20	5,000	120,000	150,000	175,000
RES-35	5,000	120,000	150,000	175,000

Roadways listed in the table as 2 or 4 lane roadways must be shown on the Highway Cost Affordable Long Range Transportation Plan; major local roadways are defined in the definitions section of this element.

At least 75% of the subject property must fall within the specified distance from the intersection. All measurements should begin at the edge of the road right-of-way.

* A Planned Development established by the PEC ½ category shall be exempt from the locational criteria listed in the above chart.



Policy 22.3:

In order to address instances where a site does not exactly meet the dimension requirements of the Chart in Policy 22.2, the following will apply:

- Where a proposed neighborhood commercial use is located such that the major roadway frontage associated with the proposed use exceeds the maximum distance specified in the Chart in Policy 22.2 but at least 75% of the frontage associated with the use is within that distance and under single ownership, then such proposed use may also be considered for approval.
- When an intersection is shown on the adopted Highway Cost Affordable Long Range Transportation Plan, as a three way, or "T" intersection, consideration for commercial development can occur as if there were a full intersection for locational purposes, but when determining the appropriate size development for each quadrant the configuration of the road may not support maximum square footage's due to the limiting nature of the intersection.

Policy 22.4:

In any of the Plan categories where new commercial development is subject to the locational criteria, up to 20% of a larger mixed use project (typically, over 160 acres and 500 dwelling units) may be considered for neighborhood serving commercial uses, regardless of the limitations of the Chart in Policy 22.2. These uses shall be integrated into and located internal to the mixed-use development and should not front on external roadways and should be appropriately scaled with other project uses. Generally, the amount of commercial uses permitted in this type of development will not exceed the maximum square footage shown in the chart with the locational criteria, unless a greater project demand has been demonstrated.

Policy 22.5:

When planning the location of new non-residential developments at intersections meeting the locational criteria, a transition in land use shall be established that recognizes the existing surrounding community character and supports the creation of a walkable environment. This transition will cluster the most intense land uses toward the intersection, while providing less intense uses, such as offices, professional services or specialty retail (i.e. antiques, boutiques) toward the edges of the activity center.

Policy 22.6: **Exceptions for Office Uses**

Office development may be considered outside of the locational criteria under Policy 22.2 when:

a) proposed as a buffer between existing commercial and residential uses or adjacent to existing commercial uses other than offices;
b) proposed on a parcel that is unsuitable or undevelopable for residential development. The rezoning must be to a site plan-controlled district or to a zoning district restricting uses to residential scale office.

Sites which may be unsuitable or undevelopable may include but are not limited to: parcels altered due to the acquisition of adjacent land for public purposes or natural features (rivers, lakes or preservation areas) either of which may isolate a parcel, or if existing development has isolated a parcel along a roadway shown on the adopted Long Range Transportation Plan. Parcels must be five usable acres or less. However, all parcels under five usable acres may not qualify for consideration of this provision.

Policy 22.7:

Neighborhood commercial activities that serve the daily needs of residents in areas designated for residential development in the Future Land Use Element shall be considered provided that these activities are compatible with surrounding existing and planned residential development and are developed in accordance with applicable development regulations, including phasing to coincide with long range transportation improvements.

The locational criteria outlined in Policy 22.2 are not the only factors to be considered for approval of a neighborhood commercial or office use in a proposed activity center. Considerations involving land use compatibility, adequacy and availability of public services, environmental impacts, adopted service levels of effected roadways and other policies of the Comprehensive Plan and zoning regulations would carry more weight than the locational criteria in the approval of the potential neighborhood commercial use in an activity center. The locational criteria would only designate locations that could be considered, and they in no way guarantee the approval of a particular neighborhood commercial or office use in a possible activity center.

Policy 22.8:

The Board of County Commissioners may grant a waiver to the intersection criteria for the location of commercial uses outlined in Policy 22.2. The waiver would be based on the compatibility of the use with the surrounding area and would require a recommendation by the Planning Commission staff. Unique circumstances and specific findings should be identified by the staff or the Board of County Commissioners which would support granting a waiver to this section of the Plan. The Board of County Commissioners may reverse or affirm the Planning Commission staff's recommendation through their normal review of rezoning petitions. The waiver can only be related to the location of the neighborhood serving commercial or agriculturally oriented community serving commercial zoning or development. The square footage requirement of the plan cannot be waived.

Policy 22.9:

During the Zoning Conformance process, the Board of County Commissioners recognized the existence of neighborhood serving commercial uses or zoning which did not comply with the Locational Criteria for Neighborhood Serving Commercial uses. These sites are exempt from further review under the locational criteria, (location and specific square footage limitations outlined in the Chart) but are not exempt from review under all other policies of the Comprehensive Plan.

Policy 22.10:

The Locational Criteria outlined in Policy 22.2 will not apply in the following instances:

- where proposed neighborhood commercial uses are proposed as part of a Traditional Neighborhood Development meeting the requirements of this plan and the adopted land development regulations for Traditional Neighborhood Development; or
- in large mixed use developments within the mixed use future land use categories (typically over 40 acres in size).

Policy 22.11:

General commercial uses, as defined in the Land Development Code, may NOT be considered at the intersection of major local roadways unless it is determined to be infill development (see Policy 25.3) or as part of an industrial or office park project greater than 300,000 square feet.

Discouraging Strip Commercial Development

Objective 23:

To maintain the vehicular capacity of public roads, the County discourages linear ("strip") non-residential development patterns and the multiple access points which accompany such linear neighborhood serving commercial development.

Policy 23.1:

The County shall work to consolidate and reduce the number of curb cuts in strip commercial areas through such methods as cross access agreements.

Policy 23.2:

Scattered, unplanned retail commercial development shall be discouraged, and commercial/office concentration shall be encouraged.

Policy 23.3:

Commercial development should be designed to decrease the need for motorized vehicle trips by designing convenient, safe, non-motorized access.

Policy 23.4:

The linear extension of existing strip commercial areas shall be prohibited, except in accordance with infill provisions of Policy-25.3.

Policy 23.5

Higher density residential development is encouraged along major corridors as an alternative to continued office or commercial development when developed in accordance with applicable development regulations; the following bonus is provided as an incentive for residential development as an alternative to commercial development.

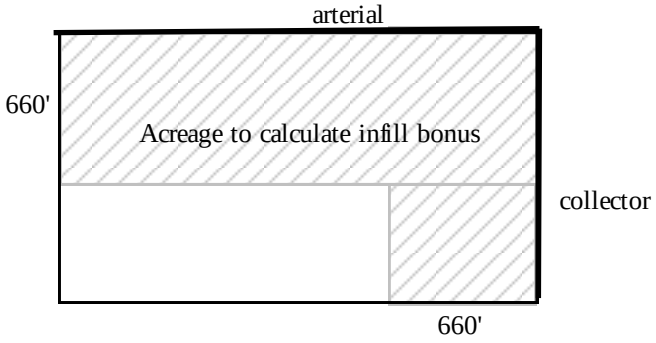
Residential Density Bonus for Infill Development

To provide an incentive for residential development as an alternative to strip commercial or office development, the county may consider a density bonus for properties meeting certain provisions outlined below. The increase in residential density may be considered without a Plan Amendment, by the Board of County Commissioners, after receiving a recommendation from the staff of the Planning Commission.

Density cannot be increased higher than the land use category with the next higher density limits. (i.e. Res-4 can be increased to Res-6 and no higher). Categories which permit up to 35 du/ga may increase to 50 du/ga using this bonus.

To qualify for the density bonus:

- Property must be:
  - Within the Urban Service Area
  - Located along a collector or arterial street or a roadway designated as a transit emphasis corridor in the Transportation Element.
  - In an area where, one of the following is present:
    - strip non-residential development presently exists; or
    - there is a trend toward strip non-residential development; or
    - existing zoning lots, although vacant, constitute a potential for the establishment or expansion of strip commercial development; or
    - an increase in density would result in a development pattern that is compatible to existing zoning or development patterns in the immediately surrounding area.
- The site of the requested bonus must be within a 660 foot distance perpendicular from the arterial or collector road.
- The density bonus must be applied for through a rezoning application.
- It must be demonstrated that the use of the bonus will promote residential infill on vacant or redeveloping sites within existing, developed, urbanized areas which are residential in character or to provide a residential development alternative to strip commercialization;



Objective 24: **Non-Residential Uses in Specific Locations**
In the residential land use categories, the County will encourage the location of higher intensity non-residential land uses at locations that complement interstate interchanges, high employment areas, and affordable housing.

Policy 24.1:
Recognize interstate interchanges as valuable resources for the location of more intensive commercial development pursuant to Policies 24.2, 24.3 and other Goals, Objectives and Policies of the Future Land Use Element.

Policy 24.2:

Permit consideration of commercial uses including hotels and motels at intensities at or above the neighborhood serving commercial scale at locations with direct or adequate road access to interstate connectors and within the designated commercial activity center of an interstate interchange. Development within the designated commercial activity center to commercial scale must be pursuant to a planned development (PD) zoning district, and is subject to all other applicable land development regulations. As used in this Policy, the term commercial activity center means the area extending to an appropriate, reasonable, natural or man-made boundary from the intersection of an interstate highway ramp and its connector road, and to a reasonable depth from the interstate connector road.

Policy 24.3:

The development of commercial uses at interstate interchanges as planned, unified development on single tracts of land shall be encouraged to enable the use of common accesses, and to encourage other site design measures to minimize impacts to surrounding areas.

Policy 24.4:

Recognize the University of South Florida Medical School, the Veterans Administration Hospital, the Florida Mental Health Institute, and the University Community Hospital as important medical facilities with support uses which may not comply with the locational criteria for neighborhood serving commercial development. Non-residential uses within 1,000 feet of the existing property lines of the above three medical facilities, the medical facilities themselves, and 1,000 feet from any existing University of South Florida medical school structure (measured from the structure) need not comply with the provisions of the locational criteria, but are guided by the FAR limits of the Plan and establishing compatibility with the surrounding uses.

Policy 24.5:

The County will permit consideration of a mixed use, site plan controlled development, with neighborhood serving commercial uses with a Floor Area Ratio at or above the neighborhood serving commercial scale, on sites where there is direct or adequate road access to collectors or arterials, if affordable housing (as defined in the Housing Element) is provided. Such housing must be part of a larger residential development at a ratio equivalent to that which is stated in the Density Bonus for Affordable Housing section of the implementation section of this Element. At no time may commercial uses exceed 20% of the total mixed-use development.

Commercial-Redevelopment

Qualitative assessments indicate that the need for commercial redevelopment or reuse strategies will become much greater in the future. Rundown, underutilized commercial areas within the City of Tampa have resulted indirectly by the outward movement of population (and commercial activities to serve that population) into the unincorporated County. As marketing and locational strategies change, certain commercial areas will

become functionally obsolete. The functional tie between land use and provision of public facilities will create greater concentrations of land uses in the future.

Objective 25: The County shall implement commercial redevelopment strategies to concentrate commercial uses, revitalize older commercial areas, and encourage mixed use projects that include commercial development.

Policy 25.1: Incentive

The redevelopment or revitalization of rundown strip commercial areas shall be encouraged. Redevelopment or infill office/mixed use projects choosing to locate in established areas of strip commercial development may attain a fifty percent incentive above the maximum F.A.R. of the respective land use category, subject to a site plan controlled development and that at least two of the three redevelopment provisions below are met:

1. An improvement to the transportation system and/or access management is clearly demonstrated by a reduction in the overall traffic impacts to adjoining roadways. Means to accomplish this include but are not limited to: providing transit amenities per the transit authority, reducing trip generation through the mix of uses, or deleting the number of access points, providing cross access, shared access, or realignment.,

2. An improvement to the visual qualities of the site is provided by reduced signage, greater open space or enhanced landscaping.

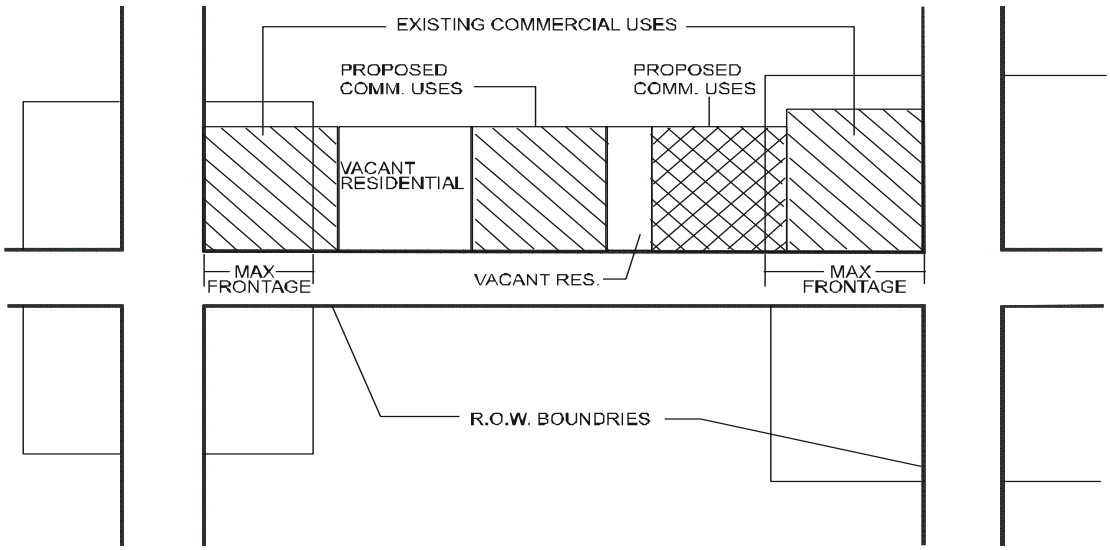
3. Incorporation of vertically integrated mixed uses such as offices or residential above commercial space.

Policy 25.2:

It is not the intent of these Policies to cause existing areas of strip commercial development to become obsolete; therefore, in areas where there is an established pattern of strip commercial a parcel may be considered for a change in use and or zoning as long as the proposed changes are compatible with the surrounding area and generally do not extend the commercial uses any further along the roadway.

Policy 25.3:

To assist in the revitalization of rundown areas, commercial infill development may be considered in areas where over 50% of a given block is already zoned or used for commercial uses in all land use categories, otherwise new commercial development should be located at existing or planned activity centers or at appropriate locations within larger planned developments. The intensity of the new zoning district should be of a comparable intensity of the zoning and development on the surrounding parcels. Typically, a block is defined as the road frontage on one side of a street between two public road rights-of-way. In some cases, another boundary will be more reasonable to define a given block, such as a creek, or railroad.



Commercial may be considered on the vacant residential parcels since the block is over 50% commercially zoned (labeled proposed) or utilized.

Economic Development: Industrial and Heavy Commercial Uses, Research Corporate Parks and Tourist/Leisure Industries

A healthy, stable economy contributes to the economic well-being of *all* Hillsborough County residents and makes possible a sound tax base sufficient to achieve the County's Comprehensive Plan. Desirable economic growth will contribute to, and be characterized by: full, productive, stable employment; high economic returns (wages and benefits) on individual labor effort; a minimal rate of poverty; and cost containment of basic living expenses for all residents.

Strategies that generally enhance desirable economic growth include:

- encouraging the retention, expansion or attraction of export-base businesses—firms that provide goods or services to markets beyond the Tampa Bay metropolitan area. These traditionally include many manufacturers, but may also include services, such as, financial service firms, universities, certain health services and tourism. Universities represent an ideal export-based firm—they not only sell four-year degrees to students from outside the metropolitan area, but they require their customers to purchase four years of food, lodging and other living expenses. This strategy may extend to key members of a significant industry cluster.
- stimulating the development of import-substitution businesses—often smaller, sometimes home-based, firms that may fill an important "missing link" in the local economy, or may help lower costs by providing a less expensive, or more accessible, neighborhood supplier.

- providing better educational and work-force training to optimize the opportunities and productivity of the local work force.
- offering more affordable options for transportation, day care, medical, housing and energy to low income communities, thereby improving their economic well-being, while creating a more reliable workforce and a greater consumer base.

To maximize Hillsborough County's economic potential while minimizing land use conflicts, it is advisable to identify specific, strategic geographic areas best suited to accommodate businesses chosen for their contribution to desirable economic growth and then provide incentives to encourage such businesses in these "economic development areas".

Objective 26: [xix]The County shall identify specific target industry clusters, target industries, and target businesses; shall establish corresponding "economic development areas" and shall provide incentives for the location of desirable economic growth in these areas.

Policy 26.1:
Economic development areas shall be any area with a land use designation, including mixed use categories, consistent with the targeted business or industry associated with desirable economic growth.

Policy 26.2:
Economic development areas should be within designated transit corridors, accessible to economically disadvantaged populations, and within the County's Urban Service Area.

Policy 26.3:
Day care uses should be accommodated and encouraged both within economic development areas and within low-income neighborhoods. As incentive to have these facilities provided within residential or employment generating projects, child care facilities will not count towards a project's overall density or intensity calculations; in order to utilize this incentive, the project must utilize a site plan controlled zoning district.

Policy 26.4:
By 2010, the County will prepare analysis to target selected industries and develop incentives to encourage desirable economic growth within appropriate economic development areas; these could include: marketing, financing, workforce development, provision of infrastructure, efficient (low-cost) provision of public utilities, a streamline permitting and site plan-review process, or similar incentives. These incentives include allowing retail sales as an accessory use (not to exceed 20% of the overall floor area of a use) that do not count toward the overall allowable square footage for retail sales in the industrial and/or office park. In addition, the County shall evaluate the Land Development Code to ensure that regulations applicable to economic development areas support the development of businesses in those areas.

Policy 26.5:

Non-industrial land uses shall be restricted or prohibited in the industrial land use categories, and economic development areas will be preserved for employment centers, except as provided in Policy 26.6.

Policy 26.6:

In industrial land use categories, up to twenty percent (20%) of the project land area, when part of larger industrial developments (those industrial and/or office parks greater than 300,000 square feet total) may be considered for certain retail, service and tourist-related uses; generally, the amount of commercial uses permitted in this type of development will not exceed the maximum square footage shown in the chart with locational criteria. Retail activities may also be considered in industrial areas as freestanding uses if it is demonstrated to serve the greater industrial area, pursuant to the provisions of the suburban-scale Locational Criteria[xx].

Policy26.7:

A site plan controlled zoning district shall be required for all new and expanded industrial uses, other than government owned or leased facilities, located on major water bodies as identified on the Future Land Use Map.

Policy 26.8:

To cultivate entrepreneurs of small, home based, industries, the land development code shall provide for the establishment of home occupations and live work units, pursuant to specific performance standards. Compatibility with the surrounding area shall be a mandatory requirement for these uses.

Policy 26.9:

The County shall support efforts of low income neighborhoods in creating community development corporations and community self-reliance programs.

Eco-Tourism

Objective 27: Develop programs to increase Hillsborough County's sustainability and capitalize on its natural and man-made environments such as shorelines, marine facilities, lakes and forested areas for "ecotourism."

Policy 27.1:

Hillsborough County shall continue to implement the Greenways Program to provide improved public access to the natural and man-made amenities specified above.

Policy 27.2:

Hillsborough County has many unique land areas and waterways which are suitable for camping, fishing, canoeing as well as other outdoor activities. The County shall develop strategies which would establish Hillsborough County as an "ecotourism" destination.

Working Waterfronts

Objective 28: Recognize the importance of protecting waterfront communities, recreational and commercial working waterfronts and shorelines from encroachment of incompatible land uses through the development incentive and design development standards that promote the continuation, expansion and economic viability of these area.

Policy 28.1

By 2010, the County shall identify existing and threatened recreational and commercial working waterfronts areas and develop design standard standards to mitigate the impact of surrounding uses.

Policy 28.2:

By 2010, the County shall develop economic and development incentives to retain and expand existing recreational and commercial working waterfront uses and to preserve public access to recreational working waterfronts.

Policy 28.3:

The County shall explore opportunities to participate in programs such as Waterfronts Florida as a means of receiving technical and financial support of activities directed towards working waterfront preservation.

Agriculture-General Considerations

Objective 29: In recognition of the importance of agriculture as an industry and valuable economic resource, Hillsborough County shall protect the economic viability of agricultural activities by recognizing and providing for its unique characteristics in land use planning and land development regulations.

Policy 29.1:

Promote the development and maintenance of agriculture market centers to strengthen the agricultural economy, encouraging agricultural uses within and around such centers.

Policy 29.2:

Allow agriculture as a viable use both prior and subsequent to the mining of land designated or approved for mining purposes.

Policy 29.3:

Land development regulations shall provide for a shortened, simpler review process for the division or development of land for bona fide agricultural purposes.

Policy 29.4:

Pursuant to Florida Statute 163.3179, to preserve and protect the viability of the basic family farm as well as to provide homesteads for the relatives of agricultural

land holders, a family homestead parcel may be created in the Rural land use categories regardless of the underlying plan density assigned to the parcel. Residential development of agriculturally-designated land for the use of family members as their permanent residences is permitted at densities higher than normally permitted in the respective rural-agricultural categories but not to exceed 1 dwelling unit per gross acre. These parcels must be of at least one acre in size. This policy is intended to perpetuate the family farm by making it possible for family members to both work and reside on the property devoted to agricultural uses and shall apply only once to any individual.

Policy 29.5:

In the rural land use categories, where the clustering concept is allowed to promote the continuation of agricultural activities, minimum acreage needs for various agricultural commodities shall be established by the Hillsborough County Agriculture Economic Development Council coordinating with appropriate research and educational institutions, such as the University of Florida's Institute of Food and Agricultural Sciences, and then correlated to a regulation requiring a minimum amount of acreage for a parcel both before and after clustering is exercised. This is done to insure that the remaining acreage is indeed agriculturally viable. Legal methods shall be developed to assure, either by virtue of deed restrictions, zoning restrictions, or other restrictions, that the development potential of the open or agricultural space will not be misrepresented in the public records or that subsequent development of the property cannot take place unless increased density or intensity is determined to be appropriate by Hillsborough County government.

Policy 29.6:

Agricultural and agricultural related uses shall be permitted in non-rural land use categories.

Policy 29.7:

Hillsborough County shall explore opportunities to establish an incentive based long range agricultural policy program to help retain productive farmland and discourage its conversion to non-agricultural use. This may be accomplished through the land development code and/or other programs to compensate farmland owners for purchase or transfer of development rights, conservation easements, or other such mechanism as deemed appropriate. Participation in such a program would be voluntary on the part of the property owner and the development community.

Policy 29.8:

Hillsborough County shall continue to support programs such as the Agriculture Stewardship Program as a vehicle to encourage the economic viability of agriculture by recognizing and rewarding the benefits or services that agricultural land provides to the community.

Agriculture - Retention

Objective 30: Recognizing that the continued existence of agricultural activities is beneficial, the county will develop, in coordination with appropriate entities, economic incentives to encourage and expand agricultural activities.

Policy 30.1:
RESERVED

Policy 30.2:
Permit the continuation, on-site intensification, and changing of commodities for agricultural uses in non-rural land use categories even as non-agricultural development is introduced around it, provided that the agricultural uses, or zoning for agricultural uses existed at the time of the adoption of the Plan. Additionally, permit the establishment of new agricultural uses in non-rural categories, in a manner conforming with development regulations.

Policy 30.3:
Permit clustering of development in rural areas that will allow for the continuation of bona fide agricultural uses in conjunction with residential uses.

Policy 30.4:
Introduction of intense agricultural uses adjacent to non-agricultural use in non-rural areas shall meet applicable land development codes.

Policy 30.5:
Agriculture related commercial uses more intensive or heavy than neighborhood serving commercial, may be considered in the rural land use categories, provided it meets applicable policies of the comprehensive plan. These uses are not subject to the locational criteria for neighborhood serving commercial uses.

Policy 30.6:
Agriculture and agricultural support uses are the preferred uses in rural areas.

Policy 30.7:
This Plan supports and endorses the Florida Right to Farm Act (F.S. 823.14).

Policy 30.8
When new non-agricultural development is introduced adjacent to an existing agricultural use, the non-agricultural use shall provide sufficient onsite buffering/mitigation to allow the agricultural operation to continue.

Agriculture - Natural Resource Protection

Objective 31: Protect the natural resources necessary to sustain agricultural activities.

Policy 31.1:
Promote public/private partnerships with agricultural landholders emphasizing incentive-based programs to protect the natural resources.

Policy 31.2:
Require adoption or conversion to water conservation techniques that are beneficial for aquifer recharge and the maintenance of near normal water tables. Use best management practices (BMP) if established.

Policy 31.3:
RESERVED

Policy 31.4:
RESERVED

Policy 31.5:
The County's land development regulations shall address and limit activities which have the potential to contaminate water, soil, or crops.

Policy 31.6:
Create incentive based programs such as, but not limited to, conservation easements, less than fee acquisition, tax incentives, conservation easement property assessment, or other options as deemed appropriate which will be designed to protect the environment.

SPECIAL AREAS OF CONSIDERATION

Transfer of Development Rights

Objective 32: [xxi] By 2014, the County will make further amendments to the Comprehensive Plan and revise its transferable development rights regulations in order to promote development in planned growth areas, preserve the unique character of established communities, support the agricultural industry, preserve environmental lands, preserve historical landmarks and promote the development of a recreational greenway system. The revisions to the transferable development rights regulations may be phased.

Policy 32.1:
Prior to the implementation of the transfer of development rights program outlined in the following policies, the County will amend the Comprehensive Plan to:

- Establish maximum density and intensity levels greater than the adopted Future Land Use categories in the receiving areas, outlined in Policy 32.4
- Establish multipliers contemplated in Policy 32.7

Policy 32.2:

The transferable development rights regulations will be revised to facilitate the desired development pattern. The regulations will be revised to create incentives that direct the use of transferable development rights to planned growth areas; thereby preserving the environmentally sensitive lands, historical landmarks, the rural character and encouraging the retention of agricultural areas.

The County will develop a timeframe for completing the necessary revisions to the County's Land Development Code and administrative processes to revise the transferable development rights regulations.

Policy 32.3:

The following will be potential sending areas on the Future Land Use Map series TDR Sending and Receiving Area Map:

- lands located within the Coastal High Hazard Area,
- properties designated as Significant Wildlife Habitat,
- lands approved for the Environmental Lands Acquisition and Protection Program,
- properties designated as historical landmarks,
- areas identified in a Community Plan as sending areas shall be designated sending areas
- Properties in the Rural Area with Future Land Use categories with densities greater than 1 unit per acre.

Historical Landmarks are not identified on the TDR Sending and Receiving Areas Map; locations of landmarks can be obtained from Hillsborough County.

At such time as these development rights are depleted, the County adopts a vision plan, or the market for development warrants the expansion of the program, the County's regulations may be revised to protect additional rural and agricultural lands. The criteria for identifying additional sending areas are:

a) Lands designated on the Adopted Future Land Use Map as Agricultural/Mining, Agricultural, or Agricultural/Rural, or any other designation that allows residential density less than one dwelling unit per five acres;
b) Lands adjacent to properties nominated for the Environmental Lands Acquisition and Protection Program;
c) Lands that meet the criteria for but that have not been nominated for the Environmental Lands Acquisition and Protection Program;
d) Lands identified on the Greenways Master Plan;
e) Lands adjacent to active farming or mining uses that could serve as a buffer between such uses and residential areas;
f) Lands with designated historic or archaeological sites; and/or
g) Lands included in the Environmental Overlay on the Adopted Future Land Use Map.

Policy 32.4:

Potential receiving areas on the Future Land Use Map series, TDR Sending and Receiving Areas Map will include:

- areas identified as such in adopted Community Plans,
- lands within designated activity centers, and lands located within the land use categories of 9 units per acre or greater and within close proximity to transit lines of the Urban Service Area
- lands currently designated as RP-2 on the Adopted Future Land Use Map may be eligible for consideration as a receiving area with further study and subsequent amendment of the Comprehensive Plan to establish appropriate multipliers for transfers to areas outside the Urban Service Area (See Policies 32.7 and 32.8).

Sufficient infrastructure (water, sewer, transportation, and parks) must be available for the transfer of development rights to any of these receiving areas to occur. Additional receiving areas may be identified based on the following:

a) Proximity to (within ¼ to ½ mile) an identified fixed guideway transit station (such fixed guideway facility shall be part of the adopted Long Range Transportation Plan);
b) Ability to achieve workforce or affordable housing goals;
c) Designation as a redevelopment and infill area;
d) Designated for mixed use on the Adopted Future Land Use Map; and/or
e) Joint Planning Area where additional density is desired.

Policy 32.5:

Adopted Community Plan TDR sending and receiving areas will be incorporated in the County TDR Sending and Receiving Area map as appropriate. In the event designate County sending and receiving areas map and policies conflict with adopted Community Plans related TDR programs, the Community Plan map and policies will supersede the County TDR program and related regulations and prevail in identifying specific sending and receiving areas.

Policy 32.6:

When the use of transferable development rights in a receiving area has not been previously approved by the County as part of a master plan, small area plan or adopted Community Plan, the County may require additional review of the proposed development to ensure the additional density is compatible with the area.

Policy 32.7:

The County will complete an analysis of the sending and receiving areas to determine the appropriate number of density and floor area ratio credits that are available for transfer and that are necessary to meet development goals in the receiving areas. The results of this analysis may result in the development of a multiplier to give greater credit value to one transferable development right than may

be permitted under current regulations. The maximum density and intensity levels for the receiving areas and multipliers will be adopted into the Comprehensive Plan prior to the implementation of the transfer of development rights program. This will also be outlined in the Land Development Code.

Policy 32.8:

To encourage the transfer of development rights and create an effective market for their use, the County may establish multipliers that can be applied to specific density transfers. The value of the multiplier should be weighted based upon the desired public benefit and the ability to encourage sustainable development patterns. Receiving areas located outside the Urban Service Area should have a lower multiplier than receiving areas insider the Urban Service Area. Criteria to consider when establishing multipliers include:

a) Dedication of the sending area to a state or federal environmental agency;
b) Preservation of land adjacent to existing conservation or preserve areas, such as Environmental Land Acquisition and Protection Program properties, State or Federal Wildlife Management Areas, Water Resource Protection Areas, Significant Wildlife Habitat, or Surface Water Protection Areas;
c) Preservation of an entire parcel designated as Significant Wildlife Habitat;
d) Use of credits to develop affordable or workforce housing units;
e) Use of credits as part of redevelopment or infill projects located within the urban service area; and/or
(f) Use of credits in a designated activity center.
(g) Whether receiving area is located insider or outside the Urban Service Area.

In coordination with the County's schedule to revise and implement the TDR program, the County will determine the value of any multipliers prior to revising its land development regulations.

Policy 32.9:

In addition to or instead of the multipliers described in Policy 32.8, the County may consider revising its Land Development Code to provide incentives by allowing for example, density increases by right or for the waiver of certain bulk regulations (i.e. setbacks, landscaping, height limits, etc.) when transferred development rights are utilized.

In coordination with the County's schedule to revise and implement the TDR program, incentives will be established by revising its Land Development Code.

Policy 32.10:

All properties must be left with the ability to accommodate one dwelling unit; no non-conformities shall be created through the TDR program.

Policy 32.11:
All transfers of development rights are deemed to sever the transferred development rights from the sending property and their use are subject to approval by the County.

Policy 32.12:
The County shall investigate other techniques successfully used in other communities to facilitate the administration of the TDR program.

Policy 32.13:
In order to ensure sufficient interest in the program on behalf of property owners within identified sending areas, the County may consider establishing a minimum dollar value for one transferable development right. This minimum value may be waived for transaction between properties under single ownership or related property owners.

Policy 32.14:
The County shall undertake a public outreach campaign in coordination with other visioning and community planning initiatives, targeting property owners in designated sending and receiving areas, to encourage the use of transferable development rights. Examples of outreach include production of a brochure explaining the program, creation of a web page specifically for the program, and preparation of a presentation that explains the program.

Planned Villages

There are several areas of the County which are located outside the Urban Service Area limits but may be appropriate for up to 2 units per acre development sometime in the future. However, Hillsborough County will not be planning or programming infrastructure to serve these areas within the planning horizon of this Plan. The capital costs associated with the provision of infrastructure needed to serve these planned villages must be provided by the developer of such a project and will not be funded by Hillsborough County.

Objective 33: To prevent the sprawl of low density residential development into rural areas, the County shall continue to apply a two-tiered land use category in areas where the potential for sprawl exists.

Policy 33.1:
Subsequent to amendments to the Comprehensive Plan to implement the transfer of development rights program outlined in Objective 32, existing areas designated as RP-2 on the Future Land Use Map may be considered as a receiving area for transfer of development rights as outlined in the following policies. Prior to allowance of transfers of development rights into the RP-2 category, multipliers for transfers will be established in the Comprehensive plan at appropriate levels given that this land use category is located predominantly outside the Urban Service Area.

Policy 33.2: RP-2 Designated Parcels 160 Acres or Greater

The Residential Planned-2 (RP-2) land use category is intended to implement a two-tiered approach in the application of densities and intensities. The purpose of the RP-2 land use category is to promote self-sustainable development. The ability to obtain the maximum intensities and/or densities permitted in the RP-2 land use category on parcels 160 acres or greater shall be dependent on the extent to which developments are planned to achieve on-site clustering, meet the intent of the Planned Village concept and demonstrate consistency with Policies 33.5 and 33.10.

In order to achieve densities in excess of 1 du/5 ga in the RP-2 category, developments shall achieve the minimum clustering ratios and shopping provisions under the Planned Village option required by this Plan, except as noted in the Zoning Exception described in Policy 33.4.

Policy 33.3: RP-2 Designated Parcels Less Than 160 Acres

Aggregation With Existing Development Provisions

The ability to develop tracts of land in the RP-2 land use categories of less than 160 acres may be accomplished at densities up to the maximum of 2 units per gross acre if the development can be shown:

1. To function as an integral and planned part of existing adjacent development together totaling 160 acres or more and its neighborhood and community commercial needs are met by the combined development and the tract meets Planned Village policies and development regulations.
    - Developments aggregated with planned village projects may collectively achieve up to 100% of the demand for land uses found in the Table of Minimum Requirements.
2. If the property is less than 160 acres and cannot meet the requirements for mixed use or aggregation criteria in section 1 of this Policy, densities and intensity credits may be transferred from qualified sending areas, identified in the Transfer of Development Rights Program. Qualified sending areas include lands:
    - Designated as Significant Wildlife Habitat
    - Nominated for the Environmental Lands Acquisition and Protection Program
    - Within Coastal High Hazard Areas;
    - Within Community Plan boundaries in which the Plan calls for the reduction of density in specific areas;

Developments utilizing the TDR option may achieve up to 100% of the demand for land uses found in the Table of Minimum Requirements consistent with Policy 33.5.

The minimum clustering ratios is required in both options.

The establishment and guidelines for the transfer of density and intensity credits will be developed within a year of the adoption of this policy and implemented through the Land Development Code.

Policy 33.4: Zoning Conformance Exception

Some parcels within the RP-2 category may carry a zoning district more intense than 1du/5ga prior to the application of the RP-2 designation on a parcel. Zoning granted prior to the application of the RP-2 category on a property is considered conforming with the Plan and may develop in accordance with the applicable zoning district in place. All subsequent rezoning must comply with the standard requirements outlined in Policies 33.2 and 33.3.

Policy 33.5:

As the size of the Planned Village increases from the 160 acre minimum, the density of the clustered area, and the amount of neighborhood and retail shopping provided must also increase. The minimum requirements for the Planned Village to achieve densities in excess of 1 du/5ga are given in the Table of Minimum Requirements For Planned Villages. Planned Villages which meet the minimum requirements may develop at 2 du/ga in RP-2.–Planned Villages may utilize Transfer of Development Rights to achieve a density of 4 du/ga, consistent with the Transfer of Development Rights Program outlined in the Comprehensive Plan and Land Development Code. Land Development Code (LDC) adopted to implement this Plan may provide clustering and mixed use criteria for a range of Planned Village densities less than the maximum permitted gross densities for the RP-2.

Table of Minimum Requirements For Planned Villages in RP-2 Land Use Designation

	Project Acreage			
	160/319	**320/640**	**640/2259**	**2560+**
Clustering Ratio for Planned Village projects of any size - Requires that the gross number of allowable dwelling units are clustered to achieve a minimum of 3.5 to 4 units per net acre. Clustering up to 6 units per net acre is permitted for planned villages that utilize Transfer of Development Rights.				
% of total Neighborhood Retail and Shopping Square Footage Required On-Site	50%	75%	100%	100%
% of total Community Commercial Square Footage Required On-Site	-	-	25%	50%
Open Space Requirement	As determined by the net result of the required minimum clustering ratio.			

Policy 33.6:

Clustering and Mixed Use shall be required in the RP-2 land plan category for projects of 160 acres or more in order to prevent urban sprawl, provide for the efficient provision of infrastructure, preservation of open space and the protection of the environment. Clustering and Mixed Use shall be encouraged in the other suburban and rural plans categories.

Policy 33.7:

Parcels within the RP-2 land use category shall not be split into smaller parcels to avoid the "Planned Village" criteria and requirements applicable to larger parcels, except as noted in the Zoning Exception found in the Policy 33.4.

Policy 33.8:

Developments within the RP-2 land use plan category that are 160 acres or greater in size and request approval under the Planned Village concept and its associated minimum criteria shall be served by a central wastewater system. (i.e. franchise, interim plant, community plant, county/municipal regional or sub-regional service, or other privately owned central systems).

Policy 33.9:

All capital improvement costs associated with the provision of public facilities and services as determined by the appropriate regulatory agency or public service provider, including, but not limited to, public water, wastewater, schools, parks and libraries shall be the responsibility of the developer of a Planned Village and not the responsibility of Hillsborough County. All necessary public facilities and services shall be provided concurrent with the development.

Policy 33.10:

Community and Neighborhood Commercial uses are required on-site, consistent with the policies of the Plan for all parcels regardless of size, except as noted in the Policy 33.3. Fifty percent (50%) of the on-site commercial development required under the RP-2 land use category shall be completed at the point that 75% of the residential units are constructed. Adequate acreage to accommodate the remaining on-site commercial requirements shall be identified and reserved on the project's site plan and will be developed prior to the 100% completion of construction of residential units. The developer may seek approval by the County for up to an 18 month grace period following build-out if the need and justification for an extension is sufficiently documented.

However, these requirements may be waived for projects under 320 acres if it can be documented that required commercial development exists or is in operation within the surrounding area by the time 75% of the residential unit are built and the overall project satisfies the RP-2 development requirements and the intent of the Planned Village.

At least 50% of the project area must be within 5 miles of existing Community Commercial uses and within 1.5 miles of developed and operating Neighborhood Commercial uses to be used to satisfy RP-2 commercial requirements. Criteria will be developed and implemented in the Land Development Code to establish standards and criteria for documenting adequate neighborhood and community use in proximity to the RP-2 project and a map identifying the general service zones will be prepared within one year from the date this policy is adopted.

Policy 33.11:

Achieving adequate road connectivity is a high priority in areas designated RP-2. RP-2 projects shall be designed to the greatest extent possible to connect roadways shown on the Transportation Corridor Plan Map and as deemed appropriate and necessary to facilitate the development of Planned Villages by local reviewing agencies.

The County will review and consider including those roadways that support the RP-2 land uses on the Countywide Corridor Plan within one year from the date this policy is adopted.

Policy 33.12:

The committee established to review the RP-2 land use category as part of the Comprehensive Plan update will continue to meet to propose additional refinements to this land use category in the next two Comprehensive Plan Amendment cycles.

Interstate 75 Corridor Development

Objective 34: Plan categories for the Interstate 75 corridor shall permit urban level intensities that will encourage mixed use patterns of development.

Policy 34.1:
Allow for developments at urban level intensities commensurate with the designated land use categories, but which do not endanger the viability and/or aesthetic characteristics of conservation and preservation areas, as defined.

Policy 34.2:
Encourage provision of affordable housing within mixed use developments through public and private sector incentives.

Policy 34.3:
Access to high density/intensity development shall be encouraged to be located onto the county arterial and collector system rather than the state highway system in the I-75 Corridor. This will be accomplished through the promotion of clustering of highest intensity uses with access to the county arterial system, through the review of access points by Florida Department Of Transportation (FDOT) and the requirement that new developments provide sufficient right-of-way for a future county parallel arterial system to serve I-75 Corridor development.

Objective 35: Incentive programs and design sensitive regulations shall be developed and implemented that will promote high quality private and public development, and to assure creative and responsive approaches to the review of development within the I-75 mixed use categories.

Policy 35.1:
Develop and implement landscaping plans for Hillsborough County's arterial road rights-of-way in the I-75 Corridor.

Policy 35.2:
Require amenities such as landscaped buffer areas, bikeways and pedestrian trails, preferably interconnected, to be provided in new rezonings greater than 2 acres.

Policy 35.3:[xxii]
Encourage through site design techniques such as clustering of structures in order to promote a park-like quality in public and private development.

Policy 35.4:
Encourage high quality site designs through incentives or specific development standards for on-site lighting, perimeter landscaping, and signage.

Policy 35.5:
Encourage innovative planning and design projects by both the private and public sector within the mixed use categories of the I-75 corridor.

Policy 35.6:
Promote public/private partnerships to identify, plan, finance, and operate a high level of community amenities.

Policy 35.7:
Assure that the integrity of existing residential development is protected through established techniques and the principles of land use transition expressed in this plan.

Policy 35.8:
Require handicap accessibility as an important consideration in all aspects of development including structural designs, recreational areas, sidewalks, housing, transit accommodation, transportation systems and other amenities.

Policy 35.9:
Planned development districts or mixed use standard zoning districts are required for all new rezonings, except as provided for in applicable development regulations.

Policy 35.10:
When appropriate, participate in public-private partnerships during the development process to achieve such purposes as economies of scale in infrastructure construction and accelerated delivery of services.

Objective 36: Employment centers shall be planned throughout the Interstate 75 corridor_that will preserve employment opportunities (office and industrial), and residential opportunities shall be limited in each of the plan categories within one mile (east and west) from the Interstate 75 corridor in order to promote opportunities for all segments of the population to live and work within the corridor, regardless of age, sex, race and income.

Policy 36.1:
Encourage the inclusion of housing within mixed use projects.

Policy 36.2:
Encourage the provision and integration of low and moderate income housing dispersed throughout the mixed use categories.

Policy 36.3:
Encourage development of child care facilities in conjunction with both residential and employment generating activities in projects located in the mixed use categories. As incentive to have these facilities provided within residential or employment generating projects, child care facilities will not count towards a project's overall

density or intensity calculations; in order to utilize this incentive, the project must utilize a site plan controlled zoning district.

Policy 36.4:
Encourage maximum employment and living opportunities for minorities within the mixed use categories.

Policy 36.5:
Quality employment opportunities (office/industrial) shall be provided within mixed use categories.

Objective 37: Mass transit opportunities, including bus and/or rail, shall be expanded within the Interstate 75 corridor.

Policy 37.1:
Plan for and construct urban level infrastructure in proposed bus or rail station areas to attract high-intensity development that will support the operation of transit facilities.

Policy 37.2:
Encourage high intensity developments to locate in proposed transit emphasis corridors.

Policy 37.3:
Promote integrated transit station interfaces in site designs.

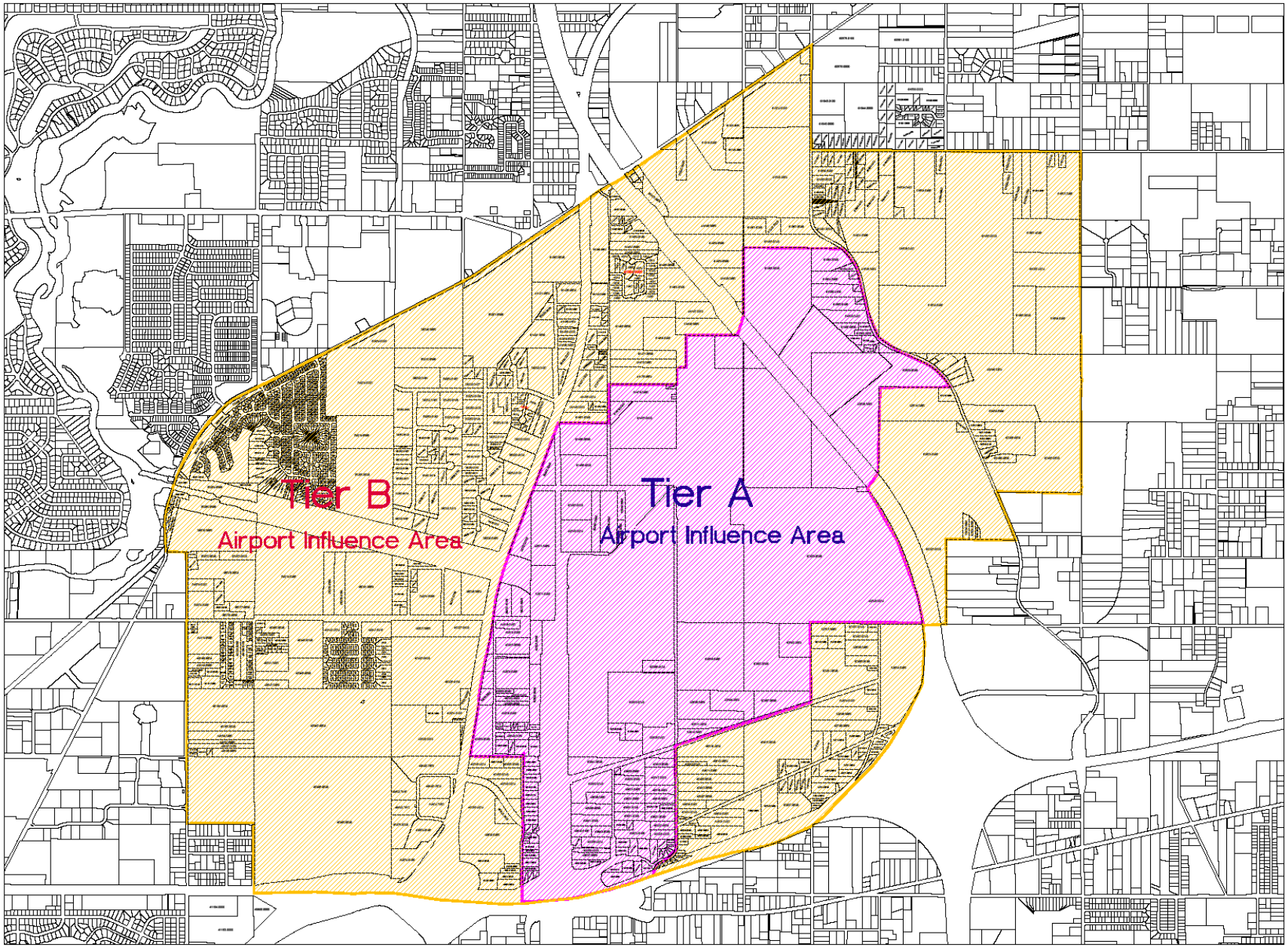
Policy 37.4:
Encourage pedestrian, bicycle and public transit use amenities in site designs.

Objective 38: Public facilities and services that meet or exceed existing or established County levels of service shall be provided in advance of, or concurrent with, the impacts of development.

Policy 38.1:
Ensure that public facilities operating at adopted levels of service are available when Certificates of Occupancy are issued by:
(1) Anticipating development and planning the Capital Improvements Programs accordingly;
(2) Requiring conditions on development approvals that phase development with the availability of facilities;
(3) Allowing developers to improve or provide public facilities at their own expense;
(4) Entering into public-private partnerships, when appropriate, to provide public facilities.

Policy 38.2:

Tampa Executive Airport, in accordance with the Aviation Authority's master plans, shall be developed as an executive airport to serve the I-4 and I-75 corridors. The county shall plan for appropriate and compatible uses around Tampa Executive Airport to achieve this in compliance with Chapter 333 and Chapter 163 Florida Statutes. The graphic below illustrates the airport influence area around Tampa Executive Airport. The impacts of proposed land uses on the airport should be considered in future planning and rezoning of the area to protect people and property on the ground, as well as the utility of this airport. To this end, the County and Authority shall pursue entering into an interlocal agreement to carry out the requirements of Chapter 333 of Florida Statutes and to facilitate the exchange of information regarding land use compatibility issues. [xxiii]


Tier B
Airport Influence Area
Tier A
Airport Influence Area

Policy 38.3:
The County shall develop plans to provide internal access for developments which front on collector or arterial roadways. Florida Department of Transportation participation shall be requested in the planning process for projects fronting on the State highway system.

Policy 38.4:
The County shall develop an Interstate-75 Corridor Long Range Transportation Plan to be adopted by the Metropolitan Planning Organization. The Plan shall demonstrate an adequate arterial and collector support system based on the existing roadway network and the proposed arterials and collectors required to support the anticipated traffic and satisfy criteria based on Interstate-75 interchange spacing, access to highways which intersect the interchanges, access to arterial streets and intersections, temporary access and internal access road requirements. The purpose of the arterial and collector support system shall maintain the Level of Service established in the plan for I-75.

Policy 38.5:
The concurrency management system shall take into account the effects of development on all transportation facilities based on individual analysis of the proposed development.

Objective 39: Regulations and performance standards shall be developed to ensure that water quality and quantity, environmentally sensitive area, wildlife habitats, rivers and creeks are protected from degradation by development.

Policy 39.1:
The County shall require the landscaping of the littoral zone of stormwater detention ponds.

Policy 39.2:
The County shall require the location and design of public roads and bridges within stream riverine corridors to minimize impacts adverse to wildlife habitats and vegetative communities.

Policy 39.3:
Restrict fencing along riverine corridors that unduly prohibits wildlife passage, where feasible and appropriate.

Policy 39.4:
Restrict clearing or filling of natural plant communities within 50 feet of the Environmental Protection Commission wetland jurisdictional line of rivers and creeks designated as River Corridor Overlay Districts or within 100 feet of the mean and ordinary high water line of such rivers and creeks, whichever is greater. If no beneficial use of the property is possible without clearing or filling within this area,

impose conditions which will mitigate the adverse impact of these activities on wildlife habitat, native vegetation and natural stormwater filtration systems.

Policy 39.5:
Encourage the use of stilted structures rather than fill to meet flood elevation construction requirements within the River Corridor Overlay District.

Policy 39.6:
Promote public land acquisition projects and public land dedications that remove land in the River Corridor Overlay District from development, particularly those lands vegetated by natural plant communities, those containing or buffering environmentally sensitive areas, those contributing to aquifer recharge, or those providing wildlife habitat.

Activity Centers

The Future of Hillsborough Comprehensive Plan is predicated upon a growth scenario that establishes a concept based upon activity centers to serve the needs of the residents of Hillsborough County. The activity centers will begin to form an urban structure that encourages the cohesiveness of the neighborhood unit while facilitating the connection and interdependence of the region as a whole. The activity centers will be designated by two classifications depending upon the function and character of the specific center.

- Regional Activity Center: This designation refers to the high concentration of government centers, high intensity commercial uses and potential high density residential development that will emphasize the Central Business District of Tampa as the central core of the Tampa Bay Region, as well as the Westshore Area with its major office and employment areas and the University of South Florida area with its higher educational facilities.

- Community Activity Centers: These activity centers designate Transportation Analysis Zone (TAZ) locations for existing and future major regional employment clusters that have more than 1,000 regional commercial or service employees and/or locations around fixed guideway transit stations. It is anticipated that these locations will emphasize a focal point for surrounding neighborhoods that will include a variety of public facilities and services including commercial and office development, integration of viable residential neighborhoods and the redevelopment of areas within the activity center appropriate for higher intensity uses. Higher residential densities can also be considered for these areas as services and facilities become available to provide the necessary infrastructure. Existing viable low density residential uses found within or adjacent to the Community Activity Centers should be protected through policies of the Comprehensive Plan. Ultimate limits of the Community Activity Center shall be coordinated with fixed-guideway transit plans (such as rail or bus rapid transit) where applicable and determined by a Special Area Plan and/or Multi-modal District analysis.

The unique characteristics that form the neighborhoods of Hillsborough County can be emphasized and unified by the establishment of the interconnected activity center concept of community development. This concept can also begin to form the framework of a future system of mass transit to tie together the activity centers in Hillsborough County, and to reduce dependence upon the automobile as a primary means of transportation.

Though the activity center/corridor concept is a concept only, it is one of the structural bases of the Comprehensive Plan. Future land uses have been programmed to enhance the development of existing activity centers, and to act as a catalyst for the development of new activity centers. In the future, land use plan amendments and rezonings will be reviewed to determine if each meets the intent of the Comprehensive Plan. Additional activity centers may emerge in the future, as a result of the cumulative decisions made during these processes.

Description of Regional Activity Centers

- Activity center must be a dominant focal point for entire community (i.e., Hillsborough County).
- Activity centers must include high concentration of government centers, high intensity commercial uses and the potential for high density residential development.
- Activity centers must be considered central destination point for any fixed guideway transit system being planned.
- Activity centers should function as cultural focal point for entire community.
- Activity center must be located adjacent to a main interchange of the interstate/expressway transportation system.

The Regional Activity Centers in Hillsborough County include the following areas:

- Central Business District of Tampa,
- the Westshore Business District, and
- the University of South Florida campus area.

Description of Community Activity Centers

- Community activity centers must be located either:
    - Within TAZ's where existing or potential regional uses have a minimum of 1,000 regional commercial or service employees and represent mixed use activity centers shown on the Future of Hillsborough land use plans by the designation of appropriate land use categories reflecting the desired future intensities and/or;
    - Within ½ mile of a fixed guideway transit station.
- Community Activity centers should be located along potential transit emphasis corridors or in close proximity (1/2 mile) to existing or planned intersection of 2 major arterials, expressway interchanges.
- Community Activity centers should be located where public infrastructure investments are planned to exist at time of designation of the activity center.

- Community Activity Centers should have the capability of serving as the focal point for the existing surrounding community in terms of mixture of land use and compatibility of character.
- Community Activity centers should reflect a character compatible with the surrounding community land use structure and intensity. Special Area Plan analysis shall identify appropriate design solutions either through actual land use hierarchy or mitigation of impacts to the adjacent neighborhoods.

The Community Activity Centers identified include the following areas:

- Water's Avenue / Veteran's Expressway
- N. Dale Mabry Corridor
- Citrus Park
- USF/I-275
- USF/I-75
- Harney Road/Tampa Bypass Canal
- Hillsborough Avenue/I-75
- Crosstown Expressway/I-75
- S.R. 60/I-75
- Southshore/I-75
- Racetrack Road/Hillsborough Avenue
- MLK Boulevard/I-75
- Causeway Boulevard/U.S. 41
- S.R. 60 Corridor
- Progress boulevard / I-75
- U.S. 41/Big Bend Road
- U.S. 41/College Avenue Corridor

Objective 40: The identification of the regional and community activity centers will help provide form and function to the community fabric by focusing growth within the Urban Service Area to these areas in a manner that is complementary to the community context and is supportive of multi-modal transportation systems.

Policy 40.1:

Potential Community Activity Centers will be designated by floating zone designations that area based on current TAZ boundaries, as shown in the Future Land Use Map Series. Community Activity Centers shall be located within the Urban Service Area. Actual implementation requires refinement of limits and ultimate compatibility with existing conditions through Special Area Plan analysis. New areas may become activity centers as they meet the qualifications specified for a community activity center.

Policy 40.2:

Implementation of the Community Activity Center designation and incentive provisions will require a Special Area Plan (SAP) or Multimodal Level of Service District Analysis, through amendment of the Comprehensive Plan. These efforts will analyze the local conditions and develop context sensitive solutions for the unique development/redevelopment activity.

Policy 40.3:

The Activity Center Special Area Plan process will be a plan amendment that is either the County, the Planning Commission or developer initiated analysis, or Multimodal Level of Service District Analysis consistent with FDOT Quality/Level of Service and Multimodal Handbooks, that demonstrates:

- the location of uses,
- ensures adequate mixture of uses on site and within the area,
- multi-modal accommodation,
- pedestrian oriented design,
- alternative development standards, if applicable (such as parking, stormwater, building design, etc.),
- accommodation of open space,
- resource protection, and
- appropriate community context.

Policy 40.4:

Designated Community Activity Centers shall meet the following requirements –

i. Special Area Plan analysis, or Multimodal District Analysis, as described above,
ii. Be located within the Urban Service Area,
iii. Requires minimum density of 8 du/acre for designated area,
iv. Requires a minimum mix of 60% residential and 40% non-residential uses Community Activity Center locations,
v. Requires pedestrian oriented design,
vi. Requires multi-modal district if LOS of roadways are not adequate to support development, and
vii. Requires transit supportive design.

Policy 40.5:

Designated Community Activity Centers shall be permitted the following incentives) to assist in their ultimate development. Once a Special Area Plan/ Multimodal District analysis has been completed, the following may be permitted –



Illustration of potential future redevelopment of underutilized commercial property

i. Require establishment of a multi-modal transportation concurrency management system,
ii. Permits increase of designated area density/intensity to 20 du/ac or 1.0 FAR by right, and
iii. Permits increase of designated area density/intensity up to 35 du/acre or 2.0 FAR if Transfer of Development Rights are utilized.

Density increases are not applicable to portions of Activity Centers that may lie within the Coastal High Hazard Area.

Redevelopment and Revitalization Areas

Commercial Redevelopment and Revitalization Areas

Objective 41 The County shall implement commercial redevelopment strategies to concentrate commercial uses, revitalize older commercial areas, improve walkability,

accommodate increases in transit service including transit connections, and encourage mixed use projects that include commercial development.

Policy 41.1:

The County seeks to improve social, economic, and physical conditions in areas of the community which have experienced declines in economic vitality and quality of life. Based on a review of previous planning studies and an analysis of readily available demographic, land use, and development data, two types of distressed areas have been defined: Neighborhood Revitalization and Redevelopment Areas (NRRA) and Commercial Revitalization and Redevelopment Areas (CRRA).

Policy 41.2:

The County shall officially designate areas as CRRA's, on a map adopted as part of the Future Land Use Map (FLUM) series, based upon the results of a Community Planning or Small Area Planning process and develop strategies for redevelopment or revitalization in each area.

Policy 41.3:

For CRRAs designated on a map adopted as part of the Future Land Use Map (FLUM) series, under a Community Plan or Small Area Plan, and located in the Urban Service Area, development may be allowed at a higher intensity than provided for in the underlying land use category. An increase to the next higher category may be allowed consistent with the provisions of the Community Plan or Small Area Plan.

Policy 41.4:

The feasibility of designating all or part of a CRRA as a Community Redevelopment Area or Urban Infill and Redevelopment Area will be considered as part of the formal CRRA designation process.

Policy 41.5:

The County will conduct a review of the rules, regulations and policies of Hillsborough County to identify and remove regulatory constraints to reinvestment in older commercial properties by 2012. The review will focus on the identification of code provisions limiting reinvestment in properties with site and building non-conformities.

Policy 41.6:

Designated CRRAs, on a map adopted as part of the Future Land Use Map (FLUM) series, will be considered priority areas for designation as Transportation Concurrency Exception Areas and Multimodal Districts.



Street Level View of a Redevelopment Area and Central Public Space

Policy 41.7:

The map labeled "Adopted or Approved CRRA and NRRA" will be given priority to support changes consistent with the redevelopment and revitalization objectives in land use, zoning and infrastructure decisions.

Neighborhood Redevelopment and Revitalization Area (NRRA)

Objective 42: The County shall implement neighborhood redevelopment and revitalization strategies in order to improve the condition of blighted areas and promote neighborhood enhancement and stabilization.

Policy 42.1:

The County shall officially designate areas as NRRA's, on a map adopted as part of the Future Land Use Map (FLUM) series, based upon the results of a Community Planning or Small Area Planning process and develop strategies for redevelopment or revitalization.

Policy 42.2:

The County will conduct a review of the rules, regulations and policies of Hillsborough County over the next 5 years to identify and remove regulatory constraints to reinvestment in older neighborhoods. The review will focus on the identification of code provisions limiting reinvestment in properties with site and building non-conformities.

Policy 42.3:

For NRRAs designated on a map adopted as part of the Future Land Use Map (FLUM) series, under a Community Plan or Small Area Plan, and located in the Urban Service Area, residential infill development and redevelopment may be allowed at a higher intensity than provided for in the underlying land use category. An increase to the next higher category may be allowed consistent with the provisions of the Community Plan or Small Area Plan.

Policy 42.4:
The map labeled "Adopted or Approved CRRA and NRRA" will be given priority to support changes consistent with the redevelopment and revitalization objectives in land use and zoning.

Policy 42.5:
Private investment in the maintenance and improvement of declining neighborhoods and in the redevelopment and revitalization of deteriorated commercial corridors and districts shall be encouraged through some or all of the following public actions:

- Targeted Community and Small Area Planning
- Future Land Use Category Changes
- Land Development Code Modifications
- Transportation Concurrency Exception Area or Multimodal District Tax Incentives (Abatements & Credits)
- Code Enforcement
- Capital Investment
- Technical Assistance
- Intergovernmental Coordination

Policy 42.6:
Prior to or as a first step in the development of Community Plans or Small Area Plan, the County will initiate discussions with major institutions and employers such as USF, HCC, private industries, governmental entities and infrastructure and transit providers located within or adjacent to the study area and identify strategies to ensure their active engagement in revitalization and redevelopment focused planning efforts.

Policy 42.7
The Hillsborough County City-County Planning Commission will evaluate and revise the Public/Quasi-Public land use classification to allow limited amounts of residential land uses for the purpose of providing workforce housing and to support redevelopment initiatives, consistent with the recommendations of an adopted Community Plan or Small Area Plan if applicable, and only in areas where sufficient infrastructure capacity exists.

Objective 43: RESERVED

Policy 43.1:
RESERVED

Policy 43.2:
RESERVED

Policy 43.3:
RESERVED

Policy 43.4:
RESERVED

Policy 43.5:
RESERVED

Policy 43.6:
RESERVED

Policy 43.7:
RESERVED

Policy 43.8:
RESERVED

Policy 43.9:
RESERVED

Policy 43.10:
RESERVED

Electrical Power Generation Facilities and Other Similar Utilities

Because of the growth in all classifications experienced by Hillsborough County and projected increases as supported by this Plan, Hillsborough County is expected to require additional electric generation capacity to serve the needs of its citizens in all of their endeavors - industrial, commercial, agricultural and residential. In order to maximize a desirable development pattern and to minimize the potential for adverse impacts upon other types of land uses, it is necessary to provide the policy framework to analyze such facilities based upon various factors, such as the nature of the facility, the compatibility with surrounding uses, the need and obligation of Tampa Electric Company to provide reliable, low cost electric service and the County's obligations to require needed infrastructure for future growth. Development of an Electrical Power Generation Facility (EPGF) is subject to the Goals, Objectives and Policies of the Land Use Element, applicable development regulations and established locational criteria for specific land use.

Objective 44: To locate future electric power generation facilities in geographical areas which are compatible with such use considering surrounding areas, accessibility to modes of transportation to support the facilities' fuel requirements, enhancement of employment and minimization of any potentially adverse impact to environmentally sensitive areas and residential areas, while balancing Tampa Electric Company's legal

obligations to provide reliable, low cost electric service to all citizens in strict compliance with all Federal, State and local environmental laws, rules and regulations.

Policy 44.1:
Placement of future electric power generating facilities shall be given consideration in areas adjacent to other industrial areas, and/or adjacent to rail and/or adjacent to rail and/or water borne transportation for fuel required to serve that type of use.

Policy 44.2:
No construction, associated with an electrical power generating facility, shall be permitted in or through the Cockroach Bay Aquatic Preserve and adjoining environmentally sensitive areas.

Policy 44.3:
All land approved for an electrical power generation facility shall require a planned unit development rezoning.

Policy 44.4:
Electric power generating facilities shall have an affirmative duty to protect any environmentally sensitive areas through buffering and/or other mitigating techniques. The environmentally sensitive areas shall be specifically detailed on the site plan submitted as part of the rezoning.

Policy 44.5:
The location of all electric power generating facilities shall strictly comply with all federal, state, and local laws, rules, and regulations pertaining to the site, certification, permitting, and environmental requirements pertaining to same. See tables in background report for a listing of the minimum local, state and federal requirements which apply.

Policy 44.6:
The Board of County Commissioners shall not approve any rezoning for an electrical power generating facility that does not demonstrate adequate protection and preservation of natural resources, including air, water, plant and animal life, and adequate protection of human health, safety and welfare.

Policy 44.7:
An application for rezoning for the purpose of utilizing land for an Electrical Power Generating Facility may only be filed after submission of an application to the State under the Power Plant Siting Act. Further said zoning application shall include all information required by the State Department of Environmental Protection for initial submission in accordance with the Power Plant Siting Act and any additional studies required by the County. For the purposes of rezoning review the standard time requirements for processing an application shall be waived or otherwise altered to allow appropriate consideration of all information. Any rezoning shall be conditioned upon the issuance of a written order approving in whole, or approving with

conditions, the application for power plant siting by the Governor and Cabinet sitting as the Siting Board. If the Siting Board denies the siting, then the zoning shall revert to Agricultural or the zoning in existence at the time of rezoning application if other than Agricultural.

Bulk Electric Transmission Corridors and Large Facilities

Objective 45: Any negative effects of bulk electric transmission corridors upon environmentally sensitive lands and residential areas shall be minimized through the use of locational criteria.

Policy 45.1:
The location and placement of bulk electric transmission corridors through environmentally sensitive lands and resources shall be in compliance with all applicable federal, state and local environmental regulations.

Policy 45.2:
The location of bulk electric transmission corridors shall be discouraged through existing residential neighborhoods.

Policy 45.3:
Bulk electric transmission corridors shall be encouraged to locate at the fringe of urban and urbanizing areas.

Policy 45.4:
Electric utilities shall be encouraged to use utilized shared utility corridors, wherever feasible.

Policy 45.5:
Electric utilities shall be encouraged to locate bulk electric transmission corridors adjacent to other utility and road corridors.

Policy 45.6:
New residential uses shall be discouraged in close proximity to bulk electric transmission corridors and minimum separation distances between these uses should be established based on best available information. When reviewing the relationship between residential uses and bulk transmission lines the following aspects shall be evaluated:
a) The voltage rating of the transmission line
b) The vertical and horizontal distance of the line to adjacent property lines

Policy 45.7:
Pursuant to the Hillsborough County Utility Accommodation and Rights of Way Use Ordinance, “large facilities” are defined as electric/power facilities, which when installed, will exceed 75 feet in height or poles greater than 24 inches in diameter at

the finished grade. Such facilities shall be reviewed by County in a public hearing as part of a rights-of-way use permit application.

Policy 45.8:
The preferred location for large facilities are along roadways of 4 lanes or more that are listed on the Metropolitan Planning Organizations Long Range Transportation Map and in non-residential (Commercial and Industrial) zoned areas. Large facilities are encouraged to be co-located with other public infrastructure facilities.

Policy 45.9:
Large facilities that are requested in areas of existing or planned residential development should be compatible (as defined in Policy 1.4) with the surrounding area with regards to design, scale and location. The installation of these facilities should not create adverse impacts on adjacent property owners, scenic corridors, parks or historic properties. Setbacks, buffering and other measures should be considered as means to mitigate impacts.

Telecommunications Facilities

Objective 46: To ensure that telecommunications facilities are located in a manner that is compatible (as defined in Policy 1.4) with surrounding land uses and compliant with State and Federal law.

Policy 46.1:
Telecommunications facilities and towers should comply with applicable Land Development Code regulations including but not limited to setbacks, buffering, screening and camouflaging.

Policy 46.2:
Hillsborough County shall comply with State and Federal laws relating to the location of telecommunications facilities.

Planned Environmental Community ½

The Planned Environmental Community ½ category is applicable to areas of Hillsborough County which provide: unique opportunities to expand protections of Regional Resources onto private land; local government water and wastewater utility service; enhanced buffering; and transition to adjacent urban and suburban areas. In such areas, a transitional land use category is appropriate. In order to induce these enhanced protections a Planned Environmental Community ½ designation shall be applied and allow residential densities of 1 dwelling unit per 2 acres (1 du/2 ga) as a transitional land use.

Objective 47: To provide an orderly and well planned transition of residential and mixed use development and provide buffering and protection of Regional Resources, and to enhance environmental protections through the utilization of Conservation

easements, the County shall apply this land use category in areas adjacent to Regional Resources areas or other property surrounded by property designated PEC ½. The residential density allowable shall be 1 du/2 ga provided that the development meets the policies outlined herein.

Policy 47.1:

If a planned community under this category includes a Riverine, Class I Public water supply source, special restrictions shall be included relative to the proximity of development to the main channel of the river and tributaries thereto; and protection of existing wetlands to further ensure protection of the River's water resources.

Policy 47.2:

Development pursuant to this category must utilize a Planned Development zoning and incorporate an Environmental Management Plan (EMP). The EMP must be developed with input from local and regional agencies including, minimally, the Environmental Protection Commission of Hillsborough County, the Planning Commission and the Regional Water Supply Authority. The EMP shall provide for expanded environmental protections to a Regional Resource, enhanced open space, public water and sewer, public access to a Regional Resource, and enhanced water quality protections. The EMP shall further specify the methods of implementation, enforcement (such as deed restrictions to prohibit dumping, clearing, and disturbance of buffers), maintenance, and protection including the enhancement of buffers through pine reforestation planting and planting other native vegetation (as may be required for habitat mitigation) where pasture exists adjacent to a Regional Resource in order to achieve a density of 1du/2 ac.

Policy 47.3:

Clustering shall be required and Mixed Use shall be encouraged as appropriate in the PEC ½ land plan category in order to provide for the efficient provision of infrastructure, preservation of open space, and environmental protection. Allowable development should be low density and clustered on the most suitable portions of a tract in order to preserve and enhance environmental resources.

Policy 47.4:

Developments within the PEC ½ land use plan category, which utilize the 1 dwelling unit per two acres option, shall be served by a central wastewater and potable water system (i.e. Local Government water and wastewater utility service area). Unless already available at the time development commences, the public facilities necessary to achieve concurrency for water and sewer shall be added to the capital improvements element of the appropriate local government in the next plan amendment cycle following approval of development and must be financially feasible.

Policy 47.5:

Acceptable activities within buffers/open space include access to passive amenities or other improvements (e.g. installation of picnic facilities and other structures for passive recreation) which are designated as amenities for the use of natural areas.

Policy 47.6

Allowable construction within buffer/open space areas include habitat enhancement and limited construction of sidewalks (not within buffers), paths, trails or other amenities necessary to provide pedestrian access to trails or natural areas.–Such paths, trails, etc. are allowed a minimal footprint, and not contain impervious surfaces, lighting or any other ancillary structure (such as restrooms, parking lots, etc.).

Policy 47.7

Picnic facilities, boardwalks, or other structures for passive recreation which require minimal impact on native vegetation may be included within buffer open space areas and must be included as part of the Environmental Management Plan.

Policy 47.8

The construction of Low Impact Development storm water discharge conveyances (e.g. spreader swales) and outfall structures (where possible and practical) for surface waters from the development's water quality treatment system to adjacent receiving bodies may be included within buffer/open space areas pursuant to Policy C-2.5.6 and must be included as part of the Environmental Management Plan.

Policy 47.9

The construction of improvements (e.g. sewer lines, force mains, water lines, electric, telephone and cable TV line) within road rights of way where wetland crossings occur must be specified as part of the Planned Development zoning and included as part of the Environmental Management Plan. The construction and maintenance of improvements through wetland crossings shall not impede wildlife and water movement through the wetland system. No overhead utilities may be constructed within 260 feet of any Class I water body (as defined by SWFWMD-FLUCFCS Code 5100 "Rivers and Streams" mapping of the riverbank.

Policy 47.10

Discharge of reclaimed water utilized in the development for irrigation purposes shall be encouraged and permitted pursuant to applicable Florida Department of Environmental Protection rules, Southwest Florida Water Management District rules, and the Regional Water Supply Authority policy.

Policy 47.11

If it is demonstrated that no Natural Plant Community exists within a portion of a buffer/open space area (e.g. the area is dominated by pasture grasses), then the developer may locate any required floodplain compensating storage areas (as defined

in the SWFWMD Basis of Review) wetland or upland mitigation (for plants or animals) within such portions of the buffer/open space in order to create a more diverse habitat mosaic. The placement of floodplain compensation areas shall be approved by SWFWMD during permit reviews to ensure that adjacent wetland hydroperiods are not adversely affected. If located within a wildlife corridor, any buffer encroachment permitted in this Policy will maintain an upland corridor, as set forth in the Implementation Section hereof, between delineated wetlands and encroachment to allow for wildlife movement.

Policy 47.12

Development of a project under this category shall locate additional corridors for animal movement within the developable portions of the project (e.g. by strategic location of landscaping, open space, recreation, signage and easements), in order to encourage cross-mobility of wildlife between the project and offsite corridors.

Policy 47.13

Development of a project under this category shall provide for an enhanced public awareness program through a homeowners association or a community development district to provide for the establishment of: (1) Best management practices by residents and landscape maintenance personnel within the proposed community when utilizing fertilizers, pesticides and herbicides, and pet animal defecation control in order to reduce runoff contamination; (2) The prohibition of Homeowner land alteration activities within buffers such as: clearing, filling, mowing, trimming, dumping any material, fertilizing, pesticide application, fencing and hunting; and (3) Homeowner water conservation measures. Development approvals shall include non-revocable deed restrictions and conservation easements by plat or other method of public recordation to regulate the prohibited activities within buffers. The deed restrictions and conservation easement shall be enforceable by the appropriate homeowner's association or other appropriate entity.

Policy 47.14

Residential builders shall be encouraged to (a) utilize green building-approved construction materials and (b) obtain certifications such as the Florida Green Development Standard.

Policy 47.15

Site development approval for the parcels designated PEC ½ on the future land use map and located in Township 27 South, Range 21 East, in all or portions of Sections 4, 5, 6, 7, 8 and 9 shall not exceed 110 residential units prior to July 1, 2012. Further transportation analysis for the maximum amount of development authorized by the comprehensive plan category shall be provided to Hillsborough County and FDOT prior to site development approval in excess of 110 residential units. This policy does not relieve any applicant from meeting concurrency requirements as specified in the Hillsborough County Land Development Code. Any transportation improvements shown to be needed to maintain the adopted level of service standards for impacted transportation facilities must be included within the five (5) year

Schedule of Capital Improvements Element as required by law prior to site development approval in excess of 110 residential units. Any amendment(s) to update the schedule within the Capital Improvements Element are subject to the statutory procedures governing adoption of such amendments.[xxiv]

Policy 47.16:

Development occurring within the PEC ½ land use category which achieves an enhanced density of 1 du/2 ga shall be authorized only by a Planned Development (PD) rezoning which includes an Environmental Management Plan demonstrating the criteria referenced below in Table 1.

TABLE 1
IMPLEMENTATION MATRIX OF PLANNED ENVIRONMENTAL COMMUNITY ½

	Wetland Protection		**Direct Project Stormwater Discharge**			**Wildlife Corridor**		
Types of Water Bodies	**Increased Wetland Setback from Wetland Edge[1]**	**Water Quality Must Meet**	**Treatment Must Include LID**	**Exceed SWFWMD Treatment Criteria**	**Wildlife Corridor Required**	**Total Width**	**Total Upland Width From Wetland Edge [1]**	**Wildlife Crossing Required**
1) Potable Water Supplies, Outstanding Florida Waters, and Aquatic Preserves	300%	Class I[2]	YES	Ch.62-40.432 F.A.C. by 10%	YES	>400 feet[3]	>200 feet	Required[4]
2) Named Rivers	250%	Class III[2]	YES	Ch.62-40.432 F.A.C. by 10%	YES	>400 feet[3]	>105 feet	Required[4]
3) Named Tributaries/ Creeks	100%	Class III[2]	YES	Ch.62-40.432 F.A.C. by 10%	YES	>300 feet[3]	>60 feet	Required[4]
4) Intermittent Sloughs[5]	100%	Class III[2]	YES	Ch.62-40.432 F.A.C. by 10%	YES	>130 feet[3]	>30 feet	Required[4]
5) Herbaceous Isolated Wetlands	66 2/3%	Class III[2]	YES	Ch.62-40.432 F.A.C. by 10%	No	n/a	n/a	n/a
6) Non Herbaceous Isolated Wetlands	10%	Class III[2]	YES	Ch.62-40.432 F.A.C. by 10%	No	n/a	n/a	n/a

1 Delineated Wetland Jurisdictional Line

2 62-302.530 F.A.C. State Surface Water Quality Classification: Class I = Potable Water Supply, Class III = Recreation, Propagation and Maintenance of a Healthy, Well Balanced Population of Fish and Wildlife

3 Within Wildlife Corridor, the width must provide a continuous corridor along a designated riverine system. The corridor may include: wetlands, existing undisturbed uplands, floodplain compensation, wetlands mitigation, uplands mitigation, and LID discharge features.

4 Crossings required for roadways.

5 A wildlife corridor is required when the intermittent slough connects otherwise preserved areas.

Policy 47.17:

The Developer shall prepare a Planned Development and Environmental Management Plan in accordance with Table 1, providing the following protections to the Regional Resource:

a. Preservation of the functional integrity of the Regional Resource.
b. Provision of increased buffering to the Regional Resource.
c. Provision for wildlife crossing(s) along wildlife corridors.
d. Continuation of wildlife corridors on private land.
e. Buffers shall lie on a line between the proposed development and the protected resource.
f. A continuous buffer, wildlife crossing, wildlife corridor, or other buffer will not preclude the construction or development of a road, trail, or utility crossing if the necessity of the road, trail, or utility crossing can be adequately demonstrated and provided appropriate precautions and mitigation for impacts to the corridor are applied.

Policy 47.18:

The Planned Development must provide for the designation of public access through easements, dedications, or conveyances to portions of a Regional Resource. This requirement will not mandate trail access to all portions of a Regional Resource located within or adjacent to the Planned Development. If public policy prohibits public entry, access shall be limited to viewing access. The Planned Development must designate and provide for the construction of a publicly accessible trail located within the project which provides for a potential connection to trail(s) located on adjacent lands. Additionally, an area for public parking will be provided contiguous to the public trail system to allow access to the trail and to serve as a gathering place for users of mass transit.

Policy 47.19:

The Planned Development shall exceed all current Land Development Code and Comprehensive Plan requirements but in no case may provide less than 40% of the gross site area for Open Space to include wetlands, wetland buffers, preserved uplands, and other passive recreation areas located within the property. In no instance shall Open Space, exclusive of delineated wetlands, be less than 15% of gross site area. Portions of the Open Space which are exclusive of delineated wetlands (i.e. the 15% threshold) may be utilized for floodplain compensation, or wetland or upland creation mitigation where no natural plant community exists. Furthermore, LID applications, littoral shelves and planted berms are the only portions of stormwater attenuation/treatment ponds which may be counted towards the Open Space requirement.

Policy 47.20:

Wetland buffers shall be identified within the Planned Development and included in the Environmental Management Plan in order to maintain the integrity of buffers. Wetland setbacks shall exceed the current regulatory criteria. Wetland buffers shall

be in accordance with Table 1. Wetland buffers shall be minimally increased above current requirements: adjacent to Potable Water Supplies, Outstanding Florida Waters, and Aquatic Preserves by 300%; adjacent to a Named River by 250%; adjacent to a Named Tributary/Creek by 100%; adjacent to Continuous Intermittent Sloughs by 100%; adjacent to any isolated Herbaceous wetlands as determined pursuant to 62-340.400, FAC, by 66 2/3%; and adjacent to all other Isolated wetlands by 10%. Furthermore, no building shall be constructed within 2000 feet of any Class I water body that is a drinking water supply (as defined by SWFWMD-FLUCFCS Code 5100 "Rivers and Streams" mapping of the riverbank) and there shall be no boat docks or ramps placed on abutting portions of a Potable Water Supply or a named river. No land alteration activities shall occur within buffers except as provided for in the PEC ½ Objectives and Policies and for approved activities which minimize impacts upon native wildlife habitat by requiring less disruptive, passive pursuits such as hiking, nature study, photography, picnicking, fishing and canoeing. In addition to required treatment standards, residential lot grading and land alteration activities adjacent to wetlands which are in excess of five (5) acres must minimize direct discharge of stormwater to the wetland by providing mechanisms such as: roof collection systems routed to the front of lots/adjacent street; together with either of the following: (1) Type A grading of lots (rear to front); or (2) By installation of rear yard swales.

Policy 47.21:

The construction plans for the Planned Development must provide enhanced storm water runoff quality treatment based on mutual agreement between the County and the Applicant and based upon reasonable scientific judgment that a selection of, but not limited to, the following Best Management Practices will achieve a target performance standard at least 10% greater than that of Ch. 62-40.432 F.A.C.: low impact development (L.I.D.) methods (e.g. spreader swale(s), overland sheetflow, rain garden (s), use of pervious pavement, and narrow roadways); enhancement (planting) of littoral shelves within each stormwater management system; enlargement of littoral shelves; additional volumetric detention-treatment by routing treated discharges through non-treatment manmade lakes; or increased residence time prior to discharge to any receiving wetland or natural surface water. LID shall be incorporated wherever possible unless it can be demonstrated these techniques are not reasonably feasible. Direct discharge of stormwater runoff from a project's water quality treatment system to riverine systems that are public drinking water supply sources shall comply with all applicable state and federal drinking water standards for Class I water bodies (F.A.C. 62-302.530). Septic tanks and potable water wells shall not be permitted as part of the Planned Development.

Policy 47.22:

The Planned Development shall provide for the continuation of any regionally significant wildlife corridor(s). Detailed wildlife corridor specifications shall be specified in the Environmental Management Plan, and as specified in Table 1, provided however, if FFWCC has determined that a wildlife species that requires area for mobility requires a greater width of wildlife corridor, said greater corridor width

shall be reasonably provided. In cases where activities allowed under other parts of this rule occur in a particular portion of a buffer, then the required buffer must minimally exceed current wetland setback requirements and must be maintained in uplands. A continuous buffer shall be placed between the development and a Potable Water Supply or Named River. Crossings of this buffer may not occur except for access, utilities or project roadways on a finding that no other reasonable alternative exists and that the enhancements to mitigate any adverse functional impacts are provided.

Policy 47.23:

The Planned Development's platted lots shall exceed the lawn restriction provisions of Section 6.06.03 D.8. of the Hillsborough County Land Development Code by a minimum of 20%. Remaining landscaping of the lot shall be with Florida friendly and native landscaping. No fencing, landscaping, irrigation, swimming pools or other lot owner improvements shall be allowed within buffers. These restrictions are required to be included as a non-revocable deed restriction and shall be placed under conservation easement by plat or by other recorded method said easement being enforced by the relevant homeowner's association or other appropriate entity.

Policy 47.24:

Development utilizing the PEC category must exceed the SWH LDC required minimum preservation by a minimum of 10%. Uplands that are proposed for protection within PEC buffers that are not classified as an LDC-defined natural plant community (e.g. improved pasture) must be restored in a manner which exceeds the County's standards for upland SWH restoration when project impacts to SWH occur. Upland acreage within proposed PEC wildlife corridors must equate to the LDC's requirement for upland SWH preservation as it relates to the overall boundaries of the land development application. These upland acres are to be comprised of natural plant communities and SWH restoration communities in a contiguous, non-fragmented manner. Actual wildlife corridor parameters will be considerate of the corridor widths prescribed by the SWH Guidelines of the LDC with a preference to augment them. Conservation easements within the corridors should be established over those areas defined as upland SWH and as SWH restoration uplands.

Wimauma Village Residential -2

Objective 48: In order to avoid a pattern of development that could contribute to urban sprawl, it is the intent of this category to designate Wimauma Village Residential-2 areas inside the boundaries of the Wimauma Village Plan, that are suited for agricultural development in the immediate horizon of the Plan, but may be suitable for the expansion of the Village as described in this Plan.

Location & Boundaries

The Wimauma Village Residential-2 Future Land Use category is located inside the boundaries of the Wimauma Village Plan and generally conforms to those properties previously classified as Residential Planned-2.

Residential Gross Density
Residential densities in the Wimauma Village Residential-2 (WVR-2) would not increase above what is currently allowed in the Plan. The WVR-2 Allows up to 2 dwelling units per gross acre provided that the development is clustered at a minimum of 3.5 dwelling units per net acre on at least 10 acres. Otherwise the gross residential density may not exceed 1 dwelling unit per 5 gross acres. Clustering is required to obtain the maximum gross density of 2 dwelling units per gross acre. When calculating clustering ratios of 3.5 dwelling units per net acre, all required yards, parking, rights-of-way, and roadways in addition to the dwelling units shall be included in the net acreage. Required storm water ponds, when not internally located to the housing site and when associated with larger reserved open space, may be excluded from the net acreage calculation. In no event shall contiguous open space constitute less than 40% of the gross site acreage.

Minimum Acreage
The minimum acreage is the total land acreage within the boundaries of the Wimauma Village Plan.

Floor Area Ratio
Employment and shopping opportunities are generally centered in the Wimauma Village Downtown where existing Future Land Uses determine FAR. A maximum .25 FAR is allowed in the segment of the Wimauma Village Residential-2 identified as "*Wimauma Village Light Industrial and Office District*" on the Future Land Use Map.

Typical Uses
Agriculture, residential uses, multi-purpose and clustered projects. To satisfy locational criteria requirements for non-residential uses, the required non-residential square footage shall be contained, to the greatest extent possible, in the Wimauma Village Downtown, the Wimauma Village Light-Industrial / Office District & the West End Commercial District.

Residential support uses are permissible uses in the Wimauma Village Residential-2 (WVR-2).

Commercial uses in the WVR-2 are not allowed with the exception of those uses permitted inside the *Wimauma Village Light Industrial and Office District* of the WVR-2.

The following uses are permitted in the *Wimauma Village Light Industrial and Office District* inside the WVR-2:

> Agricultural manufacturing, Agricultural packing house, Agricultural stands, Airport related activities, All Office & Professional Services Uses, Ambulance Services, Animal hospital/veterinary clinic – large & small, Assembly Plants
>
> Bicycle repair, Blueprinting, Body shops, Brewery, Building materials lot, Building supply centers and do-it-yourself centers, Bus terminal, Business school, Catering, Commercial school, Contractor's office without open storage

Electric/electronic repair large & small, Equipment rental & leasing – light, Equipment storage yards, Exterminator, Farm & garden supply centers, Farm & garden equipment sales and service, Farm equipment sales and service, Furniture refinishing, repair, upholstery & manufacture

Governmental offices, Heliport, Helistop, Hospital & medical centers, Industrial laundry, Kennels, Landscaping contractor nursery, Lawn care & landscaping, Life care treatment center, Lumber/building materials

Mail and package services, Mail order office, Mail order pickup facilities, Manufacturing, Mini warehouses, Mortuaries, Motor repair – small, Motor vehicle repair – major & minor, Office equipment sales

Packaging, Packing house, Parks with picnic areas, Plant farm, Printing services, Processing, Radio or TV broadcasting studios, Repair shops, Sales, rental & service of new or used domestic vehicles, farm & garden equipment & private pleasure crafts

Sign painting, Stables – public or private, Storage yards for equipment, machinery & supplies for building & trade contractors, Train terminal, Truck stop, Trucking & truck terminal, Vocational school, Wholesale distribution

Open Space

Open space (including parks, forestry, outdoor recreation, ELAPP, public uses, ponds, wetlands, corridors and agricultural open space) shall constitute an important component of the Village Residential. To avoid environmental isolation and fragmentation, the plan seeks contiguity and connection to other open space or conservation areas.

Employment and Service Requirements

The following assumptions will be used in determining compliance with the Wimauma Village Residential-2 employment and service requirements:

1. There are 2.7 persons per household
2. There are 1.5 job holders per household
3. One job is created for every 500 square feet of commercial development
4. One job is created for every 250 square feet of office development
5. One job is created for every 400 square feet of light industrial development
6. One job is created for every 400 square feet of government services (schools, parks, fire stations, etc.), and residential support uses (churches, day cares, nursing homes, etc.)
7. Neighborhood retail and community commercial demand is 10 square feet, respectively, per person
8. The Village shall provide 55% of the needed household jobs (households X 1.5 X .55 = needed jobs)

9. The Village shall have available 75% of the needed household services (households X 2.7 X 10 = desired level of available commercial space in square feet)

Employment Areas
To satisfy the employment requirements of the plan, the proposed commercial square footage shall be contained in the Wimauma Village Downtown. Other employment square-footage requirements shall be contained in the Wimauma Village Light Industrial and Office District & the West End Commercial District.

Shopping Areas
The required commercial square footage shall be contained in the Wimauma Village Downtown.

Sprawl Prevention
Clustering and contiguous open space provisions reduce sprawl.

Utilities
The development shall be on a central public water and sewer system. All capital costs associated with the provision of infrastructure, including, but not limited to, public water, wastewater, parks, and libraries shall be the responsibility of the developer and not the responsibility of Hillsborough County.

Approvals & Tracking
All approvals shall be through a planned unit development requiring, at a minimum, integrated site plans controlled through performance standards to achieve developments that are compatible with surrounding land use patterns. All rezonings inside the Wimauma Village Residential-2 (WVR-2), Future Land Use category shall be through a Planned Development district and shall comply with PART 5.03.00, Hillsborough County Land Development Code as amended. The WVR-2 employment and shopping requirements shall be tracked through each individual Planned Development district and as part of the County's Annual Planned Development Review.

Transfer of Development Rights (TDR)
Allow for the transfer of up to 2 dwelling units per gross acre densities between 2 separately owned or commonly held properties, whether or not they are contiguous to each other. The *designated sending area* shall be inside the limits of the Wimauma Village Residential-2 category. The *designated receiving areas* shall be inside the Wimauma Village Residential-2 category *or* inside the Urban Service Area portion of the Wimauma Village Plan. No property shall be left with less development rights than there are existing dwellings on said properties, or less than 1 dwelling unit development for any parcel which would otherwise be eligible for a dwelling unit. TDR tracking shall be via file-permanent deed restriction.

Policy 48.1:

The ability to obtain the maximum intensities and/or densities permitted in the Wimauma Village Residential-2 (WVR-2) land use category shall be dependent on the extent to which developments are planned to achieve on-site clustering. In order to achieve densities in excess of 1 du/5 ga in the WVR-2 category, developments shall achieve the minimum clustering ratios, job opportunity provisions, and shopping provisions, required by this Plan except as noted in the Zoning Exception found in the Implementation Section of the FLUE.

Policy 48.2:

Clustering and Mixed Use shall be required in the Wimauma Village Residential-2 plan category for projects of 10 acres or more in order to prevent urban sprawl, provide for the efficient provision of infrastructure, and preservation of open space and the environment.

Policy 48.3:

Parcels within the Wimauma Village Residential-2 land use category shall not be split into smaller parcels to avoid clustering requirements applicable to larger parcels, except as noted in the Zoning Exception found in the Implementation Section of the FLUE.

Policy 48.4:

Developments within the Wimauma Village Residential-2 land use plan category that request approval under the Wimauma Village Plan concept shall be served by a central wastewater system. (i.e. franchise, interim plant, community plant, county/municipal regional or sub-regional service, or other privately owned central systems).

Note: See Community and Special Area Studies, VI. LAND USE PLAN CATEGORIES and Definitions of the Future Land Use Element related to Wimauma Village Plan and Wimauma Village Residential-2 plan category.

Adoption/Child Caring Community

Objective 49: Areas of rural character are best suited for Adoption/Child Caring Communities in that: (i) they provide a needed respite from the challenges and influences of an urban setting by lessening the stress that children are otherwise subjected to in an urban setting; (ii) rural settings provide for and accommodate the exploration of natural outdoor habitats which positively contributes to the healing process and a child's mental well-being; (iii) rural settings provide a sense of freedom, albeit within the normal structure of a family, and an opportunity to create the sense of a safe family structure; (iv) rural settings provide the opportunity to enjoy and interact with nature.

Policy 49.1:

As such, Adoption/Child Caring Communities shall be a permitted use under this category, subject to the following conditions and limitations:

1. The project encompasses a minimum of 50 and a maximum of 200 gross acres; and
2. The project shall not exceed a density of 1 dwelling unit per gross acre and 75,000 square feet or .05 FAR (whichever is less intense) of ancillary non-residential support uses (such as offices, places of worship, adoption centers, reception halls and/or multi-purpose buildings); and
3. Residential uses are clustered and located at least one hundred fifty (150) feet from the property boundary, and the project shall maintain at least fifty percent (50%) open space; and
4. An onsite wastewater treatment and disposal system (which may include a performance-based treatment system and/or aerobic treatment system) shall be utilized, subject to and in accordance with the provisions of F.S. 381.0065; and
5. The site may not be located within an environmentally sensitive and/or wellhead protection areas. Environmentally sensitive areas are identified on the Comprehensive Plan's adopted Future Land Use Map as hatched areas designated as "Significant Wildlife Habitat" or "Wetlands" and well head protection areas are identified on the adopted Conservation and Aquifer Recharge Element "Wellhead Resource Protection Areas Map; " and
6. The proposed community can only be located in areas where there is adequate school capacity to serve the community; and
7. The site must be located within ½ mile of a road identified on the MPO's Long Range Transportation Plan (2025 Highway Cost Affordable Map, Long Range Transportation Plan); and
8. The project is developed in accordance with an approved Planned Development (PD) rezoning; and
9. No subdivision of land is involved.

Policy 49.2:

For purposes hereof, an Adoption/Child Caring Community shall be defined as a social services based planned community development that provides:

- housing for adoptive families;
- housing for families serving abused and neglected children;
- housing for individuals and/or families serving children with various professionally recognized types of special needs;
- housing for senior volunteer support staff;
- other residential structures for the use of permanent and/or temporary housing for support staff; and
- other nonresidential buildings for the provision of support services.

Objective 50: RESERVED

Objective 51: RESERVED

Objective 52: RESERVED

Objective 53: RESERVED

Fixed Guideway Transit

The development of a fixed-guideway mass transit system for the Tampa Bay region has been under consideration for several years. A Future Transit Envelope is visually depicted on the Future Transit Envelope Map adopted as part of the Future Land Use Map Series, and generally encompasses the area within which the following studies and planning projects have occurred. In 2002, the Hillsborough Area Regional Transit (HART) Authority completed a multi-year effort to examine the feasibility of a light rail system in Hillsborough County using CSXT rail lines and new track in other areas. A previous major investment study, "The Mobility Study," identified a rail system that one day could connect Pinellas, Pasco, Hillsborough, and Polk counties via CSXT lines. The HART Rail Study (Environmental Impact Study, Tampa Rail Project, 2002) refined the plans for the first phase of this system, examining lines in the most densely populated parts of Hillsborough. The first lines would link Downtown Tampa to the USF area and to the Westshore Business Area. The technical and planning information in the HART Rail Study has been integrated into current planning efforts.

In 2006, the Hillsborough County MPO commenced an MPO Transit Study to examine the county's transit needs and choices to the year 2050. The MPO Transit Study responded to community values centered on sustainable growth, neighborhood preservation and economic vitality. A preferred transit concept for 2050 emerged from the study's recommendations demonstrating how transit investments can influence countywide growth patterns, creating a more efficient use of land that in turn makes walking and transit more viable and desirable as real transportation options. The Study was approved by the MPO in December 2007.

These past efforts have been incorporated into the Hillsborough MPO 2035 Long Range Transportation Plan (LRTP), which serves as the primary transit and transportation plan for all of Hillsborough County. The adopted MPO Long Range Transportation 2035 Transit Needs Assessment map depicts the long range fixed guideway transit needs for Hillsborough County. In the preceding years leading up to any actual system construction, there is a heightened need for coordination between local land use and transportation planning efforts to establish supportive policies to assist in the ultimately selected system’s implementation. Three major planning strategies, including establishment of a Transit Oriented Development Overlay, Station Area Plan criteria, and Area-Wide rezonings should be undertaken to implement transit supportive policies and support increased ridership and redevelopment along proposed transit corridors and station areas.

As the development of a fixed-guideway transit system proceeds, it will be important to address land use policies within potential corridors to ensure that the appropriate land use framework is in place to encourage successful station area development. The Future Transit Envelope establishes the general boundary in which a fixed-guideway transit system may be considered, as well as creating a mechanism that sets forth a framework for the establishment of a Transit Oriented Development Overlay (TOD Overlay). The TOD Overlay will be in effect once the station area locations are determined in accordance with Objective 54-57 and associated policies below. When investment plans are established and station sites are known, appropriate zoning changes will need to take place to allow transit supportive infill development and redevelopment to occur and to be consistent with the and implement the TOD overlay.

The Goals, Objectives, and Policies within this section accomplish the following:

1. Create the Transit Oriented Development Overlay, linked to the Future Transit Envelope Map adopted as part of the Future Land Use Map Series);
2. Establish the process for the application of the Transit Oriented Development Overlay, which is intended to increase opportunities for development within the TOD Overlay area.
3. Establish a consistent methodology, utilizing form-based and transit-based development initiatives to assist in the development of priority Station Area Plans, for the purpose of developing transit-oriented development regulations.

The Goals, Objectives, and Policies within this section serve as the planning framework to guide the processes that will occur once station locations have been determined. The general steps of this process are listed below, in chronological order (an illustrative flow chart of the overall process is included below as Figure 1):

1. Designation of the area of influence for the Transit Oriented Development Overlay (TOD Overlay) at the time that a station location is determined by the transit agency (e.g. 0.5 mile radius from approved fixed-guideway station locations).
2. Set thresholds and allow by Transit Station Area Typologies (Table TOD-2), as an overlay to the Future Land Use Designations, the densities, intensities, range of uses, and land use characteristics that may be achieved and are necessary for successful Transit Oriented Development.
3. Determination, approval and adoption of specific Station Area Plan Boundaries and typologies for each station. This will be a modified version of the initially designated Area of Influence and will become the fixed boundaries of the TOD overlay.
4. Implementation of these plans will include county-initiated area-wide rezonings.

As a general overview, there are seven basic station types, High Intensity Urban Node, Mixed Use Regional Node, Community Center, Neighborhood, Park and Ride, Employment Center, and Special; characteristics of each are documented below in Table TOD-2. Three of these station types (Mixed Use Regional, Community Center, and

Neighborhood) include urban and suburban characteristics, which will be utilized depending on where the station is located within the County.

The first step, designation of the Area of Influence for the Transit Oriented Development Overlay, occurs when the fixed guideway transit station location is determined by the applicable transit agency. The initial designation includes all areas within a 0.5 mile radius of the station platform, which is called the Area of Influence. This area is to be studied and enables interim zoning options for those properties within the area of influence in accordance with e process described in the second step.

The second step, linking the density, intensity, and range of use thresholds necessary for successful Transit Oriented Development (set forth in Table TOD-2), occurs with the adoption of the Transit Oriented Development Overlay, Objective 54-57 and associated policies. Those densities, intensities, and range of uses described in Table TOD-2 will be applicable within the Area of Influence. In order to achieve additional development potential ("TOD bonus"), parcels within the TOD Overlay must provide transit-oriented amenities in accordance with Table TOD-4. In order to be granted the "TOD bonus," the TOD Overlay requires that a property be rezoned to a TOD zoning designation or to a Planned Development which embodies the TOD design principles in the interim. This TOD bonus provision will ensure that new development provides transit-oriented amenities that enhance the quality of life in order to achieve the desired density and intensity needed for successful Transit Oriented Development. Transit-oriented amenities can include, but are not limited to improvements to pedestrian/bicycle facilities and connections, improvements or design amenities that would decrease automobile use and parking demands, provision of a mixture of uses within a unified development, and increased accessibility to transit for persons with disabilities.

The third step, determination and approval by the Board of County Commissioners of specific Station Area Plan Boundaries for each station, occurs prior to end of the Preliminary Engineering Phase (see Figure 1). This process will be led by agencies and organizations as documented in an executed interlocal agreement, and take into account specific station contexts to determine appropriate Station Area Planning boundaries. The Station Area Plan Boundaries will become the fixed boundaries of the TOD Overlay, and will fall within the Future Transit Envelope. The County shall establish a consistent methodology, utilizing form-based and transit-based development initiatives to assist in the development of priority Station Area Plans, for the purpose of developing transit-oriented development regulations.

The following Goals, Objectives, and Policies allow for the flexibility and creativity needed to lead to successful Transit Oriented Development in and around future fixed-guideway transit stations. They represent the initial framework for realizing the transformative potential of the development of transit system.

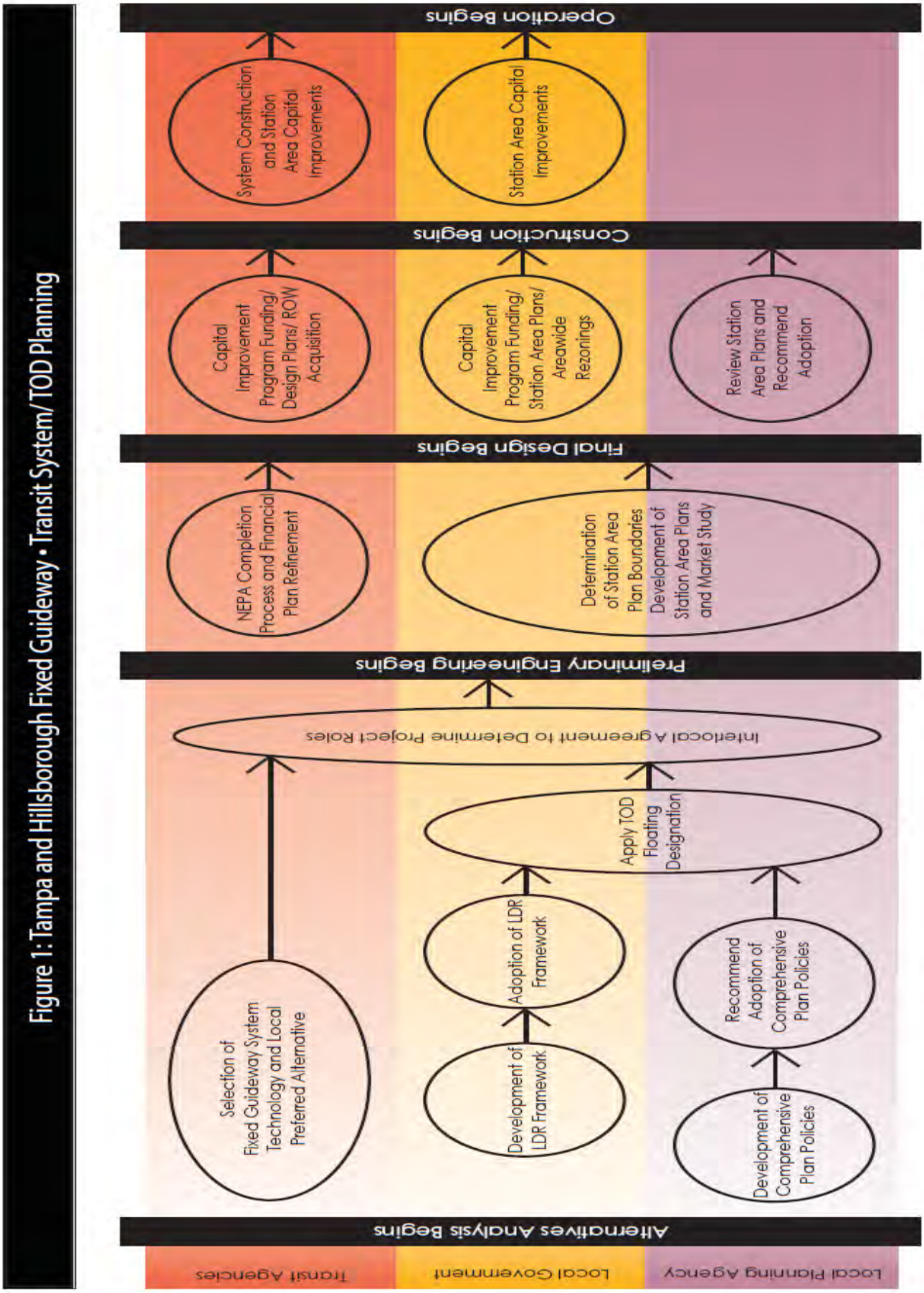

Figure 1: Tampa and Hillsborough Fixed Guideway • Transit System/ TOD Planning
Transit Agencies
Local Government
Local Planning Agency
Alternatives Analysis Begins
Selection of Fixed Guideway System Technology and Local Preferred Alternative
Development of LDR Framework
Adoption of LDR Framework
Development of Comprehensive Plan Policies
Recommend Adoption of Comprehensive Plan Policies
Apply TOD Floating Designation
Interlocal Agreement to Determine Project Roles
Preliminary Engineering Begins
NEPA Completion Process and Financial Plan Refinement
Determination of Station Area Plan Boundaries Development of Station Area Plans and Market Study
Final Design Begins
Capital Improvement Program Funding/ Design Plans/ ROW Acquisition
Capital Improvement Program Funding/ Station Area Plans/ Areawide Rezonings
Review Station Area Plans and Recommend Adoption
Construction Begins
System Construction and Station Area Capital Improvements
Station Area Capital Improvements
Operation Begins

Table TOD-2: Tampa and Hillsborough Fixed Guideway • Transit Station Area Typologies

Station Type[1]			Maximum Density Range [2]	Maximum FAR Range [3]	Applicable City Planning Dist.&Form[4]/ Location[5]	Range of Building Height	Range of Desired Land Uses [6]	Range of Allowable Housing Forms	Transit System Function
High Intensity Urban Station			CBD: Guided by FAR	CBD: Any FAR is acceptable if market feasible	Business Center (CBD)[4]	FAA Height Limits	Office (general/medical/R&D), Residential, Entertainment, Public/ Semi-Public	High-rise and mid-rise apartments and condos	Intermodal facility/transit hub. Major regional inter-regional destination with high quality local transit feeder connections.
Mixed Use Regional Stations	Urban		75-200 du/ac	2.5-7.5	Westshore Planning District[4]	FAA Height Limits	Office (general/medical/R&D), Retail, Residential, Entertainment, Public/ Semi-Public	High-rise and mid-rise apartments and condos	Regional Destination. Linked with high quality local transit feeder connections.
	Suburban		40-60 du/ac	1.5-3.5	Business Center (USF)[4] / University Area[5]	3-12 stories	Office (general/medical/R&D), Retail, Entertainment, Educational, Institutional, Medical, Residential	Mid-rise apartments, condos, and apartment complexes	Regional Destination. Will be served by Park-n-Ride facilities and local high quality transit feeder connections.
Community Center Stations	Urban		40-60 du/ac	1.5-3.0	Urban Village, Mixed-Use Corridor Village[4]	2-8 stories	Office (general/medical), Retail, Residential, Entertainment, Public/ Semi-Public	Low to mid-rise- apartments, condos, and townhomes	Walk Up Station with potential for localized parking and will utilize local transit connections.
	Suburban		15-40 du/ac	1.0-2.5	North Airport Area[5]	2-8 stories	Office (general/medical), Retail, Residential, Entertainment, Public/ Semi-Public	Low to mid-rise- apartments, condos, and townhomes	Walk Up Station with strong potential for Park-n-Ride and will require local transit connections.
Neighborhood Stations	Urban		20-30 du/ac	1.0-2.5	Mixed Use Corridor Village, Traditional Neighborhood[4]	2-5 stories	Office (general/medical), Retail, Residential, Public/Semi-Public	Low to mid-rise- apartments, condos, townhomes, and attached dwellings	Local transit feeder system with walk-up stops with limited or no parking.
	Suburban		10-20 du/ac	0.5-1.5	Bruce B. Downs Area[5]	2-3 stories	Office (general/medical), Retail, Residential, Public/Semi-Public	Low rise, townhomes, attached and small lot detached residential	Local transit feeder system. Walk-up stops with parking.
Employment Center Stations			N/A	0.6-3.0	University Planning District (Business Center - USF)[4]	3-12 Stories	Office (general/medical/R&D), flex space, support retail, restaurant, lodging, Public/ Semi-Public	N/A	Regional Destination. Linked with high quality local transit feeder connections.
Special Stations [7]			N/A	1.0-2.5	Tampa International Airport, Business Center - Westshore[4]	FAA Height Limits	Airport, airport related uses and support services	N/A	Regional Destination. Linked with high quality local transit feeder connections.
Park and Ride Stations			N/A	Average: 0.5	Mixed Use Corridor Village[4]	N/A	Office (general/medical/R&D)/ Retail	N/A	Capture station for in-bound commuters. Large Park-N-Ride with Local and Express bus connections.

[1]Station Types are listed in a general hierarchy of intensity with associated, typical station characteristics. [2]Maximum Density refers to the number of dwelling units per developable acre. [3]Maximum FAR refers to the Floor Area Ratio per developable acre. [4]City Form components are defined in Chapter 3 as part of the "Growth Management Solution" in the City of Tampa Comprehensive Plan. Refer to Map 1. Vision Map in Chapter 2 for representation of Overlay and City Form locations. [5]Station Types are listed by corresponding locations on the Future Transit Envelope Map adopted as part of the Future Land Use Map Series for Unincorporated Hillsborough County. The station typology listed for that area is the highest, most intense station type that could be permitted in that area. Lower less intense station types can be considered. [6]Range of allowable uses shall be guided by the underlying land use category. Residential uses shall not be permitted in areas designated Light Industrial, Heavy Industrial or in the SPI-AP zoning districts. [7]Airport-related location. Photo Reference (from top to bottom): Tampa, FL: CBD; Denver, CO; Tampa: University of South Florida; Portland, OR; Arlington, VA; Portland, OR; Hillsborough County: West Park Village; Tampa, FL: Met West Development; Tampa, FL: Tampa International Airport; Tampa, FL: USF.

Table TOD-3: Tampa and Hillsborough Fixed Guideway • Components of Station Area

Land Use	Design	Policy	Implementation Strategies
• Station Area Typology and Redevelopment Vision • Surrounding Development Pattern and Community Character • Location Based Station Area Market Analysis and Assessment for Near and Intermediate Development Projections • Mixed Use Development (Vertical) and Mix of Uses • Density/Intensity Minimums (where appropriate) and maximums • Identified Growth and Redevelopment Areas	• Building Form, Massing, Setbacks, and Site Design • Alternative Development Standards (Vehicular/ Bicycle Parking, Stormwater, etc.) • Public Realm, Streetscape, and Open Space • Transitions to/ Compatibility with Surrounding Development Patterns • LEED or Other Sustainable Design Principles • Bicycle and Pedestrian Facilities • Building Heights • Roadway Typical Sections • Public Parking	• Station Development Evolution – Requirements, Triggers, and Thresholds • Incremental Parking Reduction Policies • Workforce and Affordable Housing • Land Use Flexibility • Housing Mix	• Capital Improvement Funding - Public Investment • Anchor Tenant Identification • Public/Private Partnerships • Joint/Shared Facilities • Property Aggregation • Regulatory Changes (e.g. Form Based Code, Overlays, etc.) • Development Incentives • Location-Specific Market Studies

Table TOD-4: Tampa and Hillsborough Fixed Guideway • Transit Station Area Design Principles

Land Use Principles

Enhance transit ridership by concentrating supportive uses and increased density and intensity developments within 0.5-mile walking distance of stations

Supportive Land Use

- Encourage mixed-use projects by permitting FAR-based entitlement.
- Require market analysis for each Station Area Plan location to identify the potential mix, mass and mesh of proposed land uses.
- Encourage, through incentives, a variety of housing types and price points, including attainable and workforce housing.
- Preserve and protect existing stable and historic neighborhoods through land use transitions. These are especially important between 0.25-mile and 0.5-mile from stations.



Supportive Density & Intensity

- Require higher density/ intensity projects within a 0.25-mile walk from stations, with reduced densities/intensities adjacent to existing, stable and historic neighborhoods.
- Require minimum net densities for new residential projects within 0.5-mile walk from a station exceeding 20 units per acre for urban stations, and 10 units or greater for suburban stations, as identified by the appropriate Transit Station Area Typologies.
- Require minimum non-residential net intensities within 0.25 mile walk from a station. These minimums shall exceed 1.0 FAR for urban stations and 0.5 for suburban stations as identified by the appropriate Transit Station Area Typology.



Connectivity Principles

Enhance the existing transportation network by increasing walking, bicycle and transit connections within 0.5-mile walking distance of stations.

Pedestrian and Bicycle System

- Establish direct and visible public connections for pedestrian and bicycle connections between stations and neighborhoods.
- Provide linked on-site pedestrian circulation systems that are lighted to a level where employees, residents, and customers can safely use the system at night.
- Require public bicycle parking within 0.25-miles of stations and encourage the development of bicycle lanes on arterial and collector roadways within station area.
- Ensure compatibility with the Greenways and Trails Master Plans, where applicable



Street Network

- Redesign public streets surrounding the station areas for increased multi-modal use, emphasizing pedestrian and bicycle circulation, and traffic calming.
- Redesign street intersections for enhanced pedestrian and bicycle crosswalk protection.
- Size the pedestrian network for the anticipated level of service needed.





Parking Accomodation

- Reduce the on-site minimum parking requirements in station areas where appropriate. Consider the use of parking maximums for private parking and other solutions including public parking and parking districts.
- Develop private area wide parking strategies to minimize large surface parking lots for private development, and encourage off-site and shared parking facilities.
- Develop and implement public parking strategies and funding mechanisms including creating on-street parking for short-term business district and structured parking for incentivized development attraction.



Community Design Principles

Use urban design to enhance the community identity within 0.5-mile walking distance of station areas and to make them attractive to residents and businesses.

Building & Site Design

- Seek architectural excellence in new buildings including design treatments that add to the urban character, advance the Station Area Plan tenets, encourage sustainability, and include public realm elements needed for the neighborhood's livability.
- Include policies to ensure consistency with the scale and architectural style of local historic districts, if applicable.
- Design active ground floor retail and office buildings fronting public streets to increase pedestrian activity along primary pedestrian connections to stations. Design parking structures to include ground floor active uses.
- Provide for pedestrian weather protection and visual interest in building design by providing awnings, arcades, and/or recessed entrances.
- Plan for the tallest and most intensely developed structures located within 0.25-mile walking distance from the station. Transition to lower building heights from 0.25 to 0.5-miles walking distance from the station for neighborhood context.
- Where feasible, locate surface parking lots behind new buildings. Entrances to surface parking lots or garages should be placed on side streets, minimizing conflicts on preferred pedestrian routes, especially those offering direct connections to station stops. Driveways shall be designed to minimize adverse impacts to single family detached neighborhoods.

Public Realm Design

- Design the public streets using Complete Streets principles to encourage pedestrian activity and provide protection from adjacent vehicular movements.
- Require streetscape elements such as street trees, pedestrian-scale ighting,wayfinding signage and seating.
- Where appropriate, place new development utilities underground.



Public Open Space

- Identify, fund, construct and maintain urban public open spaces around stations as centers of activity.
- Incentivize private development of additional public urban public open spaces on all lots greater than 20,000 square feet through development density credit.
- Orient surrounding buildings onto the public open spaces to increase visibility and safety.
- Include seating, plantings, public art, other amenities and/or programming of activities.





UNINCORPORATED HILLSBOROUGH COUNTY
TRANSIT ENVELOPE MAP
LEGEND
Future Transit Envelope
Transit Envelope Area
Brice Bl Downs
North Airport
University
Major Roads
Road Network
County Boundary
Jurisdiction Boundary
Water
LOCATION MAP
OBJECTS
REFERENCE INFORMATION
THE PLANNING COMMISSION
For more information about our organization visit website: www.theplanningcommission.org

Objective 54: To plan for a fixed guideway transit system that connects activity centers within Hillsborough County and the Tampa Bay region.

Policy 54.1:
The County shall encourage the use of mass transit in order to decrease the dependency upon the automobile for work and non-work trips.

Policy 54.2:
Prior to the commencement of Station Area analysis for transit oriented development, an interlocal agreement will be executed defining specific roles and responsibilities for each of the responsible agencies (including but not limited to HART, TBARTA, FDOT, Metropolitan Planning Organization, Local Planning Agency, and Hillsborough County) and jurisdictions involved in the planning, design, and construction of the fixed-guideway transit system and its station areas. Once executed, a copy of this agreement will be maintained on file at each of the local agencies participating in this agreement so that it can be readily be read in conjunction with the agency's role in the process.

Policy 54.3:
The County shall coordinate with the Local Planning Agency (LPA), transit agency and the Metropolitan Planning Organization to designate the appropriate station typologies pursuant to Table TOD-2 for specific station locations, considering the unique context of each station area within the entire transit corridor and the regional system.

Objective 55: Establish a Future Transit Envelope and Transit Oriented Development Overlay to guide development of a fixed guideway transit system and station areas.

Policy 55.1: The TOD Overlay applies only to land that meets the following criteria:

- Within the Urban Service Area:
- Within the Future Transit Envelop as depicted on the Transit Envelope Map adopted as part of the Future Land Use Map Series:
- Located within ½ mile of a fixed guideway transit station, known as the Area of Influence.

Policy 55.2: The allowable densities/intensities and ranges of allowable uses for the TOD Overlay are identified in Table TOD-2 Tampa and Hillsborough Fixed Guideway Transit Station Area Typologies, which is adopted as part of this section.

Policy 55.3:
The County shall adopt TOD Zoning Designations, consistent with Table TOD-2, which will be utilized on lands that are designated under the TOD Overlay.

Policy 55.4

Property owners within the Area of Influence may choose one of the following options:

- Develop consistent with the existing zoning designation on site
- Rezone the site utilizing an appropriate and applicable TOD zoning designation, or prior to the adoption of TOD zoning designations, to a Planned Development requiring the development to embody the TOD design principles outlined in this section

Policy 55.5:

Transit Station Area Typologies (Table TOD-2) shall be used as an overlay to the Land Use Plan Categories (Appendix A), by defining the densities, intensities, and allowable range of uses that may be achieved, thereby creating the desired land use characteristics needed for successful Transit Oriented Development.

Policy 55.6:

In order to achieve additional development potential ("TOD bonus"), parcels within the TOD Overlay must provide transit-oriented amenities in accordance with Table TOD-4. This TOD bonus provision will ensure that new development provides transit-oriented amenities that enhance the quality of life in order to achieve the desired density and intensity needed for successful Transit Oriented Development. Transit-oriented amenities can include, but are not limited to improvements to pedestrian/bicycle facilities and connections, improvements or design amenities that would decrease automobile use and parking demands, provision of a mixture of uses within a unified development, and increased accessibility to transit for persons with disabilities.

Objective 56: Efficiently plan for new development around transit stations by establishing a consistent methodology, utilizing form-based and transit-based development initiatives to assist in the development of priority Station Area Plans, for the purpose of developing transit-oriented development regulations.

Policy 56.1:

Following the establishment of the initial Area of Influence at a determined station location, a specific Station Area Plan Boundary for each station will be defined by the responsible entities as described in an executed interlocal agreement. The Station Area Plan Boundary, will generally include all areas within a 0.5-mile walking distance from the transit station. In determining the specific Station Area Plan Boundaries, physical, environmental, and community features, property boundaries, and borders shall be considered, thereby allowing the appropriate expansion or contraction of the Boundary.

Policy 56.2:
Station Area Plan boundaries are subject to approval by the Board of County Commissioners. The approved Station Area Plan Boundaries will become the fixed boundaries of the TOD Overlay and will fall within the Future Transit Envelope. Any TOD-related zoning change that was approved prior to the adoption of a specific Station Area Plan Boundary shall be included within that Boundary.

Policy 56.3: RESERVED

Policy 56.4:
The County shall establish a consistent methodology, utilizing form-based and transit-based development initiatives to assist in the development of priority Station Area Plans, for the purpose of developing transit-oriented development regulations. Station typology definitions included in Table TOD-2 and a location-specific market analysis study should provide guidance for the Station Area Plan.

Policy 56.5:
Pursuant to the interlocal agreement (Policy 54.2), Station Area Plans will be created, consistent with the station typologies in Table 2. These plans can either be publicly or privately funded, but their completion must be overseen by a public agency. These plans will, at a minimum, consider those components identified in Table TOD-3 and inform zoning decisions based on this table, to the extent feasible in each unique station area. Table TOD-3 is adopted as part of this section.

Policy 56.6
The Station Area Plan and associated transit oriented development land development code regulations shall be:

- consistent with the Comprehensive Plan.
- will recognize the community character of stable and historic neighborhoods where increased densities and intensities may be deemed inappropriate.
- Will recognize and maintain maximum allowable building heights and limitations on residential development within the Special Public Interest-Airport zoning categories.

Policy 56.7:
In addition to those Components of Station Areas documented in Table TOD-3, the Transit Station Area Design Principles in Table TOD-4, which is adopted as part of this section, should also be utilized as a guide in evaluating station areas for appropriate transit oriented development.

Policy 56.8:

A public involvement program, that includes community stakeholders, public agencies, and private developers, shall be part of the Station Area Planning Process. This process shall include community design and public workshops. Responsibility for public notice procedures shall be clearly spelled out in the adopted interlocal agreement and available for review as part of this document as described in Policy 54.2.

Policy 56.10:

Following the completion of a Station Area Plan and during construction of the fixed guideway system, a County-initiated rezoning for parcels within station areas that are part of the fixed guideway transit alignment to transit supportive zoning categories (to be defined in the Land Development Code), will be completed. These actions will be consistent with the Comprehensive Plan.

Policy 56.11:

Based on the station type and compatibility (as defined in Policy 1.4) with the surrounding development pattern, transit stations and the area within 0.5-mile from the station may be designated as a Community Activity Center and be eligible for all of the benefits and incentives of the Activity Center designations.

Objective 57: Utilize Transit Station Area Design Principles in Table TOD-4, and the subsequent policies listed below, to guide the development of Station Area Plans.

Policy 57.1:

The county and transit agency shall utilize the applicable adopted Community Plans in determining the appropriate station typology for a specific station. Community plans do not preclude change from occurring in station areas - opportunities for development and redevelopment need to be evaluated within station areas. The updates of adopted community plans should incorporate long range transit plans into the community's vision, goals and strategy.

Should a Station Area Plan, as developed with community participation in accordance with Policy 56.8, propose densities, intensities or uses that are inconsistent with an adopted Community Plan, the Community Plan should be updated or amended prior to the adoption of the station area plan and any subsequent rezoning. If the Community Plan is not updated or amended accordingly, the Station Area Plan should be modified to comply with the Community Plan.

Policy 57.2

Where the Transit Oriented Development Floating Designation covers areas that are designated with an industrial future land use categories, the existing categories' prohibition to allowing residential development will remain in place. Increased intensity of non-residential uses may occur consistent with the Station Area Plan.

Energy Industrial Park

Provide for an Energy Industrial Park category to meet existing and future economic needs for renewable alternative energy, resource recovery and energy research needs in an environmentally responsible and economical manner in the County. An Energy Industrial Park will combine non-nuclear and other clean alternative energy generating technology, alternative energy research, educational/institutional facilities, manufacturing, distribution and ancillary service uses in one location to serve Hillsborough County residents and further the alternative energy technology knowledge base available. Industrial, warehousing, research, manufacturing, and distribution uses that find it advantageous to be located within the EIP are also permitted.

Location

Objective 58: Hillsborough County shall provide for an Energy Industrial Park (EIP) Future Land Use Category (which includes alternative energy, resource recovery, industrial, processing, manufacturing, warehousing, distribution, educational/institutional, research, ancillary Retail/Commercial and Office uses, and utility uses) that is located within an area that promotes sustainable development and that is within close proximity to areas that will support the agricultural product needs of renewable energy production facilities within the development.

Policy: 58.1

The Energy Industrial Park will be located in an area meeting the following criteria:

- Within the Energy Industrial Park Urban Service Area (EIP-USA), which is adjacent to an existing Urban Service Area (refer to Policy 59.12); or within the existing Urban Service Area as it exists on August 5, 2010.
- Furthers sustainability goals by avoiding development of inappropriate sites, channels development to areas with existing infrastructure, and provides for redevelopment of damaged sites (such as formerly mined areas)
- Adjacent to and with direct access to a major arterial road
- Within one mile of electrical transmission grid lines.
- Within an area in which public utilities including potable water, sewer, and reclaimed water can be made available for connection to service the needs of the site

Policy 58.2:

Placement of future Energy Industrial Parks shall be encouraged in areas adjacent to rail to serve the types of uses found in such a facility.

Development Standards

Objective 59: The Energy Industrial Park (EIP) shall require set minimum development standards to ensure a sustainable project within the community.

Policy 59.1

The EIP shall consist, at a minimum, of a mix of renewable alternative energy production and renewable alternative energy, resource recovery, and research type facilities with educational and employment uses to create a sustainable, viable economic base. The EIP can also include industrial, agricultural, warehouse, distribution, processing, commercial, institutional, and utility uses and ancillary Retail/Commercial and Office. The intent of the category, however, is an emphasis on renewable energy producing facilities and as such, the category requires such facilities be constructed first. More specifically, the EIP shall meet the following minimums and maximums:

1. Minimum of 40 percent of the gross land area within the EIP shall be specifically for alternative energy production, resource recovery facilities, agricultural, processing, research facilities supporting such uses or the manufacture and/or distribution of such technologies (Collectively the Energy Uses). The Park will include facilities that generate energy from at least two renewable (i.e.: sustainable) energy technologies which may include Biomass-to-energy, Wind, Solar, or Aquaculture and Municipal Solid Waste to Energy. Because this field is ever changing, other renewable alternative energy technologies shall also be permitted as they are deemed feasible and become available.
2. Renewable alternative energy production or research includes but is not limited to the following uses: agriculture, aquaculture, solar technology, windmills or similar machines designed for the capture of wind power, renewable energy research facilities and supporting structures and facilities such as greenhouses, silos, barns, warehouses, classrooms, research laboratories, etc.
3. Industrial, Research, Manufacturing, Institutional, Warehousing, and Distribution facilities that find it advantageous to locate next to renewable energy production and or renewable energy research type facilities shall also be permitted. Such uses shall not exceed 30 percent of overall net land area. Overall net acreage includes all contiguous portions of land owned or controlled by the same entity within the EIP designation, calculated by excluding right-of-way, wetlands, stormwater management areas, and environmental preservation areas dedicated to the public. The Planned Development (PD) zoning shall outline the

phasing of the project in order to insure that at least two of the Renewable Energy Producing Facilities, as defined in the PD conditions, are constructed and are ready to operate in accordance with Hillsborough County Building Department permits before a Certificate of Occupancy can be issued for any non-renewable energy oriented Industrial, Research, Manufacturing, Institutional, Warehousing, and Distribution use.

4. Retail/Commercial and Office uses shall be ancillary to Energy Uses, or to Industrial, Research, Manufacturing, Institutional, Warehousing and Distribution uses and shall not exceed 10 percent of the gross land area. The Planned Development (PD) zoning shall outline the phasing of the project in order to insure that at least two of the Renewable Energy Producing Facilities, as defined in the PD conditions, are constructed and are ready to operate in accordance with Hillsborough County Building Department permits before a Certificate of Occupancy can be issued for any Retail/Commercial use.
5. Retail/Commercial uses shall be located in clusters near or at the entries to the project or within the project rather than in a strip commercial development arrangement.

Policy: 59.2

To promote the development and maintenance of agriculture to strengthen the agricultural economy, agricultural and aquaculture uses shall be encouraged in and around the Energy Industrial Park.

Policy: 59.3

Development within any EIP shall conform to the following criteria:

1. Development within the Energy Industrial Park should strive to meet the standards set forth for Leadership in Energy and Environmental Design (LEED) certification (or an equivalent standard).
2. Buffering is required where the effects of lighting, noise, odors, and other such factors would adversely affect adjacent land uses. Where adjacent to single family residential uses or zoning, a minimum buffer greater than that required by the Land Development Code shall be provided. The width and type shall be determined within the applicable Planned Development (PD) zoning.
3. Direct access shall be required to a major arterial roadway.
4. The maximum floor area ratio shall not exceed 0.50 for Energy Uses and .35 for Industrial, Research, Manufacturing, Institutional, Warehousing and Distribution facilities. Ancillary Retail/Commercial and Office uses shall not exceed a 0.25 FAR.
5. Residential uses except for security and lodging ancillary to research, energy and education functions shall not be allowed within this district.

Policy: 59.4

A site plan controlled Planned Development (PD) zoning district shall be required for all new and expanded Energy Industrial Parks.

Policy 59.5

Energy Industrial Park developments shall be served by public water and wastewater services.

Policy 59.6

Energy Industrial Park developments shall be served by reclaimed water services.

Policy 59.7

All capital improvement costs associated with the provision of public facilities and services as determined by the appropriate regulatory agency or public service provider, including, but not limited to, public water and wastewater shall be the responsibility of the developer of an Energy Industrial Park and not the responsibility of Hillsborough County. This does not preclude the potential opportunities of Public/Private options, obtaining of grants or alternative funding. All necessary public facilities and services shall be provided concurrent with the development.

Policy 59.8

Child care facilities in conjunction with Energy Industrial Park employment generating activities will not count towards a project's overall intensity calculations.

Policy 59.9

Ancillary Retail/Commercial and Office activities allowed on site may be freestanding but are subject to all other requirements of the EIP plan category.

Policy 59.10:

All EIP development proposals shall address effective multi-modal transportation systems including provisions for carpooling, vanpooling, mass transit, bicycling, and walking, where feasible as part of the site plan controlled zoning process.

Proposed site specific policy

Policy 59.11:

The EIP land use designation within Sections 26, 27, 28, 33, 34, and 35 Township 29, and Range 21 shall provide the following features:

1. Intensities shall transition from greater intensities in the northwest and along SR 60 to more agriculture uses in the east and south reflecting the adjacent urban/suburban and rural areas.
2. Buffering/screening adjacent to existing residential uses along South Dover Road and along the southern property boundary shall include

preservation of existing vegetation and topographic features (or as may be required or modified by any applicable reviewing agencies)

3. Open space may include buffers and wetlands but shall not be less than 15% of the total project area.
4. The primary Industrial, Research, Manufacturing, Institutional, Warehousing, Distribution and Ancillary Retail/Commercial and Office facilities shall be limited to the 700 acres in the northwestern portion of the property and along SR 60.
5. EIP property south of the existing CSX railroad tracks is limited to agricultural and aquacultural uses including support uses and facilities.
6. Any resource recovery facilities including biomass facilities shall be located north of the existing CSX railroad tracks.
7. Research facilities may be located anywhere on site.
8. Retail/Commercial shall be located in clusters near or at the entries to the project or internal to the project rather than in a strip commercial development arrangement and are not permitted on SR 60 east of Turkey Creek.
9. Uses on site shall be phased to ensure all impacts are adequately addressed as part of construction of that particular phase. Significant improvements shall be included, in the CIE as part of the annual CIE update.
10. Any proposed development on this site that is not consistent with the above policy standards of this EIP will require the submittal and approval of a Comprehensive Plan map amendment.
11. The development of uses other than agricultural uses, Energy Uses or research facilities, as defined by Section 59.1.1 and 2. shall be limited and phased as follows:
    a. Through January 1, 2016, no Building Permits may be issued for development (other than for agricultural uses, Energy Uses or research facilities) in excess of a cumulative maximum of 2,550,000 square feet of development as follows: 1,250,000 SF Industrial Park and 1,250,000 SF of Warehouse along with 50,000 SF of Ancillary Retail/Commercial and Office. Security housing, or lodging ancillary to research, energy and education functions of the project is allowed and shall be subject to a FAR of .5 and shall not be subject to residential dwelling unit criteria.
    b. After January 1, 2016, development of uses (other than Agricultural uses, Energy Uses or research facilities), is limited to a maximum cumulative total of 7,350,000 SF of Industrial, Manufacturing, Institutional, Warehousing, and Distribution and ancillary Retail/Commercial and Office uses. Security housing, or lodging ancillary to research, energy and education functions of the project is allowed and shall be subject to a FAR of .5 and shall not be subject to residential dwelling unit criteria.
12. Should development of any of these uses which are subject to DRI review be at or above the 100% DRI threshold then in effect but are less

than 120% of the threshold, such development along with any development aggregable pursuant to 380.0651(4), F.S., may be subject to DRI review. Should any of these uses which are subject to DRI review be at or above the 120% DRI threshold they along with any development aggregable pursuant to 380.0651(4), F.S., shall be required to undergo DRI review.

13. The PD zoning approval shall include a staggered work shift plan to minimize peak morning and evening traffic impacts for the development.

Policy 59.12

Energy Industrial Park-Urban Service Area (EIP-USA)

The Urban Service Area is expanded to include the EIP land use designation within Sections 26, 27, 28, 33, 34, and 35 Township 29, and Range. This Energy Industrial Park will be categorized as Energy Industrial Park – Urban Service Area (EIP-USA) The EIP-USA area identifies parcels suitable for EIP designation; provided, however, that the location of property within the EIP-USA does not qualify it as an urban service area pursuant to 163.3164(29), F.S., (2009) and therefore is not a TCEA pursuant to 163.3180(5)(b), F.S., (2009) and does not exempt the property from the DRI program pursuant to 380.06(29), F.S. (2009), provided however, nothing stated herein shall limit the application of local ordinances that relate to levels of service for property located within an Urban Service Area. All of the criteria of Policy 2.2 shall be met when an area is considered for EIP-USA inclusion.

Governmental Coordination

Objective: 60:Development and operation of the Energy Industrial Park shall be coordinated with all appropriate Federal, State, regional and local agency regulations, including but not limited to the U.S. Army Corps of Engineers, Department of Environmental Protection, Department of Natural Resources, and Southwest Florida Water Management District.

Policy: 60.1 The County shall encourage and review all policies to identify incentives for economic investment within an Energy Industrial Park. This may include creation of a Community Development District, Tax Increment Financing Districts, Industrial Revenue Bonds, and other special funding and infrastructure funding tools.

COMMUNITY DESIGN COMPONENT

Note: *Formatting and numbering for this section of are different than other portions of this Future Land Use Element.*

Community Plans and Special Area Plans are now located in the Livable Communities Element (CPA 07-13)

1.0 INTRODUCTION
1.1 COMMUNITY DESIGN PURPOSE

The purpose of the *Community Design* Component is to support the County's programs for growth management. It provides a specific vision for livability. A livable community represents the environmental and social quality of an area as perceived by residents, employees, and visitors. This includes safety and health (traffic safety, personal security, and public health), local environmental conditions (cleanliness, noise, air and water quality), the quality of social interactions (neighborliness, respect, community identity and pride), opportunities for recreation and entertainment, aesthetics, and existence of unique cultural and environmental resources (historic structures, wetlands, traditional architectural styles).

A high level of c*ommunity design* benefits the people who live in, work in or visit an area, increases property values and business activity, and can improve public health and safety. Livability is largely affected by conditions in the relationships between the form and design of the public realm, where people naturally interact with each other and their community, including streets, parks, and other public facilities, and so is affected by public policy and planning decisions. Ultimately, the Community design component is intended to enhance the quality of life for Hillsborough County citizens, taking into account the following objectives:

ELEMENT OBJECTIVES

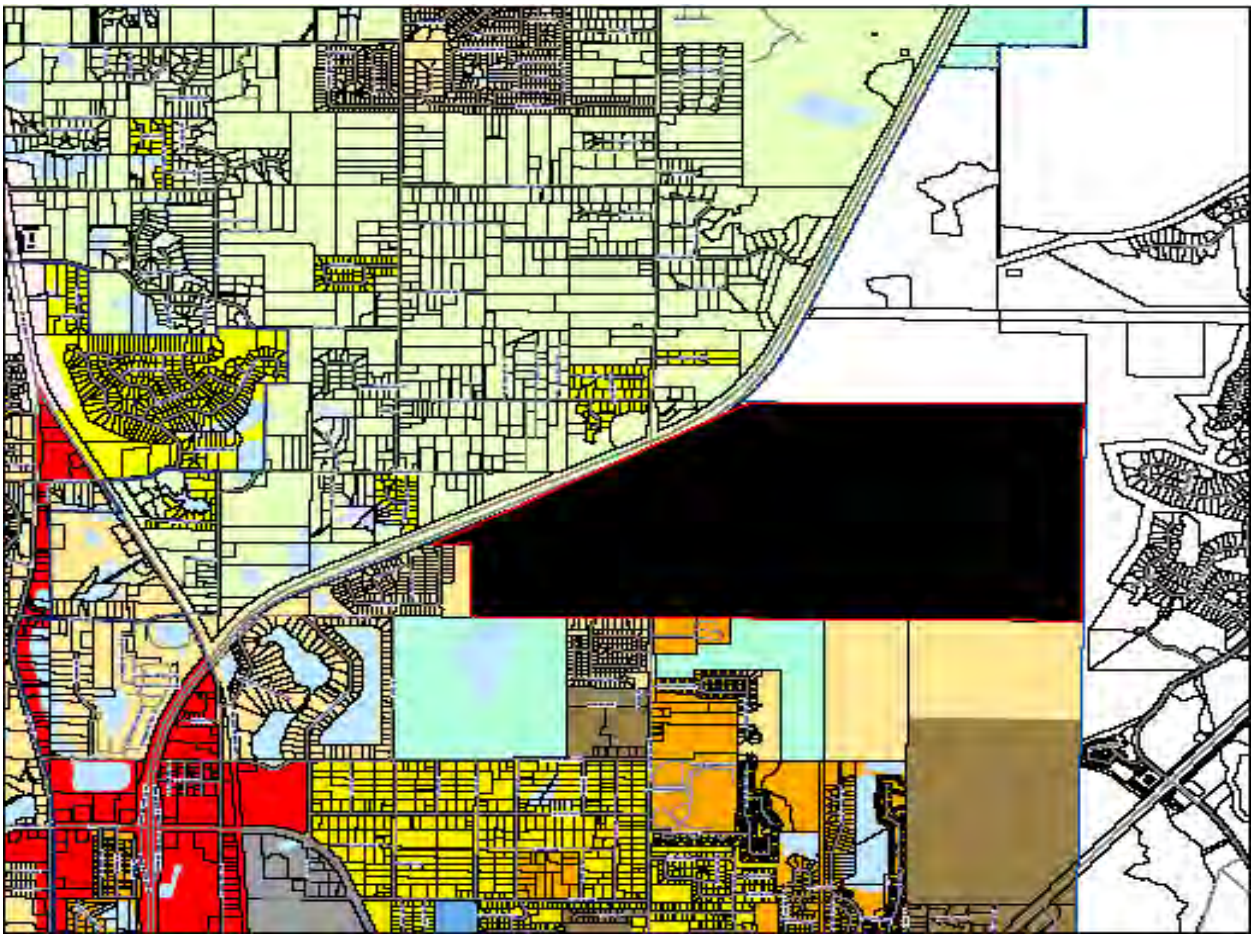
- *Pattern Development:* The pattern and design of the community should be made to enhance the lifestyles and needs of its residents. Community Design seeks to establish policies that reinforce good design standards.
- *Build Communities:* Community involves the interaction of a collection of people with some shared elements. Community Design can provide the framework for the physical settings in which their interaction can take place.
- *Establish Context:* New development should relate to the whole community in which they are placed. Many of today's development problems are not a result of incompatible uses but rather incompatible designs. Good community design can help make things fit together better.
- *Reduce Auto Dependence:* One important basis of the Community design component is to provide a more balanced alternative to this prevalent pattern, an alternative which can produce communities in which life can be lead without total automobile reliance.
- *Protect and Enhance Community Identitie*s: Community design standards and plans for individual communities can help establish, protect, and

enhance what is unique about individual communities, leading to the creation of a sense of identity.

COMMUNITY DESIGN REQUIREMENT[xxv]

Due to the unique characteristics of the surrounding neighborhoods which reflect a transition into the rural area new residential development within Section 29 and 30, Township 27, Range 19, specifically along Livingston Avenue, north of Curry Road and south of the I-275 overpass, must be designed in a manner reflecting the established development pattern and character of this suburban enclave.

This pattern is generally 1 or 2 du/ga as found in the neighborhoods of Fichenwald Country Homesites, Curry Cove, Livingston Oaks and Sutton Estates. New residential projects must specifically demonstrated compliance with the Community Design Component Section 5.1 Compatibility. (See Map Below)



COMPONENT APPLICATION

The Comprehensive Plan emphasizes three distinct choices in lifestyle - urban, suburban, and rural. Community design is a tool which enables these alternatives to be provided in a clear way which differentiates between the

choices. The patterns which define these choices can be generally described, recognizing that there is great variety and sometimes there are exceptions to the rule. Transition design elements may bridge between urban, suburban, and rural parts of the community.

1.2 URBAN PATTERN CHARACTERISTICS

This pattern can be considered for parts of the County which have future land use designations of nine (9) dwelling units per acre or more. Generally, areas of the County considered urban possess the following characteristics:

Urban Development Pattern



- Compact, interconnected spatial organization
- Few undeveloped spaces
- Tightly woven streets
- Relatively small blocks
- Multiple activity centers containing a mixture of residential and commercial
- Employment centers and civic uses
- Small scale open space - emphasis is placed on providing recreational facilities rather than large amounts of park land

Housing

- Residential density - generally nine (9) or more dwelling units per acre
- Lot sizes - typically in the range of 7,000 square feet or less
- Use of the traditional community pattern of houses – porches, garages at the rear, and alleys may be utilized
- Wide variety of housing types - may include multifamily, single family, and alternative housing such as congregate living quarters and granny flats, possibly in close proximity to one another

Transportation

- Regularly-spaced arterials and collectors
- Interconnecting streets are mostly based on the grid pattern
- Accessible transit service
- Emphasis on urban streetscape and landscape, pedestrian-friendly walking environments, and human-scale furnishings

Public Services

- Full range of public services available

1.3 SUBURBAN PATTERN CHARACTERISTICS

Much of the populated portion of the County is in the suburban category. This applies primarily to areas covered by future land use designations of two (2) to nine (9) dwelling units per acre. The suburban pattern is characterized by the following:

Suburban Development Pattern



- Suburban is transition between the urban and rural patterns - it can be very similar to either, depending on the location
- Less compact and intense than the urban pattern
- Tracts of undeveloped land may intersperse the developed portions
- Development may include residential subdivisions, community and neighborhood oriented commercial, agricultural uses, environmental areas, and fewer employment centers
- Activity centers are smaller and farther apart
- Open space tends to be large tracts of environmental parkland
- Because of the transitional nature of the suburbs, there tend to be more land use conflicts

Housing

- Residential density - may range from two (2) to nine (9) dwelling units per acre
- Lot sizes - typically from 5,000 square feet up and higher
- Developments are likely to be more homogeneous in size and type

Transportation

- The pattern is more dependent on the auto for all trips
- There may be limited transit service
- Streets have fewer pedestrian amenities

Public Services

- Public facilities are required, however to a lesser degree than in urban areas.

1.4 RURAL PATTERN CHARACTERISTICS

The largest land area of the County is rural in character. This covers all the future land use categories allowing one (1) dwelling unit per five (5) acres and less (unless located within an area identified with a higher density land use category on the Future Land Use Map as a suburban enclave, planned village or rural community which will carry higher densities). The characteristics of this pattern are in two components: (1) rural-agricultural and (2) rural-residential, but generally can be described as follows:



Rural Development Pattern

- Predominance of agricultural use and agriculture related industry
- Predominance of undeveloped natural areas
- Very dispersed general pattern
- Widely scattered small-scale convenience -oriented retail
- Little employment available outside of agriculture/mining
- Large scale land-intensive public uses tend to locate in rural settings
- Residential uses are often on lots five (5) acres or larger

Housing

- Housing type varies greatly, and may include conventional housing, manufactured housing, and farmworker quarters
- Most units are on lots larger than one acre
- Typical subdivision standards - setbacks, sidewalks, street edges and the like - are not appropriate
- Rural-residential uses are in relatively informal and irregular development pattern

Transportation

- Transportation network tends to be very loose
- Widely dispersed roads
- Loose grid pattern
- Less interconnectedness
- Limited transit service
- Very few pedestrian facilities, except near schools

Public Services

- Few public services

Other

- Often a historic sense of tightly-knit small scale community

The ***Community design component*** has been organized in "levels". This is a system for categorizing and understanding the livable design concepts for the unincorporated county, from the broadest to the most specific detail, from largest scale to the smallest. This component of the Future Land Use Element of the Comprehensive Plan is being reformatted in order to promote higher quality design standards in areas of new development and redevelopment throughout Hillsborough County. It addresses design related goals, objectives, and policies as they relate to "people friendly" community design.

2.0 COUNTY LEVEL DESIGN

2.1 MIXED-USE DEVELOPMENT

GOAL 1: Plan a pattern of compact, livable and walkable neighborhoods and communities within the urban service area which are supported by locally-oriented employment, goods and services.

OBJECTIVE 1-1: Make it easier to develop in a traditional urban pattern in the Urban Service Area of the County.

POLICIES

1-1.1: Encourage and provide incentives for developers to utilize traditional neighborhood development patterns, which encompasses the following policies:

- Neighborhood identity - compatibility with unique components of the neighborhood, distinctively designed streets and public spaces, entrance gateways, and natural features emphasized.
- Residential variety and diversity - varied residential densities, a mixture of housing types, accessory dwellings, and home-based employment opportunities.
- Compatible planning - compatible land use relationships, which incorporate open space, active uses facing public spaces, utilization of school sites as parks, and coordinated utilities placement.
- Central place - non-residential neighborhood serving uses at a central gathering place, with pedestrian friendly environments.
- Linkages - interconnection of internal neighborhood components and interconnection to the surroundings via a basic grid network of access and open space.



Public spaces similar to the one pictured contribute to establishing a neighborhood identity.



The diverse housing stock allows a range of incomes within the same neighborhood.



Appropriately scaled parks within walking distance of each neighborhood are important community gathering spaces.

GOAL 1: Plan a pattern of compact, livable and walkable neighborhoods and communities within the urban service area which are supported by locally-oriented employment, goods and services. (Continued)

OBJECTIVE 1-1: Make it easier to develop in a traditional urban pattern in Urban Service Area of the County. (Continued)

POLICIES

1-1.1: (Continued):

- Movement - walkable and shaded blocks and streets with sidewalks and crosswalks, facilities for bicycles, and transit stops where appropriate.
- Cars and streets - streets narrow enough to discourage speeding, but with room for on-street parking, encouraging cars stored toward the back of the lot, possibly accessible by alleys, allowing shared driveways and duplex or quadriplex garages at the rear lot line.
- Street-friendly housing - housing which is close to and faces the street, with active uses and porches on the front, and windows and doors establishing visual connection to the street - garages located to the side or rear, or at least set back.
- Social spaces - a variety of sizes and uses of open space is provided in each neighborhood, encouraging both active and passive uses and fostering interaction between neighbors.
- Design which is sensitive to natural, manmade, and cultural context, climate-appropriate design and materials, limited fill, water-wise landscape, preserved natural features, design features from local history and culture.



Shaded blocks provide comfort for users and consequently facilitate pedestrian movement.



Streets, like the one pictured, are narrow enough to discourage speeding but wide enough to allow on-street parking.



An example of street-friendly housing.

GOAL 1: Plan a pattern of compact, livable and walkable neighborhoods and communities within the urban service area which are supported by locally-oriented employment, goods and services. (Continued)

OBJECTIVE 1-1: Make it easier to develop in a traditional urban pattern in Urban Service Area of the County. (Continued)

POLICIES

1-1.2: Traditional Neighborhood Developments may be eligible to receive transfers of development rights (TDR) in addition to utilizing the TND option bonus (Policy 1.1.6) if they are located in one of the following: an identified activity center, an identified redevelopment area, or the boundaries of a community plan that supports TND development patterns (see the Future Land Use Map series, TDR Sending and Receiving Areas Map).

1-1.3: Promote home-based employment, including live work units and telecommuting, in both existing and new communities.

1-1.4: Incorporate more open space in new development and redevelopment through the use of techniques such as clustering, preservation of environmentally sensitive areas, provision of recreation areas, higher design standards and/or transfer of development rights.



An example of an activity center within Tampa.



Creation of live work units, like this artist studio, is encouraged.



By clustering development, more room is left for open space and recreation areas.

GOAL 1: Plan a pattern of compact, livable and walkable neighborhoods and communities within the urban service area which are supported by locally-oriented employment, goods and services. (Continued)

OBJECTIVE 1-1: Make it easier to develop in a traditional urban pattern in Urban Service Area of the County. (Continued)

POLICIES

1-1.6: As an incentive to implement Traditional Neighborhood Development (TND), TND projects are permitted to develop at increased density and intensity as outlined in the Traditional Neighborhood Development Option bonus below.

- Residential density and non-residential intensity increase may be considered by the Board of County Commissioners, without a plan amendment, in the land use categories as shown below when the purpose is to develop an alternative form in land use known as Traditional Neighborhood Development (TND). Traditional Neighborhood Development for the purpose of this option must be designed to provide for integration of uses, compatible scale, residential diversity, internal relationship of uses and linkages as well as provide shopping and job opportunities. The bonus shall be granted as part of an official request to rezone the subject to the TND development district found in the Hillsborough County Land Development Code.
- The TND Option Bonus shall be approved under the comprehensive TND development regulations of the Land Development Code. In order to qualify to use the TND Option Bonus, the site shall adhere to the following criteria:
  - Adequate infrastructure to service the project shall be in place at the site or within ½ mile of the site (including public water, wastewater and roadways).
  - Be within the boundaries of the Urban Service Area (USA).
  - Have direct access to public streets.
  - Be designed to accommodate the use of transit services within the project site.
  - Shall be in one of the residential or commercial land use categories allowing four (4) or more dwelling units to the acre. No industrial uses are permitted within properties developed with the TND option.

Table of Maximum Allowable Density and Intensity for Traditional Neighborhood Development Option

The following table represents the maximum amount of development that can be considered. Site constraints, compatibility with surrounding uses and other limitations may restrict these amounts.

Urban Land Use Category	Density (Dwelling Units/Acre)	Intensity (Square Footage*/ Floor Area Ratio)
Res-4	6	300,000*/.35 FAR
Res-6	9	300,000*/.35 FAR
NMU-4(3)	6	300,000*/.35 FAR
SMU-6	12	300,000*/.50 FAR
Res-9	16	350,000*/.50 FAR
Res-12	16	350,000*/.50 FAR
CMU-12	20	750,000*/1.0 FAR
Res-16	25	350,000*/.50 FAR
Res-20	30	350,000*/.50 FAR
Res-35	50	350,000*/2.0 FAR
OC-20	30	600,000*/.75 FAR
UMU-20	30	2.0 FAR

Residential units as part of vertical mixed-use structures are regulated by Floor Area Ratio (FAR), not by density.
* Square footage cap is for retail commercial uses.

GOAL 1: Plan a pattern of compact, livable and walkable neighborhoods and communities within the urban service area which are supported by locally-oriented employment, goods and services. (Continued)

OBJECTIVE 1-2: Promote a variety of uses in order to create vitality and bring many activities of daily life within walking distances of homes.

POLICIES

1-2.1: Within proposed developments, encourage 50% of new housing units within 1/2 of a mile of parks and/or schools open to the public.

1-2.2: Require a mix of housing types and lot sizes within mixed use neighborhoods, emphasizing harmonious design and building type.

1-2.3: The County shall continue to allow for an accessory dwelling unit associated with an owner occupied single family residence to be built on the single deeded lot.

1-2.4: Promote infill and rehabilitation activity. Reduce on-site parking requirements for small-lot infill projects, allowing parking demand to be satisfied by on-street, shared or remote parking or transit.

1-2.5: Provide a greater variety of allowable development patterns, which encourage good community design and which reflect the character of the surroundings.

1-2.6: Promote a wider range of uses in close proximity to each other within new and existing urban communities. These uses shall include:

- Mixed density housing with a variety of housing options
- Local-serving goods and services
- Civic uses
- Employment uses

2.2 CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN (CPTED)

GOAL 2: Create safer, more livable communities that foster interaction between people and discourage criminal activities through their effective use of the physical environment and proper design.

OBJECTIVE 2-1: CPTED techniques and principles should be utilized in new development to achieve safe, livable communities.

POLICIES

2-1.1: Support the incorporation of public safety considerations and CPTED techniques into project design and review for future development and redevelopment in the County.

2-1.2: Natural surveillance techniques should be considered in the placement of physical features, mix of activities and uses, people and lighting in such a way as to maximize visibility.

2-1.3: Promote the inclusion of pedestrian-friendly streets and sidewalks as a means of natural surveillance.

2-1.4: Encourage site design of buildings that orients doors and windows to overlook streets and parking areas.



Shaded blocks provide comfort for users and consequently facilitate pedestrian movement.

GOAL 2: Create safer, more livable communities that foster interaction between people and discourage criminal activities through their environment and design. (Continued)

OBJECTIVE 2-1: CPTED techniques and principles should be utilized in new development to achieve safe, livable communities. (Continued)

POLICIES

2-1.5: Physical attributes that express ownership, such as pavement treatments, landscaping, art, signage, screening and fences should be used as a form of territorial reinforcement.

2-1.6: Sidewalks, entrances, landscaping and fences should be used to provide physical guidance to and from entrances and exits and to prevent public access from dark or unmonitored areas, as a natural access control technique.

2-1.7: The use of low maintenance landscaping and lighting treatments and the upkeep of property should be used to facilitate CPTED principles.

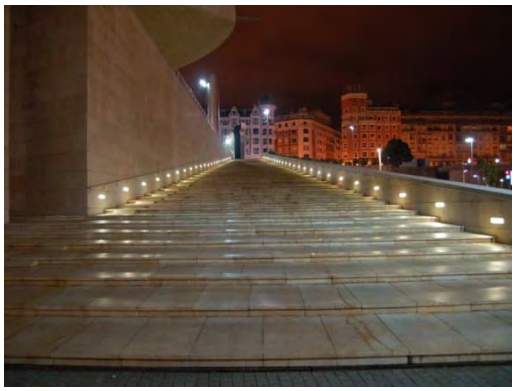
2-1.8: Delineate private spaces from public spaces with plantings, pavement designs, gateway treatments, and low fencing, where feasible.

2-1.9: Clearly delineate public routes while at the same time discouraging access to private areas.

2-1.10: All open space areas, and access to them, should be carefully designed and located, using natural surveillance to maximize community safety and crime prevention and minimize opportunities for public nuisance.



The picket fence along the front of this building serves as a form of territorial reinforcement.



An example of good physical guidance.



The provision of lighting is an important part of discouraging criminal activities.

2.3 SUSTAINABILITY

POLICIES

3-1.1: Encourage for the design of communities, subdivisions, site plans and individual buildings which follow criteria for energy efficiency. Encourage construction of LEED (Leadership in Energy and Environmental Design).

3-1.2: Select Florida Friendly plant material appropriate to the County's climate, soils, and water availability to conserve water, reduce use of pesticides, reduce plant mortality, and lower maintenance costs.

3-1.3: Promote development within environmentally appropriate areas such as previously developed land, infill lots, and/or remediated brownfields.

3-1.4: Discourage development in areas that possess the following characteristics: wetlands, 100-year floodplain, and/or habitat for species on the federal or state threatened or endangered list.

3-1.5: Avoid major alterations to areas with sensitive topography, vegetation and wildlife habitat.

3-1.6: Continue to limit the amount of site dedicated to building, parking and access road construction in order to maximize the amount of open space through efficient circulation and good design.



The protection of prime agriculture areas is encouraged in sustainable development.



"Green Buildings" like Seattle's public library incorporate many sustainable design principles.



Acquire open space for the purpose of conservation.

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3.0 COUNTY LEVEL CONCERN DESIGN

3.1 CULTURAL

GOAL 6.1: Ensure that the cultural sector is a core component of economic and community development, planning, and programming.

POLICIES

6-1.1: Enlist developers as partners to invest in and encourage cultural developments that add value to their communities and their projects.

6-1.2: The County will develop incentives to offer developers to incorporate cultural space and public art to their projects.

6-1.3: Maintain, support, and expand public art programs throughout Hillsborough County.

6-1.4: Consider a gateway to establish a image for all of Hillsborough County.

6-1.5: Market the region's cultural attractions to increase participation by residents and visitors.

6-1.6: Provide life-long opportunities for arts, heritage, and science education for all county residents.

6-1.8: The County should continue to invest in community facilities, libraries, schools, universities and recreation centers, especially those that accommodate mixed uses including arts, heritage, and interpretive sciences.



Shaded blocks provide comfort for users and consequently facilitate pedestrian movement.

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4.0 COMMUNITY LEVEL DESIGN DESIGN

4.1 RURAL RESIDENTIAL CHARACTER

GOAL 7: Preserve existing rural uses as viable residential alternatives to urban and suburban areas.

OBJECTIVE 7-1: Support existing agricultural uses for their importance as a historical component of the community, their economic importance to the County and for the open space they provide.

POLICIES

7-1.1: Preserve natural areas in rural residential lot development.

7-1.2: Vary lot size in order to encourage diversity of housing product types and respect natural resources.



Natural areas are an important part of the rural character.





An example of rural housing.

4.2 SUBURBAN RESIDENTIAL CHARACTER

GOAL 8: Preserve existing suburban uses as viable residential alternatives to urban and rural areas.

OBJECTIVE 8-1: Within future residential areas in the suburban locations promote better design that incorporates a greater mix of uses.



An example of suburban housing.



An aerial view demonstrating a suburban development pattern.

4.3 COMMERCIAL CHARACTER

GOAL 9: Evaluate the creation of commercial design standards in a scale and design that complements the character of the community.

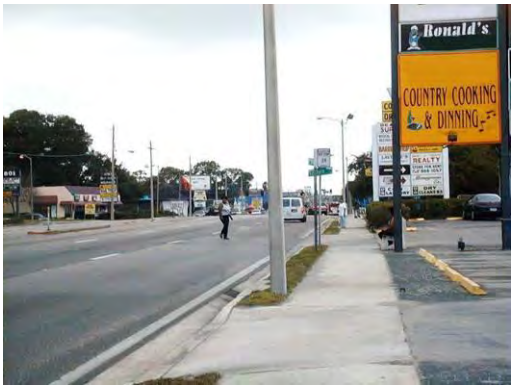
POLICIES

9-1.1: Provide incentives for the redevelopment of commercial structures to enhance building facades, signage, landscaping, general buffering and access management. Encourage zero lot line construction for new construction.

9-1.2: Avoid "strip" development patterns for commercial uses.

9-1.3: New commercial zoning is encouraged to locate at activity centers and commercial redevelopment areas.

9-1.4: Encourage commercial structures to consist of more than one story and be vertically mixed.



Additional landscaping and buffering, and improved sign and access management standards would improve the character of this commercial corridor.





The commercial character along these streetscapes is pleasant and pedestrian-friendly.

4.4 SCHOOLS

GOAL 10: Locate and design schools in a manner that creates community assets, which have a positive relationship and connection to the neighborhood(s) they serve.

OBJECTIVE 10-1: The planning and development of schools should encourage pedestrian and bicycle travel, reflect the history and character of the community and be appropriately scaled to the community.

POLICIES

10-1.1: Encourage the design of schools to have a scale similar to adjacent development.

10-1.2: Provide siting of schools that is sensitive to the environment, avoiding construction within major environmental areas.

10-1.3: Schools and other publicly-owned community facilities such as libraries, parks and community or cultural centers as well as private facilities should be collocated to allow for shared resources and savings in cost.

10-1.4: Design middle and elementary schools to accommodate drop-offs and pick-ups on site, without interrupting traffic flow on local streets.

10-1.5: School facilities should be sized and located to enable children to walk or bicycle to them.

10-1.6: Encourage "walk to school" programs, e.g., "walking school buses," to increase safety and to reduce school-related automobile trips.

10-1.7: Connect destinations such as schools, neighborhoods and parks as well as greenways through links to various districts. Use techniques such as cooperative agreements, easement based public lands, and public rights-of-way.

10-1.8: Coordination efforts between the School Board and County on the planning for new school sites should include coordination of sidewalk facilities plans with the Five Year School Facilities Plan.



Whether in an urban setting (above) or a suburban one (below) schools should reflect the character of the community.





Participants in a "walking school bus" program.

4.5 NATURAL RESOURCE PRESERVATION

POLICIES

11-1.1: Require natural and attractive stormwater retention facilities, such as standards for gently sloping grass sides/ banks and prohibiting hard (i.e., concrete, asphalt) surfaces and aeration techniques: screen and buffer ponds with natural vegetation or berms or at a minimum vinyl fencing with vines, prohibit plain exposed chain link fencing. Encourage master stormwater facilities.



Integrate links to natural resources within new developments.



Natural and attractive treatment of stormwater systems and retention facilities is encouraged.



Landscape treatment of stormwater as pictured can effectively address water management as well as provide an attractive amenity to developments.

5.0 NEIGHBORHOOD LEVEL DESIGN DESIGN

5.1 COMPATIBILITY

GOAL 12: Design neighborhoods which are related to the predominant character of the surroundings.

OBJECTIVE 12-1: New developments should recognize the existing community and be designed in a way that is compatible (as defined in FLUE policy 1.4) with the established character of the surrounding neighborhood.

POLICIES

12-1.1: Lots on the edges of new developments that have both a physical and visual relationship to adjacent property that is parceled or developed at a lower density should mitigate such impact with substantial buffering and/or compatible lot sizes.

12-1.2: Walls and buffering used to separate new development from the existing, lower density community should be designed in a style compatible with the community and should allow pedestrian penetration. In rural areas, perimeter walls are discouraged and buffering with berms and landscaping are strongly encouraged.

12-1.3: New development in existing, lower density communities should utilize the planned development process of rezoning in order to fully address impacts on the existing community. Additionally, pre-application conferences are strongly encouraged with the staffs of the Planning Commission and Hillsborough County Planning and Growth Management Department.



Compatible lot sizes should be incorporated among adjacent developments.



Using walls as buffers is discouraged (above) in favor of landscape buffers (below).



GOAL 12: Design neighborhoods which are related to the predominant character of the surroundings. (Continued)

OBJECTIVE 12-1: New developments should recognize the existing community and be designed in a way that is compatible with the established character of the surrounding neighborhood. (Continued)

POLICIES

12-1.4: Compatibility may be achieved through the utilization of site design techniques including but not limited to transitions in uses, buffering, setbacks, open space and graduated height restrictions, to affect elements such as height, scale, mass and bulk of structures, pedestrian or vehicular traffic, circulation, access and parking impacts, landscaping, lighting, noise, odor and architecture. .

12-1.6: In order to facilitate community understanding of issues, encourage early neighborhood-based input regarding rezonings which require public hearing.

12-1.7: Include design related issues as part of the neighborhood planning process.



An incompatible use among neighborhoods.



Different building widths and materials are mitigated by the similar heights and setbacks of the structures.



Compatible design in a residential setting.

5.2 URBAN/SUBURBAN

GOAL 13: Within urban and/or suburban areas of the County, encourage new developments or infill developments to incorporate a mix of uses.

OBJECTIVE 13-1: Flexible urban design standards should be considered to guide new development and redevelopment in urban/suburban areas.

POLICIES

13-1.1: Amendments to the land development code, aside from the Traditional Neighborhood Development considerations, shall be considered which will allow future residential development or redevelopment in urbanizing areas to assume a more urban character. This shall include such considerations as:

- Relatively narrow residential streets.
- Houses close to the street.
- Front porch easements.
- Garages set back to the rear of the property.
- Block patterns providing alleys.
- Granny flats.

13-1.2: Refine subdivision regulations to allow for alternative design within the existing suburban development pattern.

13-1.3: Form-based codes should be considered to regulate the scale and form of new development in activity centers.



Accessory units similar to the one pictured are encouraged within traditional neighborhood developments.



Even larger homes like the one shown above can be placed close to the street, giving the street a more urban feel.



Small-scale employment centers can enhance neighborhood developments.

5.2 URBAN/SUBURBAN (Continued)

GOAL 13: Make it possible to develop in a traditional urban pattern in designated urbanizing areas of the County. (Continued)

OBJECTIVE 13-1: Those areas within the County which may be considered as urban in character, or which are moving in that direction, shall be targeted for community planning to determine appropriate modifications to land development and other regulations. (Continued)

POLICIES

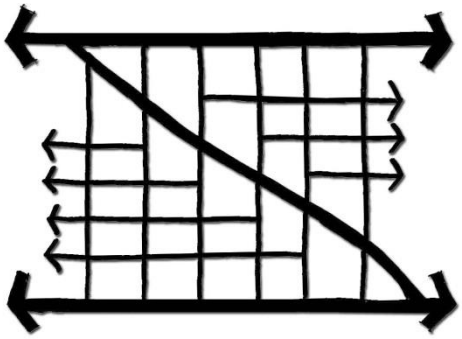
13-1.4: Where conditions permit, design communities around a grid network of streets, or a modified grid, which will improve interconnections between neighborhoods and surrounding neighborhood-serving uses.

13-1.5: The street network should provide all residents with direct links to community focal points, social services and major roads in the region.

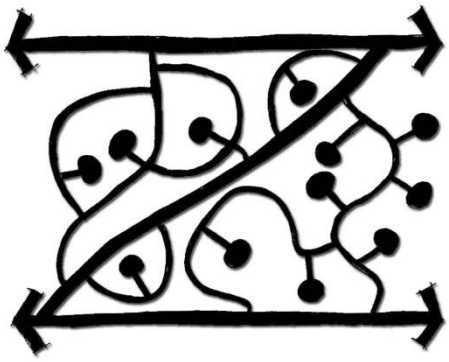
13-1.6: Produce a streetscape with pedestrian amenities, with safe and pleasant means to walk around in the commercial environment and to access the adjacent neighborhoods.

13-1.7: Allow the design of neighborhoods to be more directly responsive to site conditions.

13-1.8: Reduce the street corner radius in residential neighborhoods to better accommodate walkable environments and to provide additional pedestrian safety.



Promote the use of a grid network of streets, which is more direct and a less confusing system for roadway users.



Discourage meandering curvilinear streets that terminate with cul-de-sacs and dead ends, which are less efficient and make way-finding difficult.



An example of a pleasant, walkable urban street.

5.3 RURAL

GOAL 14: Provide standards within the land development code for development in the rural areas, which allow for developments of a specifically rural character.

OBJECTIVE 14-1: By 2012, define a set of development standards in the Land Development Code to be used for each rural community through the Community Based Planning program. These standards should include the following considerations:

POLICIES

14-1.1: Encourage a rural development pattern:

- Variable and larger lot sizes
- Shared driveways
- No curbs
- Variable set-backs
- No sidewalk - use asphalt, gravel, or other pervious surfaces
- Lighting only for multiple dwellings
- Use of xeriscape principles and natural treatment of retention
- Passive open green space
- Permeable parking

14-1.2: Build rural roadways:

- Discourage wide roads that are disruptive of community
- Allow local streets to be designed as narrow curving roads
- Leave existing vegetation, up to edge of road if visibility requirements are met
- Trees arching over roadway
- Stop signs

14-1.3: Describe a rural approach to buffering and fencing:

- Berms with vegetation, split rail fencing
- Brick columns with wrought iron
- A separation or setback distance may be considered in lieu of a vertical screening.
- Green or black chain link with planting
- Discourage walls and cinder block or stockade wood fencing



A house within a typical rural development: large setback, no sidewalk, surrounded by passive open space.



A narrow, rural roadway with trees arching over.



A vegetation berm buffers these rural homes.

5.3 RURAL (Continued)

GOAL 14: Provide standards within the land development code for development in the Rural Area, which allows for developments of a specifically rural character. (Continued)

OBJECTIVE 14-2: By 2012, define standards to integrate commercial developments into rural settings which will enhance the quality of the rural environment and provide appropriately scaled local serving goods and services and small scaled employment.

POLICIES

14-2.1: These standards should include the following:

* Locate interior to new development where applicable.
  * Architecturally compatible with rural surroundings, and residential in appearance.
  * Not more than two stories.
  * Having reverse frontage parking, with permeable surfaces allowed, and with a reduced number of spaces required where appropriate.
  * Signage and lighting of rural character, at ground level, externally lit.







Typical rural commercial use, like the ones pictured above, should appear residential in character.

6.0 ROADWAY LEVEL DESIGN DESIGN

6.1 INTRODUCTION

Livable Roadways is an approach to roadway planning and design that integrates transportation safety and function with other considerations. Among the considerations is the shared use of the roadway by alternative modes - bicycle, pedestrian, and transit. It includes user-friendly amenities, such as safe crosswalks, pedestrian lighting and street furniture where appropriate. It emphasizes landscaped medians and rights-of-way. It considers the impact of roadway construction on the surrounding communities and environmental areas, and seeks to provide the transportation solutions that contribute to the overall livability if the adjacent neighborhoods and the community at large.

In August of 2006, the "Livable Roadways Guidelines" document was adopted by the Hillsborough County Metropolitan Planning Organization. The purpose of this document is to provide guidance on features and variables that contribute toward enhancing the experience of people using various transportation modes typically within the roadway corridor. It is the intention of this document to set forth guidelines consistent with local codes and ordinances. Guidelines within this document highlight best practices of roadway design. However, some changes are needed to employ all of the best practices. The intent of this document is to inspire a new approach to roadway design, emphasizing that our communities' streets are significant public spaces for all modes of transportation; and embrace the concept of moving people, not just cars, to enhance the 'livability' of roadways throughout Hillsborough County. The design standards within this document allow for flexibility in order to accommodate facilities for different users. This flexibility needs to be employed in order for our roadways to be livable. The following section includes some of the policies set forth by the "Livable Roadway Guidelines" as they relate to people friendly community design.

6.2 **PEDESTRIAN NETWORK**

GOAL 15: Provide a transportation system throughout Hillsborough County that is safe and functional for all modes of transportation, is aesthetically-pleasing, and is designed to meet the overall needs of the communities it serves.

OBJECTIVE 15-1: Provide for pedestrian needs in the design of new and existing roadways.

POLICIES

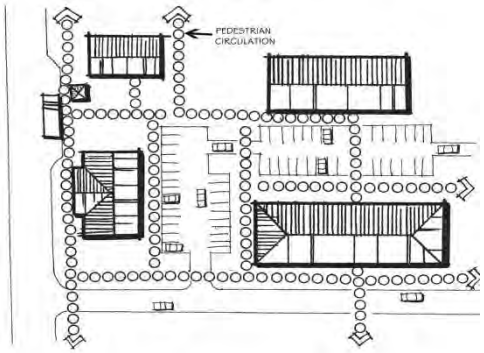
15-1.1: Design pedestrian facilities for designated roadways in urban and suburban areas to include the following considerations:

- Continuous sidewalks, free of obstruction, buffered from traffic by landscape or setbacks, and shaded by awnings or trees where appropriate.
- Street furnishings, including benches, trash receptacles, bus shelters, and lighting, as appropriate to the surroundings in urban settings.

15-1.2: Provide direct routes between destinations, minimizing potential conflicts between pedestrians and automobiles, and connecting sidewalks and building entrances.

15-1.3: Locate sidewalks along both sides of all public streets and in all residential areas, particularly near schools and adjacent to parks or recreational facilities, office buildings, local businesses and other similar locations that attract high amounts of pedestrian activity.

15-1.4: Where roadside elements, such as fire hydrants, parking meters, landscaping, signs, and street furniture, are planned they should be placed between the sidewalk and the roadway to create a buffer for pedestrians in a manner that does not impair visibility by motorists, where allowed and appropriate per applicable transportation technical standards.



Pedestrian routes should be direct and convenient for use.



Awnings, landscape, and street-level interest provide for a pleasant pedestrian corridor.



Street furnishings enhance the look and feel of this urban streetscape.

6.2 **PEDESTRIAN NETWORK** (Continued)

GOAL 15: Provide a transportation system throughout Hillsborough County that is safe and functional for all modes of transportation, is aesthetically-pleasing, and is designed to meet the overall needs of the communities it serves. (Continued)

OBJECTIVE 15-1: Provide for pedestrian needs in the design of new and existing roadways. (Continued)

POLICIES

15-1.5: Provide a clear passage zone equal to the required minimum sidewalk width in areas with movable obstructions. Place benches on a separate pad behind the back of sidewalk or between the sidewalk and the street to avoid clear passage zone obstruction.

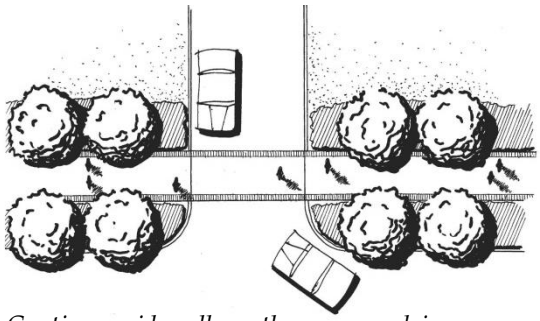
15-1.6: Explore the potential for moving the sidewalk to the edge of the right-of-way for roadways with high design speeds. A buffer consisting of swales, planting strips, road shoulders, and/or bike lanes should be considered when feasible.

15-1.7: Continue sidewalk paths, including sidewalk material, across the entire length of all driveway aprons. Match the adjacent sidewalk materials.

15-1.8: Where appropriate, include art, creative design, cultural and historical markers, and other similar enhancements along sidewalks.



Outdoor seating should be placed behind clear passage zones.



Continue sidewalk paths across driveway aprons.



Artwork can be used to enhance pedestrian spaces.

6.3 **PEDESTRIAN CROSSINGS**

GOAL 15: Provide a transportation system throughout Hillsborough County that is safe and functional for all modes of transportation, is aesthetically-pleasing, and is designed to meet the overall needs of the communities it serves. (Continued)

OBJECTIVE 15-2: Provide safe and convenient roadway crossings that are easily identifiable by pedestrians and motorists.

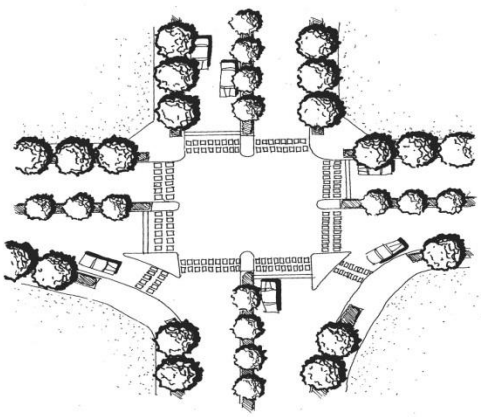
POLICIES

15-2.1: Provide adequate roadway crossings, signalized and unsignalized, at appropriate intervals.

15-2.2: Provide high visibility (ladder or triple-four style), marked crosswalks and pedestrian signals at all approaches of signalized intersections where there is significant pedestrian activity.

15-2.3: Time pedestrian signals at intersection crosswalks so that bicyclists and pedestrians are not burdened with extended waits or insufficient crossing times.

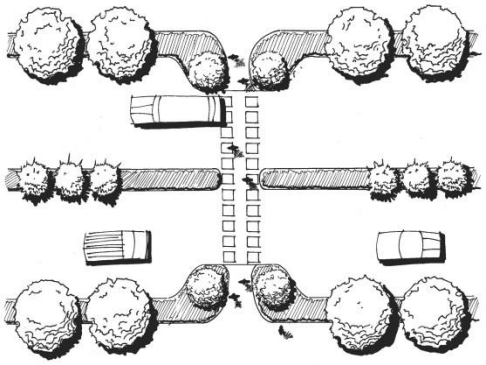
15-2.4: Where there are more than 10 through and turn lanes at the intersection, provide an alternative to an at-grade crossing for pedestrians.



High visibility crosswalks are appropriate in locations with significant pedestrian activity.



Do not burden users with extended wait times or insufficient crossing time.



LED lights can increase safety of crosswalk users.

6.3 PEDESTRIAN CROSSINGS (Continued)

GOAL 15: Provide a transportation system throughout Hillsborough County that is safe and functional for all modes of transportation, is aesthetically-pleasing, and is designed to meet the overall needs of the communities it serves. (Continued)

OBJECTIVE 15-2: Provide safe and convenient roadway crossings that are easily identifiable by pedestrians and motorists. (Continued)

POLICIES

15-2.5: Unsignalized pedestrian crossings should be installed with warning signs and adequate visibility for motorists and crosswalk users.

15-2.6: Countdown signals should be provided at crossings where there is significant pedestrian activity.

15-2.7: Provide new standards that provide for median islands for pedestrian safety to be included in the design of roadways having three or more travel lanes in each direction.



If there is an inadequate amount of pedestrian crossings, unsafe crossings, outside of the intersections, may be more frequent.



The contrasting color and material of this crosswalk make it more visible to pedestrians and motorists.



Refuge islands can make crossing multiple lanes or traffic easier and safer.

6.4 PEDESTRIAN AMENITIES

GOAL 15: Provide a transportation system throughout Hillsborough County that is safe and functional for all modes of transportation, is aesthetically-pleasing, and is designed to meet the overall needs of the communities it serves. (Continued)

OBJECTIVE 15-3: Provide pedestrian amenities along roadways, sidewalks, and bike paths to increase the comfort, safety, and security of users.

POLICIES

15-3.1: Provide lighting and street furnishings, including benches and trash receptacles, where appropriate, especially main streets and transit stops.

15-3.2: Ensure that funding for street lighting is a part of roadway budgeting on collector and arterial roadways.

15-3.3: Require consideration of appropriately scaled street lights in new subdivisions and design street lighting to enhance the character of commercial areas.

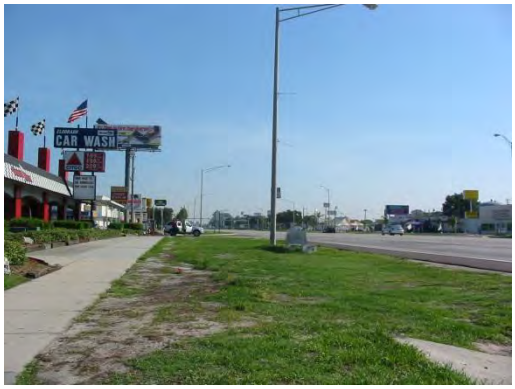
15-3.4: In urban areas, provide pedestrian scale lighting, with frangible bases, between the curb and sidewalk.

15-3.5: Lighting levels and lighting design for the right-of-way should meet Crime Prevention Through Environmental Design standards.

15-3.6: To consolidate the number of fixtures placed within the right-of-way, consider placing a tall pole with varying luminary heights and other streetscape elements, such as street banners, on a single pole.



Light poles can be combined with landscape elements, as shown above.



A lack of amenities make this sidewalk corridor appear not pedestrian-friendly.



An urban streetscape with a variety of pedestrian amenities.

6.5 ACCESSIBILITY

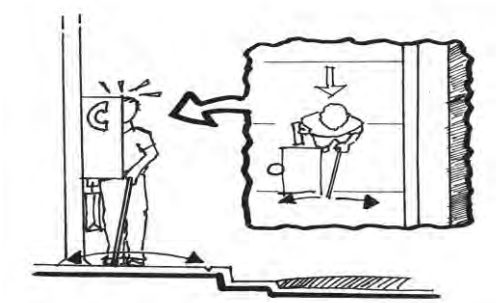
GOAL 15: Provide a transportation system throughout Hillsborough County that is safe and functional for all modes of transportation, is aesthetically-pleasing, and is designed to meet the overall needs of the communities it serves. (Continued)

OBJECTIVE 15-4: Make communities more livable by making the roadway environment more pedestrian friendly for all users including those with disabilities.

POLICIES

15-4.1: Provide pedestrian signal push calls designed and constructed to be accessible to persons with disabilities.

15-4.2: Provide textural and color contrasts on surfaces of walkways to warn pedestrians of abrupt grade changes, potentially dangerous exits and vehicular areas.



Protruding objects can be particularly hazardous to blind individuals.



The texture and color contrast before the crosswalk is used to warn pedestrians that they are entering a vehicular area.



Wide walkways with a generous clear passage zone are recommended.

6.6 MULTI-USE TRAILS

GOAL 15: Provide a transportation system throughout Hillsborough County that is safe and functional for all modes of transportation, is aesthetically-pleasing, and is designed to meet the overall needs of the communities it serves. (Continued)

OBJECTIVE 15-5: Encourage the maintenance and creation of trails that connect and enhance the communities in which they are placed.

POLICIES

15-5.1: Connect or accommodate future connections to planned and/or existing trails within new development.

15-5.2: Do not locate trails directly adjacent to roadways, except in urban situations where no other feasible alternative exists.

15-5.3: Minimize the number of at-grade crossings with roadways or driveways along trails. Where crossings occur, or signalized intersections denote with high visibility crosswalks.

15-5.4: Trails should connect to a variety of uses including existing and proposed civic, residential, commercial and recreational use.



Trails should not be located directly adjacent to roadways.



Coordinate trail planning among neighboring jurisdictions.



Connection to a variety of uses, including commercial, is desirable.

6.7 BICYCLE NETWORK

GOAL 15: Provide a transportation system throughout Hillsborough County that is safe and functional for all modes of transportation, is aesthetically-pleasing, and is designed to meet the overall needs of the communities it serves. (Continued)

OBJECTIVE 15-6: Provide for the needs of bicyclists in the design of designated roadway improvements and of new roadways.

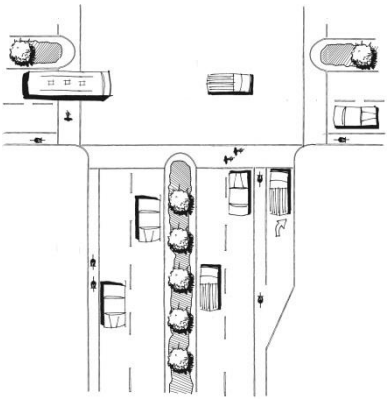
POLICIES

15-6.1: Implement the "Hillsborough County Comprehensive Bicycle Plan," adopted by the Hillsborough County Metropolitan Planning Organization in November 2004.

15-6.2: Design bicycle facilities for designated roadways to include the following considerations:

- Bike paths, lanes, and shoulders planned for designated roadways, in coordination with adjacent uses and appropriate to different roadway types.
- Facilities which are well marked and signed, and that are designed for ease of maintenance.

15-6.3: Encourage private development to provide pedestrian and bicycle facilities on site by reducing parking requirements.



Bike lane configuration through an intersection.



Bike lanes should be included as part of the typical roadway.



Where bike lanes are not feasible, signs should be installed informing vehicular users that bikes share the roadway.

6.7 BICYCLE NETWORK (Continued)

GOAL 15: Provide a transportation system throughout Hillsborough County that is safe and functional for all modes of transportation, is aesthetically-pleasing, and is designed to meet the overall needs of the communities it serves. (Continued)

OBJECTIVE 15-6: Provide for the needs of bicyclists in the design of designated roadway improvements and of new roadways. (Continued)

POLICIES

15-6.4: Include bicycle-sensitive traffic control signals, appropriately identified with road marking and signs, in all intersection improvement projects and new construction.

15-6.5: Provide bike lockers or storage racks at major destinations and transit connections, close to main entrances of buildings in highly visible, or in high trafficked, easy to access location. Bicycle parking provided in a covered location is preferred.

15-6.6: Paved shoulders for use by bicyclists should be included along roadways without designated bike lanes where feasible.

15-6.7: Travel lane width reductions should be considered in order to provide expanded paved shoulders, wide outside lanes or bike lanes.

15-6.8: Where bike lanes are not currently part of the road, install during road maintenance, resurfacing, or restriping where feasible.

15-6.9: Where bike lanes are adjacent to transit stops signage should be added to make bicyclists aware of transit stop locations to ensure safety among pedestrian, bicyclists and busses.



There is a greater tendency for conflicts to arise when bicyclists and pedestrians share sidewalks.



Covered parking helps protect bikes from inclement weather. At this mall, bike racks with lids are provided.



Enhance trail connectivity by coordinating trail planning among neighboring jurisdictions.

6.8 TRANSIT NETWORK

GOAL 15: Provide a transportation system throughout Hillsborough County that is safe and functional for all modes of transportation, is aesthetically-pleasing, and is designed to meet the overall needs of the communities it serves. (Continued)

OBJECTIVE 15-7: Ensure that roadway improvements and new roadways are designed to accommodate mass transit.

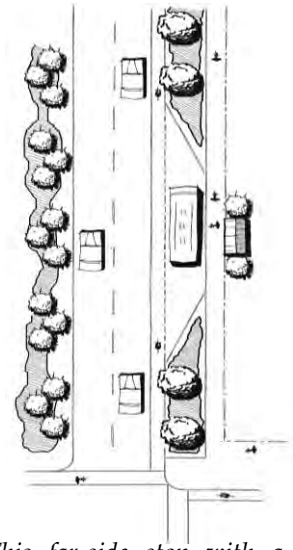
POLICIES

15-7.1: Design designated new roadways and roadway improvements with transit lanes, pull-off areas, and/or bus stops where appropriate.

15-7.2: Transit stops shall be easily accessible to pedestrians, bicyclists, and all persons with disabilities. Provide access to transit stops by providing sidewalks and ADA improvements as standard part of roadway projects. Provide these improvements as part of transportation mitigation for new developments.

15-7.3: Provide standards and incentives for transit facilities, such as a reduction in the amount of parking required for development, where appropriate in private developments.

15-7.4: Far side stops (stops located immediately past an intersection) are the preferred standard for bus stop location. Near side (stops located immediately before an intersection in the direction of bus travel) and mid-block locations should be used where specific conditions make them preferable.



This far-side stop with a pull-off area is the preferred design.



The photograph above demonstrates a transit stop that is not easily accessible. This contrasts with the nicely planned and maintained stop in the photograph below.



6.8 TRANSIT NETWORK (Continued)

GOAL 15: Provide a transportation system throughout Hillsborough County that is safe and functional for all modes of transportation, is aesthetically-pleasing, and is designed to meet the overall needs of the communities it serves. (Continued)

OBJECTIVE 15-8: Ensure those transit stops are designed taking into account user comfort and safety.

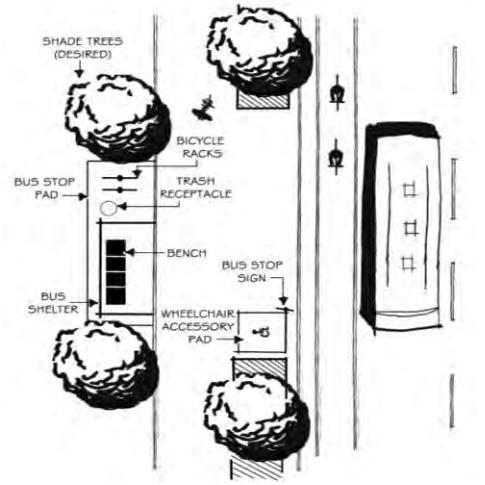
POLICIES

15-8.1: Placement of benches at bus stops should not impede the use of sidewalks or trails.

15-8.2: Support potential transit ridership through appropriately located land use designations of activity centers.

15-8.3: Where feasible, well-lit access ways to transit stops and shelters are preferred.

15-8.4: The provision of landscaping near the transit stop in the form of shade or ornamental/palm trees is encouraged to maximize passenger comfort. However, all landscaping should be located so as not to obstruct the shelter canopy (if present) or bus stop visibility.



Good transit stop design.



Poorly maintained landscape obstructs views to and from this shelter.



Amenities surrounding this stop contribute to making this a pleasant place to wait.

6.9 VEHICULAR NETWORK

GOAL 15: Provide a transportation system throughout Hillsborough County that is safe and functional for all modes of transportation, is aesthetically-pleasing, and is designed to meet the overall needs of the communities it serves. (Continued)

OBJECTIVE 15-9: Ensure that proper planning efforts coincide with roadway improvements and the creation of new roadways.

POLICIES

15-9.1: Require that roadway planning reflect the long-term implications of the future allowable land uses and future utility easements affecting the surroundings through roadway corridor planning efforts.



Roadway planning should take into account long-term implications.



Citizen involvement in roadway planning is recommended.

6.10 SAFETY AND TRAFFIC CALMING

GOAL 15: Provide a transportation system throughout Hillsborough County that is safe and functional for all modes of transportation, is aesthetically-pleasing, and is designed to meet the overall needs of the communities it serves. (Continued)

OBJECTIVE 15-10: Provide design elements that contribute to a safe driving experience.

POLICIES

15-10.1: Maintain asphalt and roadway striping. Maintain visibility, especially at intersections, by providing lighting, well maintained signals and signage, and appropriately spaced and maintained landscape.

15-10.2: Utilize innovative design techniques to improve the safety and function of roadways including roundabouts and traffic circles in both residential and commercial areas.

15-10.3: Provide visual cues to drivers that alert them to the presence of pedestrians and bicyclists.

15-10.4: Roadside plantings, such as trees lining both sides of roadways provide a traffic calming effect and are encouraged.

15-10.5: Roads should be designed with traffic calming features emphasizing horizontal deflection rather than retrofitted with traffic calming devices that rely on vertical deflection, such as speed humps.



Roundabouts can serve as both traffic calming and decorative features.



Visual cues such as these signs and crosswalk alert drivers of the presence of pedestrians and bicyclists.



The presence of this tree canopy provides a traffic calming effect along this scenic rural road.

6.11 AESTHETICS

GOAL 15: Provide a transportation system throughout Hillsborough County that is safe and functional for all modes of transportation, is aesthetically-pleasing, and is designed to meet the overall needs of the communities it serves. (Continued)

OBJECTIVE 15-11: Preserve natural and historic features in the process of improving existing roadways or building new facilities, and in the process of developing adjacent properties.

POLICIES

15-11.1: Recognize the scenic corridors, as illustrated in the Future Land Use Map series. By 2018, update the scenic corridor program or alternatively, replace with a corridor based landscaping requirement into the Land Development Code. If a corridor based landscape requirement is adopted, consider developing a new scenic corridor program to recognize and protect public roadways that provide unique and extraordinary vistas of man-made or natural features.[xxvi]

15-11.2: Preserve existing stands of trees, and provide new tree planting associated with any roadway expansion or new construction.

15-11.3: Provide design features to emphasize the gateway character of designated roadways at the entrances to the County and to local communities.



A roadway with significant tree cover should be considered for scenic corridor designation.

6.12 ACCESS MANAGEMENT

GOAL 15: Provide a transportation system throughout Hillsborough County that is safe and functional for all modes of transportation, is aesthetically-pleasing, and is designed to meet the overall needs of the communities it serves. (Continued)

OBJECTIVE 15-12: Encourage clear and efficient patterns of movement for access and circulation by designing roadway improvements and new roadways with patterns of access which enhance the livability of the transportation system.

POLICIES

15-12.1: Provide access across property lines which will allow the users of commercial, office, and civic institutions, as well as mixed-use projects to travel between uses without returning to the roadway. This pattern should utilize the following:

- Interconnect parking areas on separate properties to accommodate cross traffic of people and cars.

* Where the building placement is standard, require access across property lines in front of the building line.
* Where reverse frontage building placement is used, require cross access at the rear of the property line.
* Where vehicular cross access cannot be accommodated, a minimum of pedestrian cross access should be provided.

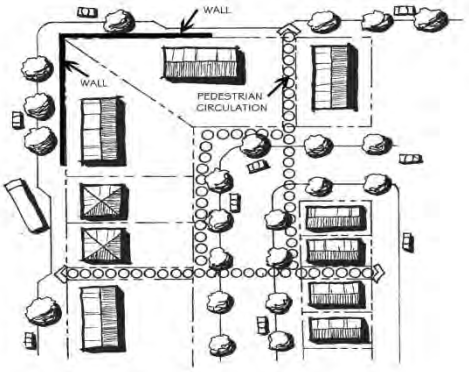
15-12.2: Placement of walls or other permanent barriers that preclude the movement of people and cars between properties should be avoided. Provide access points as needed to allow for pedestrian passage.



There is a clear connection between the building and parking area in this example.



This type of access management, where one business has multiple non-connecting parking lots, is not recommended.



Placement of walls that preclude pedestrian movement should be avoided.

6.12 ACCESS MANAGEMENT (Continued)

GOAL 15: Provide a transportation system throughout Hillsborough County that is safe and functional for all modes of transportation, is aesthetically-pleasing, and is designed to meet the overall needs of the communities it serves. (Continued)

OBJECTIVE 15-12: Encourage clear and efficient patterns of movement for access and circulation by designing roadway improvements and new roadways with patterns of access which enhance the livability of the whole system. (Continued)

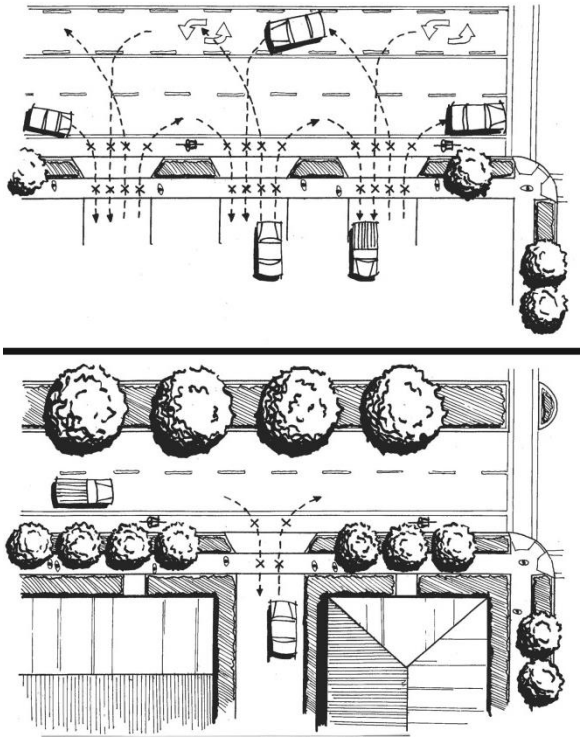
POLICIES

15-12.3: Provide continuous and direct connections between sidewalks and building entrances.

15-12.4: Allow a parking reduction for properties that share both cross access and a common entrance drive.[xxvii]

15-12.5: Access to parking areas should be provided primarily from side streets.

15-12.6: Mid-block and rear alleys should be utilized where feasible for access to parking, utilities, service and unloading areas in order to minimize the number of required curb cuts along primary access routes.



The placement of a planned median in this graphic reduces the potential for conflicts between motorists and non-motorists.



This is an example of rear parking.

6.13 LANDSCAPE DESIGN

GOAL 16: Provide aesthetically-pleasing landscape treatment along roadways and in the right-of-way. Support its creation and maintenance within adjacent developments.

OBJECTIVE 16-1: Ensure that publicly owned land and right-of-way is attractively and appropriately landscaped.

POLICIES

16-1.1: Design roadway landscaping to include the following considerations:

- Planting that follows guidelines for vehicular safety.
- Landscaping in both the right-of-way and the medians.
- Preservation of existing vegetation where feasible.
- Landscape that is planned to emphasize the unique character of each roadway and the adjacent uses through appropriately located land use designations of activity centers.
- Planting that follows safety guidelines for planting trees under or vegetation around powerlines.

16-1.2: Provide for a unified and well designed landscape treatment.



Landscaping in the right-of-way.



Landscaping in the median.



Landscape treatment should appear unified.

6.13 LANDSCAPE DESIGN (Continued)

GOAL 16: Provide aesthetically-pleasing landscape treatment along roadways and in the right-of-way. Support its creation and maintenance within adjacent developments. (Continued)

OBJECTIVE 16-1: Ensure that publicly owned land and right-of-way is attractively and appropriately landscaped. (Continued)

POLICIES

16-1.3: Where narrow rights-of-way limit opportunities for landscaping, planting easements should be considered through agreements with adjacent property owners.

16-1.4: Provide development incentives to encourage private development to provide enhanced landscaping and retention facilities as amenities.

16-1.5: Plantings in the right-of-way should be self-sustaining, and should include low cost plant materials that require minimal maintenance.

16-1.6: Encourage the provision of landscaping by requiring upright "type F" curb for collector and arterial roadways in urban and suburban plan categories where appropriate design speeds allow.

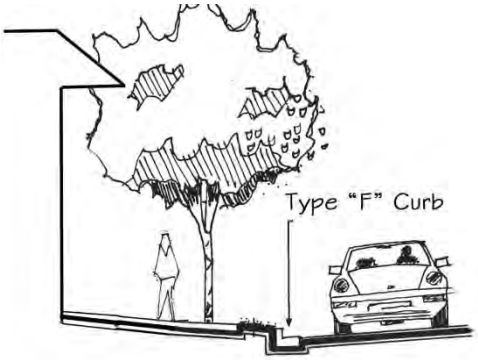
16-1.7: Provide regularly spaced shade trees along the roads and adjacent to sidewalks.



Planting easements agreements with private developers may be considered to facilitate opportunities for landscaping in narrow areas.



Incentives may be provided to encourage enhanced landscape treatments.



"Type F" curbs provide more room for the application of landscape.

6.13 LANDSCAPE DESIGN (Continued)

GOAL 16: Provide aesthetically-pleasing landscape treatment along roadways and in the right-of-way. Support its creation and maintenance within adjacent developments. (Continued)

OBJECTIVE 16-1: Ensure that publicly owned land and right-of-way is attractively and appropriately landscaped. (Continued)

POLICIES

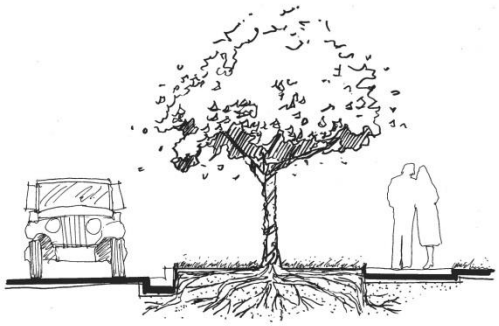
16-1.8: Where new development encroaches on existing stands of trees adjacent to the roadway, retain a viable strip of the existing vegetation at the front property line.

16-1.9: Where retention areas must be fenced, paint the fencing dark green or black, and provide landscaping.

16-1.10: Individuals, groups, or organizations should be permitted to plant within the road right-of-way, they must agree to also maintain or pay to maintain the planting area.



Ongoing maintenance is an important consideration for roadway plantings and fencing.



Root barriers can help minimize damage to roadways and sidewalks.



Sponsoring of roadways is encouraged.

7.0 SITE DESIGN DESIGN

7.1 DEVELOPMENT PATTERN

GOAL 17: Develop commercial areas in a manner which enhances the County's character and ambiance.

OBJECTIVE 17-1: Facilitate patterns of site development that appear purposeful and organized.

POLICIES

17-1.1: Coordinate site planning between properties.

17-1.2: Coordinate building patterns that cross property lines. This should include the following considerations:

- Facades that are aligned.
- Similar landscape.
- Continuous sidewalks and landscape along the building fronts.
- Compatible scale, materials, signage, and details.

17-1.3: To maximize street frontages of buildings, buildings should be orientated so the long side fronts the street corridor.

17-1.4: Affect the design of new commercial structures to provide an organized and purposeful character for the whole commercial environment.

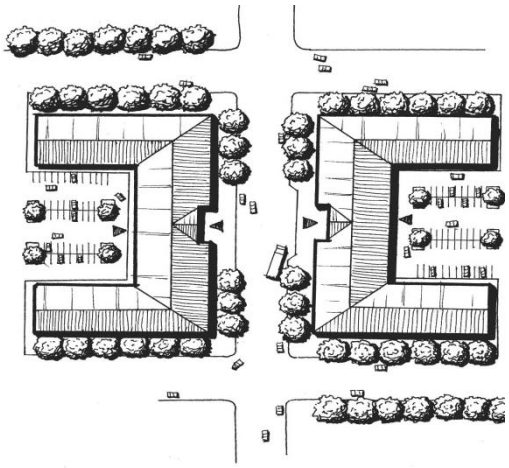
17-1.5: Orient building entrances and roadways toward transit stops, if present.



This unified wall with artwork required coordination of site planning.



The aligned facades and compatible materials help make these buildings read as unified.



Buildings orientated toward transit stops.

7.1 DEVELOPMENT PATTERN (Continued)

GOAL 17: Develop commercial areas in a manner which enhances the County's character and ambiance. (Continued)

OBJECTIVE 17-1: Facilitate patterns of site development that appear purposeful and organized. (Continued)

POLICIES

17-1.6: Amend the regulations requiring loading docks for all commercial facilities, making the requirement optional, appropriate to the specific conditions of the development proposal.

17-1.7: Reserve linear corridors for trails in new developments, particularly where such corridors would connect to an existing or planned county multi-use paved trail or destinations such as parks, school and shopping in the vicinity of the development.



Enhanced commercial standards can make even typically big-box retailers compatible with surrounding development.



Loading docks should be optional for commercial facilities.



Linear corridor in a new development.

7.2 SETBACKS

GOAL 17: Develop commercial areas in a manner which enhances the County's character and ambiance. (Continued)

OBJECTIVE 17-2: Promote the use of setbacks that encourage multi-modal travel.

POLICIES

17-2.1: Provide a sense of vertical enclosure with relatively similar building heights, building recesses, and/or street trees.

17-2.2: In urban areas, buildings should be located close or adjacent to the sidewalk.

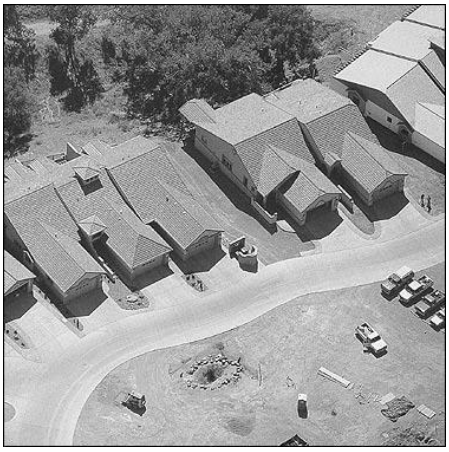
17-2.3: Provide shaded sidewalks across the front property line and along the front edge of the buildings.

17-2.4: Connect areas internal to development as well as with adjacent land uses using continuous sidewalks. Ensure that sidewalks interconnect with existing or future sidewalks on adjacent properties and on the public right-of-way.

17-2.5: Design building patterns that create public spaces and street edges, utilizing the reverse frontage layout where appropriate. Encourage the development of new plazas, seating areas, and displays that draw pedestrians toward buildings.



Vertical enclosure.



Developments with no sidewalks and garages close to the street diminish the County's character.



Plazas and seating areas are encouraged.

7.2 PARKING DESIGN

GOAL 18: Promote parking design that reduces the presence of vehicles on-site.**OBJECTIVE 18-1:** Provide desirable parking lot configurations.

POLICIES

18-1.1: Promote the design of parking structures designed to resemble adjacent buildings.

18-1.2: Provide a parking credit for the preservation of trees within the parking area.

18-1.3: Allow up to 25% of required parking area to be in a permeable surface - grass-crete, turf block, plastic egg crate, gravel, or grass.

18-1.4: Encourage parking at sides and at rear of buildings, where the reverse frontage building layout is used.

18-1.5: Allow off-site parking where appropriate in urban settings.

18-1.6: Design the layout of parking bays within parking lots to facilitate safe and convenient walking to building entrances.

18-1.7: Separate and screen parking areas from the sidewalk by a 3' tall visually opaque planted strip, allowing breaks for pedestrian passage.

18-1.8: Amend standards for landscape in parking lots to allow for innovative solutions.

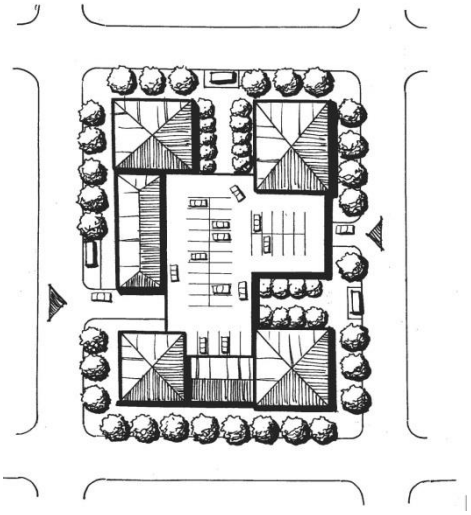
18-1.9: Allow a reduction in the number of required parking spaces for a development if transit facilities are placed on site.

18-1.10: Parking structures within designated urban area or activity centers should include ground floor retail or office use and be considered for a reduction in parking areas.



Good examples are parking garages that have been made to resemble adjacent buildings.





Well-designed parking garages are encouraged. In this graphic several businesses share one central garage that is located internal to the block

7.4 BUILDING FAÇADE

GOAL 19: Encourage design of façades that capture street-level attention.

OBJECTIVE 19-1: Provide for context-sensitive design of building façades.

POLICIES

19-1.1: Design fronts of commercial buildings with a minimum of 50% transparent facades and clearly marked entrances.

19-1.2: Buildings with facades greater than 100 feet in length should be broken down in scale by means of the articulation of well-proportioned and separate volumes. Strategic elements include the variation of architectural treatment and elements such as colors, materials, heights, setbacks.

19-1.3: Provide exterior building lighting.

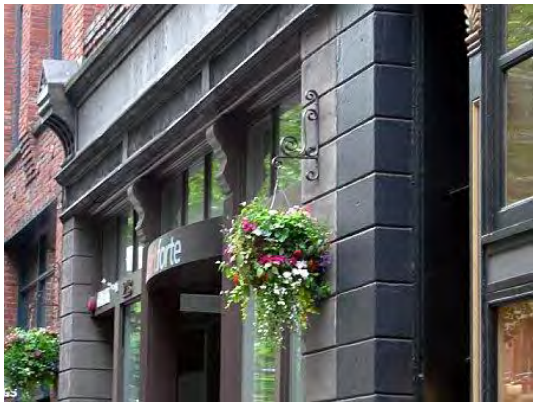
19-1.4: In urban areas, buildings should include at the street level elements that attract pedestrian attention, such as large display windows and signage.

19-1.5: Provide building guidelines for commercial development which reflect the climate and history of the County.

19-1.6: Allow architectural conditions to be applied during the site plan review process.



This large building mass is broken down with variation of height, setbacks, and architectural treatments.



Exterior building lighting, or aesthetic treatments such as hanging plants, is encouraged.



Many elements about this building, such as the large windows and signs, attract pedestrian attention.

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8.0 IMPLEMENTATION DESIGN

8.1 DOCUMENT CONTEXT

The *Livable Communities Element* is one of several elements comprising the *Future of Hillsborough – A Comprehensive Plan for Unincorporated Hillsborough County*. This optional element, as identified in Florida Statute Chapter 163.3177(7) (f), provides for "a recommended community design element" whose purpose is to "aid developers in the future planning and development of the land in the area."

The Livable Communities Element combines the principles of several documents. It is an update of the Future Land Use Element's Community Design Component, and includes goals, objectives policies of the Livable Roadways Guidelines. An extension and refinement of the Comprehensive Plan, known as the Community and Special Area Studies, is also included. In addition, this element directly ties into the Future Land Use, Recreation and Open Space, and Transportation Elements of the Comprehensive Plan.

Chapter 9J-5, FAC requires that the Comprehensive plan's Goals, Objectives and Policies be compatible with the State of Florida Comprehensive Plan and the Tampa Bay Comprehensive Policy Plan, which are identified in the required elements of the plan.

8.2 LIVABLE COMMUNITIES NEXT STEPS

GOAL 20: Provide for the implementation of Livable Communities Considerations.

OBJECTIVE 20-1: Integrate comprehensive plan and other Hillsborough County policies relating to livable roadways into the planning and design process for transportation infrastructure through a process of interagency coordination.

POLICIES

20-1.1: Implement "Livable Roadways Guidelines," adopted by the Hillsborough County Metropolitan Planning Organization in August 2006.

20-1.2: Implement Hillsborough County Comprehensive Pedestrian Plan adopted by the Metropolitan Planning Organization in November 2004 and endorsed by the Board of County Commissioners.

20-1.3: Continue to implement the North Dale Mabry Corridor Plan, adopted by the Board of County Commissioners on December 12, 1989. Within the North Dale Mabry Corridor Plan, office uses may be considered pursuant to the locational criteria. Commercial uses should be located within designated activity centers. A process to reevaluate and update the corridor plan should be completed by the community and Hillsborough County by December 2007 and reevaluated each ten years thereafter.

20-1.4: Continue to utilize Livable Roadways Guidelines in the review of capital improvement projects and private development proposals. Ensure that publicly and funded transportation projects in Hillsborough County are consistent with the comprehensive plan and the Livable Roadways Guidelines in that they result in a complete transportation network for pedestrians, transit users and bicyclists.

20-1.5: Continue to support the function of the Hillsborough County Livable Roadways Committee.

20-1.6: Educate and enlist implementing staffs of the several jurisdictions and agencies to understand and apply livable roadway principles.

20-1.7: Establish a design review procedure to insure that livable roadway components are included in planning for all roadway improvements and new construction.

8.2 LIVABLE COMMUNITIES NEXT STEPS (Continued)

GOAL 20: Provide for the implementation of Livable Communities Considerations. (Continued)

OBJECTIVE 20-2: Continue to support programs that encourage public participation in the roadway planning and design process.

POLICIES

20-2.1: Provide coordinated programs and standards affecting livable roadway provisions, facilitating cooperation among the several responsible jurisdictions and agencies, as well as public/private partnership opportunities.

20-2.2: Continue to provide support to community and civic groups which undertake voluntary roadway landscape programs in their local communities through education and assistance in addressing requirements.

20-2.3: Continue to develop and implement community based programs in order to encourage additional public participation in the roadway planning and design process.

20-2.4: Adopt new procedures to integrate community input into roadway planning through citizen involvement in the process prior to route selection and the design of the roadway by 2012.

20-2.5: Where conditions warrant, undertake adjacent neighborhood planning concurrently with roadway planning.

20-2.6: Undertake planning for scenic corridors together with community or neighborhood planning where appropriate.

8.2 LIVABLE COMMUNITIES NEXT STEPS (Continued)

GOAL 20: Provide for the implementation of Livable Communities Considerations. (Continued)

OBJECTIVE 20-3: Encourage development of roadways that better accommodate multi-modes of travel within the right-of-way.

POLICIES

20-3.1: Revise existing standards as necessary for public roads to include landscaping, sidewalks, and crosswalks as part of the typical roadway by 2012.

20-3.2: Plan and budget for the construction and maintenance of pedestrian facilities for designated roadways simultaneously with roadway planning.

20-3.3: Consider the application of all components of livable roadways toward the computation of impact fees.

20-3.4: Design designated new roadways and roadway improvements with transit lanes, pull-off areas, and/or bus stops where appropriate. (Institute a program to provide transit facilities on existing designated roadways by undertaking agency coordination on transportation projects and policies.)

20-3.5: Revise existing standards for public roads as necessary to include bicycle lanes as part of the typical roadway.

20-3.6: Where bike lanes are not currently part of the road, install during road maintenance, resurfacing, or restriping where feasible.

20-3.7: Plan and budget for the construction and maintenance of bicycle and pedestrian facilities for designated roadways simultaneously with roadway planning.

20-3.8: Coordinate trail planning among neighboring jurisdictions to match and link elements when a trail crosses jurisdictional boundaries in order to enhance trail connectivity.

8.2 LIVABLE COMMUNITIES NEXT STEPS (Continued)

GOAL 20: Provide for the implementation of Livable Communities Considerations. (Continued)

OBJECTIVE 20-4: Develop regulations to improve the appearance of roadway corridors.

POLICIES

20-4.1: Provide overlay district regulations for new development in designated corridors, to deal with such design features as access management, parking and building placement, and landscape.

20-4.2: Provide design features to emphasize the gateway character of designated roadways at the entrances to the County and to local communities.

20-4.3: Create special sign districts where appropriate, to reflect characteristics such as neighborhood identity, historic or environmental features, or rural character.

20-4.4: Establish funding sources for roadway enhancements, including but not limited to:

- 1% of construction costs as a minimum for landscape programs.
- Beautification grants from state and national sources.

20-4.5: Create standards for gateways in the community and banners and awnings for "main streets" by 2008.

20-4.6: Use the data and information already gathered for specific corridors to provide information that can assist elected officials to understand the characteristics of these corridors, relative to considerations for land use and rezonings.

8.2 LIVABLE COMMUNITIES NEXT STEPS (Continued)

GOAL 20: Provide for the implementation of Livable Communities Considerations. (Continued)

OBJECTIVE 20-5: Facilitate the development of regulatory programs meant to promote higher quality redevelopment standards.

POLICIES

20-5.1: Facilitate the process of building Livable Communities by providing a separate track through the regulatory process and by having knowledgeable personnel to administer the process by 2011.

20-5.2: Develop a program to train agencies and regulators in the principles of neighborhood design, and encourage all involved to take a proactive role in promoting and utilizing the principles by 2010.

20-5.3: Develop a program to inform the development community of the Livable Communities option, by making information available and widely disseminated.

20-5.4: Promote the establishment of a neighborhood review process to review rezonings and development proposals.

20-5.5: In residential areas, by 2009, the County will revise setback requirements to allow porch easements in subdivision design, and to allow living areas of house to be closer to the street than garage areas.

8.2 LIVABLE COMMUNITIES NEXT STEPS (Continued)

GOAL 20: Provide for the implementation of Livable Communities Considerations. (Continued)

OBJECTIVE 20-6: Make it easier to incorporate parks, open space, and recreational elements within communities.

POLICIES

20-6.1: Define strategies for increasing the amount of parks in neighborhoods should be investigated by 2010.

- Consideration should be given to altering impact fee zones to smaller geographic regions to more accurately provide neighborhoods parks on an equitable level across the County.

20-6.2: The availability of parks in smaller geographic areas should be reviewed to further determine what specific areas are lacking in these facilities and what types of recreation programs and facilities are needed in that community.

- As residential developments are approved, track where and how much park land is provided by developers in order to gain a better understanding of the actual provision of park facilities in future assessments.

20-6.3: The scale and type of incorporated activities within parks should be appropriate and should meet the needs of the community residents in which facilities are placed.

20-6.4: Master planning efforts should be increased to determine specifically what and how new connections would be possible to existing trails and greenways.

8.2 LIVABLE COMMUNITIES NEXT STEPS (Continued)

GOAL 20: Provide for the implementation of Livable Communities Considerations. (Continued)

POLICIES

20-7.1: Amend the Land Development Code to implement this element.

20-7.2: Incorporate CPTED techniques and principles in new development by 2007.

20-7.3: Guide development in the county into a pattern which supports compact development within the urban service area and opens opportunities for traditional community development.

20-7.4: Plan a network of future public improvements which will provide a basic pattern for future development within the urban service area.

20-7.5: Update plan policies and land development code provisions to ensure that they accurately reflect the community's desires for a higher quality of design and greater compatibility among land uses by 2012.

20-7.6: Establish a mechanism for determining neighborhood design which is compatible with its surroundings, with urban standards for new development in urbanizing areas, rural standards for development in rural areas, and enhanced suburban standards for suburban areas.

20-7.7: Consider implementing the *Hillsborough Community Cultural Plan* adopted by the Arts Council Steering Committee and Task Force Chairs in September 2006 and received by the Board of County Commissioners (2/2007).

20-7.8: Hillsborough County should consider working with the Arts Council to create a master plan to integrate cultural uses into the design of neighborhoods, community centers, recreation facilities, libraries, and schools to serve community and neighborhood needs by 2010.

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Appendix A:
Land Use Plan Categories

TABLE OF RESIDENTIAL DENSITIES

Land Use Category	Maximum Residential Density Allowed**
Rural-Agriculture Development Area	
Agricultural/Mining-1/20	1 du/ 20 gross acres
Agricultural-1/10	1 du/ 10 gross acres
Agricultural/ Rural-1/5	1 du/ 5 gross acres
Rural-Residential Development Area	
Agricultural Estate-1/2.5	1 du/ 2.5 gross acres
Planned Environmental Community – ½	1 du/ 2 gross acres
Residential Planned -2	2 du/ga
Residential – 1	1 du/ga
Suburban Development Area	
Residential -2	2 du/ga**
Residential Planned -2	2 du/ga
Wimauma Village Residential-2	2 du/ga
Residential -4	4 du/ga**
Neighborhood Mixed Use-1(3)	4 du/ga**
Residential -6	6 du/ga**
Suburban Mixed Use-6	6 du/ga**
Urban Development Area	
Residential – 9	9 du/ga**
Residential – 12	12 du/ga**
Residential – 16	16 du/ga**
Community Mixed Use-12	12 du/ga**
Residential-20	20 du/ga**
Residential -35	35 du/ga**
Office Commercial-20	
Urban Mixed Use-20	20 du/ga**
Regional Mixed Used-35	35 du/ga**
Citrus Park Village	See Livable Communities Element
Non-Residential Development Areas	
Research/Corporate Park	No Residential Uses Allowed
Light Industrial	No Residential Uses Allowed
Light Industrial-Planned	No Residential Uses Allowed
Heavy Industrial	No Residential Uses Allowed
Energy Industrial Park	No Residential Uses Allowed
Electrical Power Generating Facility	1 du/ 5 gross acres
Natural Preservation	No Residential Uses Allowed
Major Public/Quasi-Public	No Residential Uses Allowed
Overlay Areas	
Scenic Corridor	Overlay-Scaled to Area
Environmentally Sensitive Areas	Identification Only Overlay
CL 50	50 % of the site may be required open space based on the natural characteristics of the property.

Density is expressed in dwelling units per gross acres (du/ga). The densities allowed are the maximum possible.

** In the Urban Service Area, new development or redevelopment should occur at a density of at least 75% of the allowable density of the land use category, unless the development meets the criteria outlined in the Future Land Use Elemen

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FUTURE OF HILLSBOROUGH
RURAL-AGRICULTURE LAND USE CLASSIFICATION

Agricultural/Mining -1/20 (AM-1/20)

RESIDENTIAL GROSS DENSITY

Up to 1 dwelling unit per 20 gross acres. Alternative methods for calculating density of certain uses are specified in the land development regulations. Density bonuses and credits may be considered in this category and are described in the Plan.

No minimum lot size is required to support the clustering and preservation of open spaces left in a natural state. See related policies regarding clustering.

TYPICAL USES

Mining and related activities, farms, ranches, feed lots, residential uses, rural scale neighborhood commercial uses, offices, and industrial uses related to agricultural uses. Neighborhood serving commercial uses shall meet established locational criteria for specific land use.

MAXIMUM FLOOR AREA RATIO OR SQUARE FEET

Rural scale neighborhood commercial, office or industrial up to 40,000 sq. ft. or .25 FAR, whichever is less intense. Actual square footage limit is dependent on classification of roadway intersection where project is located.

SPECIFIC INTENT OF CATEGORY

To designate either those areas of long term agricultural character or those areas currently involved in agricultural and mining productivity, or other rural uses. This category will also permit residential, rural scale neighborhood commercial, office, and industrial uses in those areas meeting established locational criteria. As long as no subdivision of land is involved, group quarters, temporary housing, rehabilitation centers and residential uses for agricultural/rural related activities can be exempt from the density limitations subject to the Goals, Objectives, and Policies of the Land Use Element and applicable development regulations.

In addition, mining activities and commercial and industrial uses directly related to or serving the local mining activities may be permitted in appropriate locations, in conformance with adopted environmental, mining, development regulations, and zoning regulations.

Agricultural - 1/10 (A-1/10)

RESIDENTIAL GROSS DENSITY

Up to 1 dwelling unit per 10 gross acres. Alternative methods for calculating density of certain uses are specified in the land development regulations. Density bonuses and credits may be considered in this category and are described in the Plan.

No minimum lot size is required to support the clustering and preservation of open spaces left in a natural state. See related policies regarding clustering.

TYPICAL USES

Farms, ranches, feed lots, residential uses, rural scale neighborhood commercial uses, offices, industrial uses related to agricultural uses, and mining related activities. Non-residential uses shall meet established locational criteria for specific land use. Adoption/child caring communities are permitted subject to the criteria outlined in Objective 55 and related policies.

MAXIMUM FLOOR AREA RATIO OR SQUARE FEET

Rural scale neighborhood commercial, office or industrial up to 40,000 sq. ft. or .25 FAR, whichever is less intense. Actual square footage limit is dependent on classification of roadway intersection where project is located.

SPECIFIC INTENT OF CATEGORY

To designate either those areas of long term agricultural character or those areas currently involved in agricultural productivity, or other rural uses. This category will also permit residential, rural scale neighborhood commercial, office, and industrial uses in those areas meeting established locational criteria. As long as no subdivision of land is involved, group quarters, temporary housing, rehabilitation centers and residential uses for agricultural /rural related activities can be exempt from the density limitations subject to the Goals, Objectives, and Policies of the Land Use Element and applicable development regulations.

In addition, mining activities and commercial and industrial uses directly related to or serving the local mining activities may be permitted in appropriate locations, in conformance with adopted environmental, mining, development regulations, and zoning regulations.

Areas of rural character are best suited for Adoption/Child Caring Communities in that: (i) they provide a needed respite from the challenges and influences of an urban setting by lessening the stress that children are otherwise subjected to in an urban setting; (ii) rural settings provide for and accommodate the exploration of natural outdoor habitats which positively contributes to the healing process and a child's mental well-being; (iii) rural settings provide a sense of freedom, albeit within the normal structure of a family, and an opportunity to create the sense of a safe family structure; (iv) rural settings provide the opportunity to enjoy and interact with nature.

FUTURE OF HILLSBOROUGH
RURAL-AGRICULTURE LAND USE CLASSIFICATION

Agricultural/Rural - 1/5 (AR-1/5)

RESIDENTIAL GROSS DENSITY

Up to 1 dwelling units per 5 gross acres. Alternative methods for calculating density of certain uses are specified in the land development regulations. Density bonuses and credits may be considered in this category and are described in the Plan.

No minimum lot size is required to support the concept of clustering and preservation of open spaces left in a natural state. See related policies regarding clustering.

TYPICAL USES

Farms, ranches, feed lots, residential uses, rural scale neighborhood commercial uses, offices, industrial uses related to agricultural uses, and mining related activities. Non-residential uses shall meet established locational criteria for specific land use. Adoption/child caring communities are permitted subject to the criteria outlined in Objective 55 and related policies.

MAXIMUM FLOOR AREA RATIO OR SQUARE FEET

Rural scale neighborhood commercial, office or industrial up to 40,000 sq. ft. or .25 FAR, whichever is less intense. Actual square footage limit is dependent on classification of roadway intersection where project is located.

SPECIFIC INTENT OF CATEGORY

To designate either those areas of long term agricultural character or those areas currently involved in agricultural productivity, or other rural uses. This category will also permit residential, rural scale neighborhood commercial, office, and industrial uses in those areas meeting established locational criteria.

As long as no subdivision of land is involved, group quarters, temporary housing, rehabilitation centers and residential uses for agricultural/rural related activities can be exempt from the density limitations subject to the Goals, Objectives, and Policies of the Land Use Element and applicable development regulations.

In addition, mining activities and commercial and industrial uses directly related to or serving the local mining activities may be permitted in appropriate locations, in conformance with adopted environmental, mining, development regulations, and zoning regulations.

Areas of rural character are best suited for Adoption/Child Caring Communities in that: (i) they provide a needed respite from the challenges and influences of an urban setting by lessening the stress that children are otherwise subjected to in an urban setting; (ii) rural settings provide for and accommodate the exploration of natural outdoor habitats which positively contributes to the healing process and a child's mental well-being; (iii) rural settings provide a sense of freedom, albeit within the normal structure of a family, and an opportunity to create the sense of a safe family structure; (iv) rural settings provide the opportunity to enjoy and interact with nature.

FUTURE OF HILLSBOROUGH
RURAL-RESIDENTIAL LAND USE CLASSIFICATION

Agricultural Estate-1/2.5 (AE-1/2.5)

RESIDENTIAL GROSS DENSITY

Up to 1 dwelling units per 2.5 gross acres. Alternative methods for calculating density of certain uses are specified in the land development regulations. Density bonuses and credits may be considered in this category and are described in the Plan.

No minimum lot size is required to support the concept of clustering and preservation of open spaces left in a natural state. See related policies regarding clustering.

TYPICAL USES

Farms, ranches, residential uses, rural scale neighborhood commercial uses, offices, and multi-purpose projects. Commercial, office, and multi-purpose uses shall meet locational criteria for specific land use projects. Adoption/child caring communities are permitted subject to the criteria outlined in Objective 55 and related policies.

MAXIMUM FLOOR AREA RATIO OR SQUARE FEET

Rural scale neighborhood commercial, office or multi-purpose projects limited to 20,000 sq. ft. or .25 FAR. whichever is less intense. Actual square footage limit is dependent on classification of roadway intersection where project is located.

SPECIFIC INTENT OF CATEGORY

To designate areas that are best suited for agricultural development, usually defined as located on Short -Term Agricultural Lands, and for compatible rural residential uses. Other uses including rural scale neighborhood commercial, office and multi-purpose projects may be permitted when complying with the Goals, Objectives, and Policies of the Land Use Element and applicable development regulations and conforming to established locational criteria for specific land use.

PLANNED ENVIRONMENTAL COMMUNITY – 1/2 (PEC 1/2)

RESIDENTIAL GROSS DENSITY

1.0 dwelling unit per 2.0 gross acres, provided that the development meets the criteria below and enhances publicly-owned parks/natural resource areas which have a common boundary with the property. The enhancement shall occur through the expansion and/or buffering of large natural resource areas and by implementing development requirements that are above current regulatory criteria.

A project qualifying for this category must share a common boundary with a Regional Resource.

Any development must be the subject of a Planned Development (PD) zoning category which includes and implements the Special Development considerations for this classification as outlined in the Implementation section of this Plan.

A project qualifying for this category must be included within a local government water and wastewater utility service area. Septic tanks and potable water wells are prohibited.

TYPICAL USES

Agriculture, residential, suburban scale neighborhood and community commercial, office uses, activity-based recreation, and mixed use projects.

Mining, feed lots, and industrial uses are prohibited.

MAXIMUM FLOOR AREA RATIO OR SQUARE FEET

Suburban scale neighborhood commercial, office or multipurpose projects are limited to 45,000 sq. ft. or .25 FAR, whichever is less intense. Development supporting activity-based recreation shall be limited to .25 FAR.

In addition, mixed use projects utilizing the Planned Environmental Community concept, shall not be limited by the locational criteria found elsewhere for neighborhood commercial uses.

SPECIFIC INTENT OF CATEGORY

Designate areas located within a local government water and wastewater utility service area to provide transitional land uses and to expand Regional Resource protections on privately owned property. Regional Resources as used in this category include large environmentally significant publicly-owned parks/natural resource areas (i.e. ELAPP lands, rivers, streams, bays, and lakes) as defined in this Plan.

The category further encourages enhanced buffering, open space, wildlife corridors, public access, enhanced water quality protection of Regional Resources and the protection of parks, natural resources, and public drinking water from adverse impacts.

FUTURE OF HILLSBOROUGH
RURAL-RESIDENTIAL LAND USE CLASSIFICATION

Residential-1 (RES-1)

RESIDENTIAL GROSS DENSITY	TYPICAL USES	MAXIMUM FLOOR AREA RATIO OR SQUARE FEET	SPECIFIC INTENT OF CATEGORY
Up to 1.0 dwelling units per gross acre. Alternative methods for calculating density of certain uses are specified in the land development regulations. Density bonuses and credits may be considered in this category and are described in the Plan. No minimum lot size is required to support the concept of clustering and preservation of open spaces left in a natural state. See related policies regarding clustering.	Farms, ranches, residential uses, rural scale neighborhood commercial uses, offices, and multi-purpose projects. Commercial, office, and multi-purpose uses shall meet locational criteria for specific land use projects. Agricultural uses may be permitted pursuant to policies in the agricultural objective areas of the Future Land Use Element.	Rural scale neighborhood commercial, office multi-purpose projects limited to 30,000 sq. ft. or .25 FAR, whichever is less intense. Actual square footage limit is dependent on classification of roadway intersection where project is located.	To designate areas for rural residential uses, compatible with short-term Agricultural Uses Other uses including rural scale neighborhood commercial, office and multi-purpose projects may be permitted when complying with the Goals, Objectives and Policies of the Land Use Element and applicable development regulations and conforming to established locational criteria for specific land use.

Residential-2 (RES-2)

RESIDENTIAL GROSS DENSITY

Up to 2.0 dwelling units per gross acre. Alternative methods for calculating density of certain uses are specified in the land development regulations. Density bonuses and credits may be considered in this category and are described in the Plan.

No minimum lot size is required to support the concept of clustering and preservation of open spaces left in a natural state. See related policies regarding clustering.

TYPICAL USES

Residential, suburban scale neighborhood commercial, office uses, and multi-purpose projects. Non-residential uses shall meet locational criteria for specific land use.

Agricultural uses may be permitted pursuant to policies in the agricultural objective areas of the Future Land Use Element.

MAXIMUM FLOOR AREA RATIO OR SQUARE FEET

Suburban scale neighborhood commercial, office or multi-purpose projects limited to 110,000 sq. ft. or .25 FAR, whichever is less intense. Actual square footage limit is dependent on classification of roadway intersection where project is located.

SPECIFIC INTENT OF CATEGORY

To designate areas that are best suited for non-urban density residential development requiring a limited level of urban services, included in appropriate locations, lots large enough to safely accommodate private wells and septic tanks or a combination of septic tanks and public water. Some areas, because of environmental or soil conditions, would be appropriate for only public water and sewer in this designation.

In addition, suburban level neighborhood commercial, office and multi-purpose projects serving the non-urban areas may be permitted, subject to the Goals, Objectives, and Policies of the Land Use Element and applicable development regulations and conforming to established locational criteria for such land use.

FUTURE OF HILLSBOROUGH
RURAL LAND USE CLASSIFICATION

Residential Planned-2 (RP-2)

RESIDENTIAL GROSS DENSITY

Up to 2.0 dwelling units per gross acre, provided that the development demonstrates a Planned Village Concept, on at least 160 acres. A Planned Village, of at least 160 acres, may utilize transfer of development rights to achieve up to 4 units per gross acre. For parcels of less than 160 acres, the gross residential density may not exceed 1 dwelling units per 5 gross acres, unless the requirements of Policy 39.2 are met, which would allow up to 2 dwelling units per gross acre. Alternative methods for calculating density of certain uses are specified in the land development regulations. Density bonuses and credits may be considered in this category and are described in the Plan.

Clustering and Mixed Use are required to obtain the maximum gross density per acre. Mixed use for the purposes of this category must demonstrate integration, scale, diversity and internal relationships of uses on site as well as provide shopping and job opportunities, significant internal trip capture and appropriately scaled residential uses. Land development regulations shall specify the thresholds for non-residential uses appropriate to the scale of the project. Clustering for the purposes of this category will be demonstrated through higher than typical residential net densities. Land development regulations shall provide thresholds for net densities required relative to project size and location, and will be used to determine allowable gross density.

TYPICAL USES

Agriculture, Residential, suburban scale neighborhood and community commercial, office uses, multi-purpose and clustered mixed use projects. Non-residential uses shall meet locational criteria for specific land use.

MAXIMUM FLOOR AREA RATIO OR SQUARE FEET

Suburban scale neighborhood commercial, office or multi-purpose projects limited to 110,000 sq. ft. or .25 FAR, whichever is less intense. Actual space footage limit is dependent on classification of roadway intersection where project is located.

Mixed use projects utilizing the Planned Village Concept are not limited by square footages but may develop up to .35 FAR. Square footages will be limited by the scale relationship within the project.

In addition, mixed use projects utilizing the Planned Village Concept, shall not be limited by the locational criteria found elsewhere for neighborhood commercial uses. Mixed use projects shall demonstrate internal relationships and pedestrian integration among uses.

SPECIFIC INTENT OF CATEGORY

To designate areas that are suited for agricultural development in the immediate horizon of the Plan, but may be suitable for planned villages as described in this plan, in order to avoid a pattern of single dimensional developments that could create urban sprawl. Other uses including rural scale neighborhood and community commercial, office, clustered mixed use, and multi-purpose projects may be permitted when complying with the Goals, Objectives, and Policies of the Land Use Element and applicable development regulations and conforming to established locational criteria for specific land use.

Wimauma Village Residential-2 (WVR-2)

RESIDENTIAL GROSS DENSITY

Up to 2.0 dwelling units per gross acre provided that the development is clustered at a minimum of 3.5 dwelling units per net acre on at least 10.0 acres. Otherwise, the gross residential density may not exceed 1 dwelling unit per 5 gross acres. Clustering is required to obtain the maximum gross density of 2 dwelling units per gross acre. When calculating clustering ratios of 3.5 dwelling units per net acre, all required yards, parking, rights-of-way, and roadways in addition to the dwelling units shall be included in the net acreage. In no event shall contiguous open space constitute less than 40% of the gross site acreage.

Allow for the transfer of up to 2 dwelling units per gross acre densities between 2 separately owned or commonly held properties, whether or not they are contiguous to each other. The *designated sending area* shall be inside the limits of the WVR-2 category. The *designated receiving areas* shall be inside the WVR-2 category *or* inside the Urban Service Area portion of the Wimauma Village Plan. No property shall be left with less development rights than there are existing dwellings on said properties, or less than 1 dwelling unit development for any parcel which would otherwise be eligible for a dwelling unit.

TYPICAL USES

Agriculture, residential uses, multi-purpose and clustered projects. To satisfy locational criteria requirements for non-residential uses, the required non-residential square footage shall be contained in the Wimauma Village Downtown, the West End Commercial District, and the Wimauma Village Light-Industrial and Office District.

To satisfy the employment and shopping requirements of the Plan, the proposed commercial square footage shall be contained in the Wimauma Village Downtown. Other employment square-footage requirements shall be contained in the West End Commercial District and the Wimauma Village Light Industrial and Office District.

The employment and shopping requirements shall be tracked through each individual Planned Development district and as part of the County's Annual Planned Development Review.

TDR tracking shall be via file-permanent deed restriction.

Approvals shall be tracked as part of the County's Annual Planned Development Review.

MAXIMUM FLOOR AREA RATIO OR SQUARE FEET

Employment and shopping opportunities shall be centered in the Wimauma Village Downtown where existing future land uses determine FAR. Allow a maximum .25 FAR in the segment of the category identified as Wimauma Village Light Industrial and Office District.

All approvals shall be through a planned unit development, requiring, at a minimum, an integrated site plan controlled through performance standards to achieve developments that are compatible with surrounding land use patterns. All rezonings shall be through a Planned Development district and shall comply with PART 5.03.00, Hillsborough County Land Development Code as amended.

Developments within the WVR-2 land use plan category that request approval to achieve densities in excess of 1 dwelling unit per 5 gross acres under the Wimauma Village Plan concept shall be on a central public water and sewer system. All capital costs associated with the provision of infrastructure, including, but not limited to, public water, wastewater, parks, and libraries shall be the responsibility of the developer and not the responsibility of Hillsborough County.

SPECIFIC INTENT OF CATEGORY

In order to avoid a pattern of development that could contribute to urban sprawl, it is the intent of this category to designate areas inside the boundaries of the Wimauma Village Plan that are suited for agricultural development in the immediate horizon of the Plan, but may be suitable for the expansion of the Village as described in this Plan.

Open Space (including parks, forestry, outdoor recreation, ELAPP, public uses, ponds, wetlands, corridors and agricultural open space) shall constitute an important component of this category. To avoid environmental isolation and fragmentation, the plan seeks contiguity and connectivity to other open spaces or conservation areas.

Neighborhood Mixed Use-4 (3)(NMU-4(3))

RESIDENTIAL GROSS DENSITY

Up to 4.0 dwelling units per gross acre, provided the project demonstrates a clustered, planned development utilizing open space which ensures the preservation of the natural and scenic qualities of open lands. Some areas have been further limited in density to 3 dwelling units per acre and have been identified on the FLUM as such.

Clustering will be demonstrated through higher than typical residential net densities and preservation of open space to preserve the natural and scenic qualities of open lands.

Rezonings shall be approved through a site planned controlled rezoning district in which the site plan demonstrates detailed internal relationships and pedestrian integration among uses, controlled through performance standards adopted in the Land Development Regulations, or through a mixed use standard zoning district. Exceptions to this requirement may be included within the Land Development Code.

Alternative methods for calculating density of certain uses are specified in the land development regulations. Density bonuses and credits may be considered in this category and are described in the Plan.

TYPICAL USES

Residential, suburban scale neighborhood commercial, office uses, research corporate park uses, multi-purpose and clustered residential and/or mixed use projects at appropriate locations. Office uses are not subject to locational criteria.

Agricultural uses may be permitted pursuant to policies in the agricultural objective areas of the Future Land Use Element.

Projects which provided mixed uses in this category must demonstrate detailed integration, scale, diversity and internal relationships of uses on site.

Projects that are 40 acres in size or greater must demonstrate a mix of land uses in accordance with Policy 19.1. This acreage threshold will not apply to properties that have adopted plan amendments to a mixed use category after January 1, 2008.

MAXIMUM FLOOR AREA RATIO OR SQUARE FEET

Suburban scale neighborhood commercial limited to 110,000 sq. ft. or 0.25 FAR, whichever is less intense. For free standing projects (pursuant to the locational criteria) or 20% of the projects land area when part of larger planned research/corporate park. Actual square footage is dependent on the classification of the roadway intersection where a project is located.

Office uses, research corporate park uses, multi-purpose and mixed use projects at an FAR up to 0.35 can be considered provided a project meets the following requirements.

Rezonings shall be approved through a site planned controlled rezoning district in which the site plan demonstrates internal relationships and pedestrian integration among uses, controlled through performance standards adopted in the Land Development Regulations, or through a mixed use standard zoning district. Exceptions to this requirement may be included within the Land Development Code.

Neighborhood Commercial uses, that are free standing, shall meet locational criteria. Neighborhood commercial uses that are part of a mixed use building and not free standing are not subject to the locational criteria. Other non-residential land uses must be compatible with residential uses through established techniques of transition or by restricting the location of incompatible uses.

For properties that are located within 0.5 mile of a fixed-guideway transit station (light rail, bus rapid transit, etc.), the allowable densities/intensities and range of uses may be subject to the Goals, Objectives, and Policies related to Fixed-Guideway Transit (See Objectives 54-57 and related policies). The location and type of fixed-guideway transit stations can be found on the MPO Long Range Transportation 2035 Cost Affordable Transit System Map. The Future Transit Envelope can be found on the Future Transit Envelope Map that is adopted as part of the Future Land Use Map Series.

SPECIFIC INTENT OF CATEGORY

The NMU area shall be urban/suburban in intensity and density of uses, with development occurring as the provision and timing of transportation and public facility services, necessary to support these intensities and densities, are made available.

Neighborhood retail commercial uses shall be clustered at arterial and collector intersections. Strip development with separate driveway access for commercial uses to arterials shall be prohibited. Neighborhood Commercial uses shall meet locational criteria or be part of larger mixed use planned development. Other non-residential land uses must be compatible with residential uses through established techniques of transition or by restricting the location of incompatible uses. .

The NMU category emphasizes the protection of environmental features and open space demonstrating a greater clustering percentage. In order to protect on-site upland habitat, and sensitive wetland systems a NMU project may be required to preserve up to fifty percent open space within the project.

Residential-4 (RES-4)

RESIDENTIAL GROSS DENSITY

Up to a maximum of 4.0 dwelling units per gross acre. Alternative methods for calculating density of certain uses are specified in the land development regulations. Density bonuses and credits may be considered in this category and are described in the Plan. This maximum residential density is provided only as a limit for application in situations which represent an ideal set of circumstances with regard to the compatibility of the proposed development with surrounding land uses, existing and/or approved, and with regard to the adequacy and availability of public facilities.

No minimum lot size is required to support the concept of clustering and preservation of open spaces left in a natural states left in a natural state. See related policies regarding clustering.

TYPICAL USES

Residential, suburban scale neighborhood commercial, office uses, and multi-purpose projects. Non-residential uses shall meet locational criteria for specific land use.

Agricultural uses may be permitted pursuant to policies in the agricultural objective areas of the Future Land Use Element.

MAXIMUM FLOOR AREA RATIO OR SQUARE FEET

suburban scale neighborhood commercial, office, multi-purpose or mixed use projects limited to 175,000 sq. ft. or .25 FAR, whichever is less intense. Actual square footage limit is dependent on classification of roadway intersection where project is located.

For properties that are located within 0.5 mile of a fixed-guideway transit station (light rail, bus rapid transit, etc.), the allowable densities/intensities and range of uses may be subject to the Goals, Objectives, and Policies related to Fixed-Guideway Transit (See Objectives 54-57 and related policies). The location and type of fixed-guideway transit stations can be found on the MPO Long Range Transportation 2035 Cost Affordable Transit System Map. The Future Transit Envelope can be found on the Future Transit Envelope Map that is adopted as part of the Future Land Use Map Series.

SPECIFIC INTENT OF CATEGORY

To designate areas that are suitable for low density residential development. In addition, suburban scale neighborhood commercial, office, multi-purpose and mixed use projects serving the area may be permitted subject to the Goals, Objectives, and Policies of the Land Use Element and applicable development regulations and conforming to established locational criteria for specific land use.

FUTURE OF HILLSBOROUGH
SUBURBAN LAND USE CLASSIFICATION

Residential-6 (RES-6)

RESIDENTIAL GROSS DENSITY

Up to a maximum of 6.0 dwelling units per gross acre. Alternative methods for calculating density of certain uses are specified in the land development regulations. Density bonuses and credits may be considered in this category and are described in the Plan. This maximum residential density is provided only as a limit for application in situations which represent an ideal set of circumstances with regard to the compatibility of the proposed development with surrounding land uses, existing and/or approved, and with regard to the adequacy and availability of public facilities.

No minimum lot size is required to support the concept of clustering and preservation of open spaces left in a natural state. See related policies regarding clustering.

TYPICAL USES

Residential, suburban scale neighborhood commercial, office uses, multi-purpose projects and mixed use development. Non-residential uses shall meet established locational criteria for specific land use.

Agricultural uses may be permitted pursuant to policies in the agricultural objective areas of the Future Land Use Element.

MAXIMUM FLOOR AREA RATIO OR SQUARE FEET

Suburban scale neighborhood commercial, office, multi-purpose, or mixed use projects limited to 175,000 sq. ft. or .25 FAR, whichever is less intense. Actual square footage limit is dependent on classification of roadway intersection where project is located.

For properties that are located within 0.5 mile of a fixed-guideway transit station (light rail, bus rapid transit, etc.), the allowable densities/intensities and range of uses may be subject to the Goals, Objectives, and Policies related to Fixed-Guideway Transit (See Objectives 54-57 and related policies). The location and type of fixed-guideway transit stations can be found on the MPO Long Range Transportation 2035 Cost Affordable Transit System Map. The Future Transit Envelope can be found on the Future Transit Envelope Map that is adopted as part of the Future Land Use Map Series.

SPECIFIC INTENT OF CATEGORY

To designate areas that are suitable for low density residential development. In addition, suburban scale neighborhood commercial, office and mixed use projects serving the area may be permitted subject to the Goals, Objectives and Policies of the Land Use Element and applicable development regulations and established locational criteria for specific land use.

Suburban Mixed Use-6 (SMU-6)

RESIDENTIAL GROSS DENSITY

Up to 6.0 dwelling units per gross acre, provided the project demonstrates a clustered, planned development utilizing open space which ensures the preservation of the natural and scenic qualities of open lands.
Projects utilizing this option must meet the requirements specified below.

Clustering will be demonstrated through higher than typical residential net densities and preservation of open space to preserve the natural and scenic qualities of open lands.

Rezonings shall be approved through a site planned controlled rezoning district in which the site plan demonstrates detailed internal relationships and pedestrian integration among uses, controlled through performance standards adopted in the Land Development Regulations, or through a mixed use standard zoning district. Exceptions to this requirement may be included within the Land Development Code.

Alternative methods for calculating density of certain uses are specified in the land development regulations. Density bonuses and credits may be considered in this category and are described in the Plan.

TYPICAL USES

Residential, suburban scale neighborhood commercial, office uses, research corporate park uses, light industrial multi-purpose and clustered residential and/or mixed use projects at appropriate locations. Neighborhood Commercial uses shall meet locational criteria or be part of larger mixed use planned development. Office uses are not subject to locational criteria.

Agricultural uses may be permitted pursuant to policies in the agricultural objective areas of the Future Land Use Element.

Projects which provided mixed uses in this category must demonstrate detailed integration, scale, diversity and internal relationships of uses on site.

Projects that are 40 acres in size or greater must demonstrate a mix of land uses in accordance with Policy 19.1. This acreage threshold will not apply to properties that have adopted plan amendments to a mixed use category after January 1, 2008.

MAXIMUM FLOOR AREA RATIO OR SQUARE FEET

Suburban scale neighborhood commercial, projects limited to 175,000 sq. ft. or 0.25 FAR, whichever is less intense for free standing projects (pursuant to the locational criteria) or 20% of the projects land area when part of larger planned research/corporate park. Actual square footage is dependent on the classification of the roadway intersection where a project is located.

Office uses, research corporate park uses, light industrial multi-purpose and mixed use projects at an FAR up to 0.35 can be considered provided a project meets the following requirements. light industrial uses may achieve an FAR up to 0.50.

Rezonings shall be approved through a site planned controlled rezoning district in which the site plan demonstrates internal relationships and pedestrian integration among uses, controlled through performance standards adopted in the Land Development Regulations, or through a mixed use standard zoning district. Exceptions to this requirement may be included within the Land Development Code.

Neighborhood Commercial uses that are free standing shall meet locational criteria. Neighborhood commercial uses that are part of a mixed use building and not free standing are not subject to the locational criteria. Other non-residential land uses must be compatible with residential uses through established techniques of transition or be restricting the location of incompatible uses.

For properties that are located within 0.5 mile of a fixed-guideway transit station (light rail, bus rapid transit, etc.), the allowable densities/intensities and range of uses may be subject to the Goals, Objectives, and Policies related to Fixed-Guideway Transit (See Objectives 54-57 and related policies). The location and type of fixed-guideway transit stations can be found on the MPO Long Range Transportation 2035 Cost Affordable Transit System Map. The Future Transit Envelope can be found on the Future Transit Envelope Map that is adopted as part of the Future Land Use Map Series.

SPECIFIC INTENT OF CATEGORY

The SMU area shall be urban/suburban in intensity and density of uses, with development occurring as the provision and timing of transportation and public facility services necessary to support these intensities and densities are made available.

Neighborhood retail commercial uses shall be clustered at arterial and collector intersections. Strip development with separate driveway access for commercial uses to arterials shall be prohibited. Other non-residential land uses must be compatible with residential uses through established techniques of transition or by restricting the location of incompatible uses.

The SMU category emphasizes the protection of environmental features and open space demonstrating a greater clustering percentage. In order to protect on-site upland habitat, and sensitive wetland systems a SMU project may be required to preserve up to fifty percent open space within the project.

URBAN LAND USE CLASSIFICATION

Residential - 9 (RES-9)

RESIDENTIAL GROSS DENSITY

Up to a maximum of 9.0 dwelling units per gross acre. Alternative methods for calculating density of certain uses are specified in the land development regulations. Density bonuses and credits may be considered in this category and are described in the Plan. This maximum residential density is provided only as a limit for application in situations in which all Goals, Objectives, and Policies, and applicable development regulations are being complied with, especially those regarding compatibility of proposed development with surrounding land uses, existing and/or approved, and with regard to the adequacy and availability of public facilities.

No minimum lot size is required to support the concept of clustering and preservation of open spaces left in a natural state. See related policies regarding clustering.

TYPICAL USES

Residential, urban scale neighborhood commercial, office uses, multi-purpose projects and mixed use development. Non-residential uses shall meet established locational criteria for specific land use.

Agricultural uses may be permitted pursuant to policies in the agricultural objective areas of the Future Land Use Element.

MAXIMUM FLOOR AREA RATIO OR SQUARE FEET

Urban scale neighborhood commercial, office, multi-purpose, or mixed use projects limited to 175,000 sq. ft. or .50 FAR, whichever is less intense. All non-residential development which exceeds .35 FAR must be for office or residential support uses, not retail. Actual square footage limit is dependent on classification of roadway intersection where project is located.

For properties that are located within 0.5 mile of a fixed-guideway transit station (light rail, bus rapid transit, etc.), the allowable densities/intensities and range of uses may be subject to the Goals, Objectives, and Policies related to Fixed-Guideway Transit (See Objectives 54-57 and related policies). The location and type of fixed-guideway transit stations can be found on the MPO Long Range Transportation 2035 Cost Affordable Transit System Map. The Future Transit Envelope can be found on the Future Transit Envelope Map that is adopted as part of the Future Land Use Map Series.

SPECIFIC INTENT OF CATEGORY

To designate areas that are suitable for low-medium density residential, as well as urban scale neighborhood commercial, office, multi-purpose projects, and mixed use developments when in compliance with the Goals, Objectives, and Policies of the Land Use Element and applicable development regulations and locational criteria for specific land use.

FUTURE OF HILLSBOROUGH
URBAN LAND USE CLASSIFICATION

Residential -12 (RES-12)

RESIDENTIAL GROSS DENSITY

Up to a maximum of 12.0 dwelling units per gross acre. Alternative methods for calculating density of certain uses are specified in the land development regulations. Density bonuses and credits may be considered in this category and are described in the Plan. This maximum, residential density is provided only as a limit for application in situations in which all Goals, Objectives and Policies, and applicable development regulations are being complied with especially those regarding compatibility of the proposed development with surrounding land uses, existing and/or approved, and with regard to the adequacy and availability of public facilities.

No minimum lot size is required to support the concept of clustering and preservation of open spaces left in a natural state. See related policies regarding clustering.

TYPICAL USES

Residential, urban scale neighborhood commercial, office uses, multi-purpose projects and mixed use development. Non-residential uses shall meet established locational criteria for specific land use.

Agricultural uses may be permitted pursuant to policies in the agricultural objective areas of the Future Land Use Element.

MAXIMUM FLOOR AREA RATIO OR SQUARE FEET

Urban scale neighborhood commercial, office multi-purpose or mixed use projects limited to 175,000 sq. ft. or .50 FAR, whichever is less intense. All non-residential development which exceeds .35 FAR must be for office or residential support uses, not retail. Actual square footage limit is dependent on classification of roadway intersection where project is located.

For properties that are located within 0.5 mile of a fixed-guideway transit station (light rail, bus rapid transit, etc.), the allowable densities/intensities and range of uses may be subject to the Goals, Objectives, and Policies related to Fixed-Guideway Transit (See Objectives 54-57 and related policies). The location and type of fixed-guideway transit stations can be found on the MPO Long Range Transportation 2035 Cost Affordable Transit System Map. The Future Transit Envelope can be found on the Future Transit Envelope Map that is adopted as part of the Future Land Use Map Series.

SPECIFIC INTENT OF CATEGORY

To designate areas that are suitable for medium density residential, as well as urban scale neighborhood commercial, office, multi-purpose projects, and mixed use developments when in compliance with the Goals, Objectives, and Policies of the Land Use Element and applicable development regulations and locational criteria for specific land use.

FUTURE OF HILLSBOROUGH
URBAN LAND USE CLASSIFICATION

Community Mixed Use -12 (CMU-12)

RESIDENTIAL GROSS DENSITY

Up to a maximum of 12.0 dwelling units per gross acre. Alternative methods for calculating density of certain uses are specified in the land development regulations. Density bonuses and credits may be considered in this category and are described in the Plan This maximum residential density is provided only as a limit for application in situations in which all Goals, Objectives, and Policies and applicable development regulations are being complied with, especially those regarding compatibility of the proposed development with surrounding land uses, existing and/or approved, and with regard to the adequacy and availability of public facilities.

No minimum lot size is required to support the concept of clustering and preservation of open spaces left in a natural state. See related policies regarding clustering.

TYPICAL USES

Residential, community scale retail commercial, office uses, research corporate park uses, light industrial multi-purpose and clustered residential and/or mixed use projects at appropriate locations. Non-residential land uses must be compatible with residential uses through established techniques of transition or by restricting the location of incompatible uses.

Agricultural uses may be permitted pursuant to policies in the agricultural objective areas of the Future Land Use Element.

Projects that are 20 acres in size or greater must demonstrate a mix of land uses in accordance with Policy 19.1. This acreage threshold will not apply to properties that have adopted plan amendments to a mixed use category after January 1, 2008.

MAXIMUM FLOOR AREA RATIO OR SQUARE FEET

An intensity up to 0.5 Floor Area Ratio (FAR) shall be allowed for any single or mixed use. The retail commercial component of a project cannot exceed 650,000 square feet. Allowable density shall be up to twelve (12) dwelling units per acre. All FAR calculations shall be on the basis of gross acreage as calculated in applicable portions of the Land Use Element and applicable development regulations.

For properties that are located within 0.5 mile of a fixed-guideway transit station (light rail, bus rapid transit, etc.), the allowable densities/intensities and range of uses may be subject to the Goals, Objectives, and Policies related to Fixed-Guideway Transit (See Objectives 54-57 and related policies). The location and type of fixed-guideway transit stations can be found on the MPO Long Range Transportation 2035 Cost Affordable Transit System Map. The Future Transit Envelope can be found on the Future Transit Envelope Map that is adopted as part of the Future Land Use Map Series.

SPECIFIC INTENT OF CATEGORY

The CMU area shall be urban in intensity and density of uses, with development occurring as the provision and timing of transportation a public facility services necessary to support these intensities and densities are made available.

Retail commercial uses shall be clustered at arterial and collector intersections. Strip development with separate driveway access for nonresidential uses to arterials shall be prohibited.

Rezonings shall be approved through a planned unit development rezoning process which requires, at a minimum, integrated site plans controlled through performance standards to achieve developments which are compatible with surrounding land use patterns and the Goals, Objectives, and Policies of the Land Use Plan, or through a mixed use standard zoning district. Exceptions to this requirement may be included within the Land Development Code.

FUTURE OF HILLSBOROUGH
URBAN LAND USE CLASSIFICATION

Residential -16 (RES-16)

RESIDENTIAL GROSS DENSITY

Up to a maximum of 16.0 dwelling units per gross acre. Alternative methods for calculating density of certain uses are specified in the land development regulations. Density bonuses and credits may be considered in this category and are described in the Plan. This maximum, residential density is provided only as a limit for application in situations in which all Goals, Objectives and Policies, and applicable development regulations are being complied with especially those regarding compatibility of the proposed development with surrounding land uses, existing and/or approved, and with regard to the adequacy and availability of public facilities.

No minimum lot size is required to support the concept of clustering and preservation of open spaces left in a natural state. See related policies regarding clustering.

TYPICAL USES

Residential, urban scale neighborhood commercial, office uses, multi-purpose projects and mixed use development. Non-residential uses shall meet established locational criteria for specific land use.

Agricultural uses may be permitted pursuant to policies in the agricultural objective areas of the Future Land Use Element.

MAXIMUM FLOOR AREA RATIO OR SQUARE FEET

Urban scale neighborhood commercial, office multi-purpose or mixed use projects limited to 175,000 sq. ft. or .50 FAR, whichever is less intense. All non-residential development which exceeds .35 FAR must be for office or residential support uses, not retail. Actual square footage limits are dependent on the classification of roadway intersection where the project is located.

For properties that are located within 0.5 mile of a fixed-guideway transit station (light rail, bus rapid transit, etc.), the allowable densities/intensities and range of uses may be subject to the Goals, Objectives, and Policies related to Fixed-Guideway Transit (See Objectives 54-57 and related policies). The location and type of fixed-guideway transit stations can be found on the MPO Long Range Transportation 2035 Cost Affordable Transit System Map. The Future Transit Envelope can be found on the Future Transit Envelope Map that is adopted as part of the Future Land Use Map Series.

SPECIFIC INTENT OF CATEGORY

To designate areas that are suitable for medium density residential, as well as urban scale neighborhood commercial, office, multi-purpose projects, and mixed use developments when in compliance with the Goals, Objectives, and Policies of the Land Use Element and applicable development regulations and locational criteria for specific land use.

FUTURE OF HILLSBOROUGH
URBAN LAND USE CLASSIFICATION

Residential-20(RES-20)

RESIDENTIAL GROSS DENSITY

Up to a maximum of 20.0 dwelling units per gross acre. Alternative methods for calculating density of certain uses are specified in the land development regulations. Density bonuses and credits may be considered in this category and are described in the Plan. This maximum residential density is provided only as a limit for application in situations in which all Goals, Objectives, and Policies and applicable development regulations are being complied with, especially those regarding compatibility of the proposed development with surrounding land uses, existing and/or approved, and with regard to the adequacy and availability of public facilities.

No minimum lot size is required to support the concept of clustering and preservation of open spaces left in a natural state. See related policies regarding clustering.

TYPICAL USES

Residential, neighborhood commercial, office uses, multi-purpose projects and mixed use developments. Non-residential uses shall meet established locational criteria for specific land use.

Agricultural uses may be permitted pursuant to policies in the agricultural objective areas of the Future Land Use Element.

MAXIMUM FLOOR AREA RATIO OR SQUARE FEET

Urban scale neighborhood commercial, office, multi-purpose, or mixed use projects limited to 175,000 sq. ft. or 0.75 FAR, whichever is less intense. All non-residential development which exceeds .35 FAR must be for office or residential support uses, not retail. Actual square footage limit is dependent on classification of roadway intersection where project is located.

For properties that are located within 0.5 mile of a fixed-guideway transit station (light rail, bus rapid transit, etc.), the allowable densities/intensities and range of uses may be subject to the Goals, Objectives, and Policies related to Fixed-Guideway Transit (See Objectives 54-57 and related policies). The location and type of fixed-guideway transit stations can be found on the MPO Long Range Transportation 2035 Cost Affordable Transit System Map. The Future Transit Envelope can be found on the Future Transit Envelope Map that is adopted as part of the Future Land Use Map Series.

SPECIFIC INTENT OF CATEGORY

To designate areas for high density residential development, as well as urban scale neighborhood commercial, office, multi-purpose projects, and mixed use developments in accordance with the Goals, Objectives and Policies of the Land Use Element and applicable development regulations and locational criteria for specific land use.

FUTURE OF HILLSBOROUGH
URBAN LAND USE CLASSIFICATION

Residential-35 (RES-35)

RESIDENTIAL GROSS DENSITY

Up to a maximum of 35 dwelling units per gross acre. Alternative methods for calculating density of certain uses are specified in the land development regulations. Density bonuses and credits may be considered in this category and are described in the Plan. This maximum residential density is provided only as a limit for application in situations in which all Goals, Objectives, and Policies and applicable development regulations are being complied with, especially those regarding compatibility of the proposed development with surrounding land uses, existing and/or approved, and with regard to the adequacy and availability of public facilities.

No minimum lot size is required to support the concept of clustering and preservation of open spaces left in a natural state. See related policies regarding clustering.

TYPICAL USES

Residential, neighborhood commercial, office uses, multi-purpose projects and mixed use developments. Non-residential uses, not part of a vertically integrated building, shall meet established locational criteria for specific land use.

Agricultural uses may be permitted pursuant to policies in the agricultural objective areas of the Future Land Use Element.

MAXIMUM FLOOR AREA RATIO OR SQUARE FEET

Urban scale neighborhood commercial, office, multi-purpose, or mixed use projects limited to 175,000 sq. ft. or 1.00 FAR, whichever is less intense. All non-residential development which exceeds .35 FAR must be for office or residential support uses, not retail. Parking structures, whether free standing, attached or integrated into the overall structure, shall not count toward overall FAR. Actual square footage limit is dependent on classification of roadway intersection where project is located.

For properties that are located within 0.5 mile of a fixed-guideway transit station (light rail, bus rapid transit, etc.), the allowable densities/intensities and range of uses may be subject to the Goals, Objectives, and Policies related to Fixed-Guideway Transit (See Objectives 54-57 and related policies). The location and type of fixed-guideway transit stations can be found on the MPO Long Range Transportation 2035 Cost Affordable Transit System Map. The Future Transit Envelope can be found on the Future Transit Envelope Map that is adopted as part of the Future Land Use Map Series.

SPECIFIC INTENT OF CATEGORY

To designate areas for high density residential development, as well as urban scale neighborhood serving commercial, office, multi-purpose projects, and mixed use developments in accordance with the Goals, Objectives and Policies of the Land Use Element and applicable development regulations and locational criteria for specific land use.

Neighborhood serving commercial uses, which are free standing, shall meet locational criteria. Any non-residential uses which are part of a mixed use development shall be accessory to the primary residential use. Accessory, non-residential uses that are within a vertically integrated structure are not subject to locational criteria. The non-residential uses must still demonstrate compatibility with surrounding use and comply with all other relevant Comprehensive Plan policies.

Office Commercial-20 (OC-20)

RESIDENTIAL GROSS DENSITY

Up to a maximum of 20.0 dwelling units per gross acre. This maximum residential density is provided only as a limit for application in situations in which all Goals, Objectives, and Policies, and applicable development regulations are being complied with, especially those regarding compatibility of the proposed development with surrounding land uses, existing and/or approved and with regard to the adequacy and availability of public facilities.

No minimum lot size is required to support the concept of clustering and preservation of open spaces left in a natural state. See related policies regarding clustering.

TYPICAL USES

Community commercial type uses, office uses, mixed use developments, and compatible residential uses.

Agricultural uses may be permitted pursuant to policies in the agricultural objective areas of the Future Land Use Element.

MAXIMUM FLOOR AREA RATIO OR SQUARE FEET

General 0.75 FAR up to a maximum of 600,000 square feet, however, the commercial component cannot exceed 350,000 square feet, subject to applicable land development regulations. Additionally, all development which exceeds .35 FAR must be for office or residential support uses, not retail.

For properties that are located within 0.5 mile of a fixed-guideway transit station (light rail, bus rapid transit, etc.), the allowable densities/intensities and range of uses may be subject to the Goals, Objectives, and Policies related to Fixed-Guideway Transit (See Objectives 54-57 and related policies). The location and type of fixed-guideway transit stations can be found on the MPO Long Range Transportation 2035 Cost Affordable Transit System Map. The Future Transit Envelope can be found on the Future Transit Envelope Map that is adopted as part of the Future Land Use Map Series.

SPECIFIC INTENT OF CATEGORY

To recognize existing commercial and office centers and provide for future development opportunities. New retail development should be part of a mixed use development or be clustered at the intersections of major roadways. Retail uses should be discouraged outside of these nodes.

FUTURE OF HILLSBOROUGH
URBAN LAND USE CLASSIFICATION

Urban Mixed Use - 20 (UMU-20)

RESIDENTIAL GROSS DENSITY

Up to a maximum of 20.0 dwelling units per gross acre. Alternative methods for calculating density of certain uses are specified in the land development regulations. Density bonuses and credits may be considered in this category and are described in the Plan. The maximum residential density is provided only as a limit for application in situations in which all Goals, Objectives, and Policies and applicable development regulations are being complied with, especially those regarding compatibility of the proposed development with surrounding land uses, existing and/or approved, and with regard to the adequacy and availability of public facilities.

No minimum lot size is required to support the concept of clustering and preservation of open spaces left in a natural state. See related policies regarding clustering.

TYPICAL USES

Residential, regional scale commercial uses such as a mall, office and business park uses, research corporate park uses, light industrial, multi-purpose and clustered residential and/or mixed use projects at appropriate locations.

Agricultural uses may be permitted pursuant to policies in the agricultural objective areas of the Future Land Use Element.

Projects that are 20 acres in size or greater must demonstrate a mix of land uses in accordance with Policy 19.1. This acreage threshold will not apply to properties that have adopted plan amendments to a mixed use category after January 1, 2008.

MAXIMUM FLOOR AREA RATIO OR SQUARE FEET

An intensity up to 1.0 Floor Area Ratio (FAR) shall be allowed for any single or mixed use. Allowable density shall be up to twenty (20) dwelling units per acre. All FAR calculations shall be on the basis of gross acreage as calculated in applicable portions of the Land Use Element and applicable development regulations.

For properties that are located within 0.5 mile of a fixed-guideway transit station (light rail, bus rapid transit, etc.), the allowable densities/intensities and range of uses may be subject to the Goals, Objectives, and Policies related to Fixed-Guideway Transit (See Objectives 54-57 and related policies). The location and type of fixed-guideway transit stations can be found on the MPO Long Range Transportation 2035 Cost Affordable Transit System Map. The Future Transit Envelope can be found on the Future Transit Envelope Map that is adopted as part of the Future Land Use Map Series.

SPECIFIC INTENT OF CATEGORY

The UMU areas shall be urban in intensity and density of uses, with development occurring as the provision and timing of transportation and public facility services necessary to support these intensities and densities are made available.

Retail commercial uses shall be clustered at arterial and collector intersections. Strip development with separate driveway access for nonresidential uses to arterials shall be prohibited.

Rezonings shall be approved through a planned unit development rezoning process which requires, at a minimum, integrated site plans controlled through performance standards to achieve developments which are compatible with surrounding land use patterns and the Goals, Objectives, and Policies of the Land Use Plan, or through a mixed use standard zoning district. Exceptions to this requirement may be included within the Land Development Code.

FUTURE OF HILLSBOROUGH
URBAN LAND USE CLASSIFICATION

Regional Mixed Use-35 (RMU-35)

RESIDENTIAL GROSS DENSITY

Up to a maximum of 35 dwelling units per gross acre. Alternative methods for calculating density of certain uses are specified in the land development regulations. Density bonuses and credits may be considered in this category and are described in the Plan. This maximum residential density is provided only as a limit for application in situations in which all Goals, Objectives, and Policies and applicable development regulations are being complied with, especially those regarding compatibility of the proposed development with surrounding land uses, existing and/or approved, and with regard to the adequacy and availability of public facilities.

No minimum lot size is required to support the concept of clustering and preservation of open spaces left in a natural state. See related policies regarding clustering.

TYPICAL USES

Residential, regional scale retail commercial, office and business park uses, research corporate park uses, light industrial, multi-purpose and clustered residential and/or mixed use projects at appropriate locations.

Agricultural uses may be permitted pursuant to policies in the agricultural objective areas of the Future Land Use Element.

Projects that are 20 acres in size or greater must demonstrate a mix of land uses in accordance with Policy 19.1. This acreage threshold will not apply to properties that have adopted plan amendments to a mixed use category after January 1, 2008.

MAXIMUM FLOOR AREA RATIO OR SQUARE FEET

An intensity up to 2.0 Floor Area Ratio (FAR) shall be allowed for any single or mixed use. Allowable density shall be up to thirty five (35) dwelling units per acre. All FAR calculations shall be on the basis of gross acreage as calculated in applicable portions of the Land Use Element and applicable development regulations.

For properties that are located within 0.5 mile of a fixed-guideway transit station (light rail, bus rapid transit, etc.), the allowable densities/intensities and range of uses may be subject to the Goals, Objectives, and Policies related to Fixed-Guideway Transit (See Objectives 54-57 and related policies). The location and type of fixed-guideway transit stations can be found on the MPO Long Range Transportation 2035 Cost Affordable Transit System Map. The Future Transit Envelope can be found on the Future Transit Envelope Map that is adopted as part of the Future Land Use Map Series.

SPECIFIC INTENT OF CATEGORY

The RMU category shall form a regional activity center which incorporates internal road systems, building clustering and mixing of uses, with development occurring as the provision and timing of transportation and public facility services necessary to support these intensities and densities are made available.

Retail commercial uses shall be clustered at arterial and collector intersections. Strip development with separate driveway access for nonresidential uses to arterials shall be prohibited.

The RMU category should be surrounded by other urban level plan categories and be located at high level transit lines. Rezonings shall be approved through a planned unit development rezoning process which requires, at a minimum, integrated site plans controlled through performance standards to achieve developments which are compatible with surrounding land use patterns and the Goals, Objectives, and Policies of the Land Use Plan, or through a mixed use standard zoning district. Exceptions to this requirement may be included within the Land Development Code.

FUTURE OF HILLSBOROUGH
LAND USE CLASSIFICATION

Research/Corporate Park (RCP)

RESIDENTIAL GROSS DENSITY

No residential development is allowed except for projects designed under the Mixed Use-Residential Option as a Traditional Neighborhood or Town Center Development, pursuant to the Hillsborough County Traditional Neighborhood Development Code (TND) and the applicable policies of the Community Design Component, Future Land Use Element regarding traditional neighborhood development.

Mixed use-Residential Option is required to utilize the TND provisions to obtain residential density, which cannot to exceed 30 du/ga and neighborhood commercial uses that are not vertically integrated shall not exceed .30 f.a.r. Residential units shall convert from permitted RCP floor area ratio. Mixed use-residential option shall only be permitted within the Urban Service Area and must demonstrate a pattern of compact, livable and walkable neighborhoods, and centers, and be supported by locally oriented employment, goods and services. Traditional Neighborhood Development for the purposes of this option must be designed to provide for integration of uses, compatible scale, residential diversity and variety, internal relationship of uses and linkages as well as to provide shopping and job opportunities.

TYPICAL USES

Research and development activities, related educational facilities, electronic components production, light restricted manufacturing and warehousing, offices, corporate headquarters, and related uses such as hotels, motels, restaurants, recreational facilities, and rural scale retail establishments. Rural-Residential scale neighborhood commercial uses limited to 30,000 sq. ft. for free standing projects (pursuant to the locational criteria) or 20% of the projects land area when part of larger planned research/corporate park.

Agricultural uses may be permitted pursuant to policies in the agricultural objective areas of the Future Land Use Element.

Mixed use-residential projects would include a residential, neighborhood commercial and employment center component (excluding light industrial uses) and shall have no single-use (residential, neighborhood commercial, or employment center) which can exceed 35% of the land area of the project. In order to provide meaningful contribution to the mixed use-residential project each representative land use must occupy at least 15% of the project's land area and at least 15% of the project's land area must be devoted to vertically integrated structures or civic uses or public spaces.

MAXIMUM FLOOR AREA RATIO OR SQUARE FEET

1.0 FAR

Mixed use-residential projects: The conversion of permitted floor area ratio to residential units shall utilize ITE manual trip generation calculations

For properties that are located within 0.5 mile of a fixed-guideway transit station (light rail, bus rapid transit, etc.), the allowable densities/intensities and range of uses may be subject to the Goals, Objectives, and Policies related to Fixed-Guideway Transit (See Objectives 54-57 and related policies). The location and type of fixed-guideway transit stations can be found on the MPO Long Range Transportation 2035 Cost Affordable Transit System Map. The Future Transit Envelope can be found on the Future Transit Envelope Map that is adopted as part of the Future Land Use Map Series.

SPECIFIC INTENT OF CATEGORY

To provide opportunity for research and high technology and similar manufacturing and light warehousing uses to serve Hillsborough County and the Tampa Bay region. Development in this category has integrated internal and external design requirements including heavy buffering and landscaping, high visibility linear footage on arterials, interstates, and expressways, and locations adjacent to employment markets. Research/Corporate Parks will be permitted to be developed throughout the County provided they meet the requirements of the Goals, Objectives, and Policies of the Land Use Element, and applicable development regulations.

Proposed developments at locations not shown on the Land Use Plan Map may be considered through the Plan Amendment process. Support neighborhood commercial uses may be permitted for up to 20% of the total land area. The development of the neighborhood commercial uses shall be integrated and appropriately scaled to other project uses.

All development in this category shall require a planned zoning district. Mixed use-residential option shall specify within the planned development zoning the TND design standards for building heights, setbacks, placement, facades, streets and sidewalks which should follow the TND design guidelines as adopted by Hillsborough County in the TND Code.(if no Code is in place, standards deemed acceptable by Hillsborough County that comply with professionally acceptable TND concepts shall be utilized)

FUTURE OF HILLSBOROUGH
LAND USE CLASSIFICATION

Light Industrial Planned (LI-P)

RESIDENTIAL GROSS DENSITY	TYPICAL USES	MAXIMUM FLOOR AREA RATIO OR SQUARE FEET	SPECIFIC INTENT OF CATEGORY
No residential allowed. Except limited accessory residential (e.g. on-site security guard).	Light industrial uses such as processing, manufacturing, recycling and storage of materials as the predominant uses including support offices, warehousing, and rural scale retail uses pursuant to locational criteria. Agricultural uses may be permitted pursuant to policies in the agricultural objective areas of the Future Land Use Element.	.5 FAR For properties that are located within 0.5 mile of a fixed-guideway transit station (light rail, bus rapid transit, etc.), the allowable densities/intensities and range of uses may be subject to the Goals, Objectives, and Policies related to Fixed-Guideway Transit (See Objectives 54-57 and related policies). The location and type of fixed-guideway transit stations can be found on the MPO Long Range Transportation 2035 Cost Affordable Transit System Map. The Future Transit Envelope can be found on the Future Transit Envelope Map that is adopted as part of the Future Land Use Map Series.	This land use category is used to designate, geographically on the Land Use Plan Map and/or textually in the Land Use Element, those areas in the County potentially suitable for industrial activities but are located outside of concentrated industrial designated areas or in areas where the need for a site plan would be beneficial to insure land use compatibility. The planned industrial category offers flexibility in permitted uses and in creativity for design of the required site plan to ensure that the proposed industrial operation creates minimal degree of impact on the surrounding environment. This land use plan category will be used in transportation routes, in areas where there is not a concentration of industrial uses and in areas where various concerns and impact to adjacent development can be addressed through site planning. The site plan required in this category requires, at a minimum, integrated site plan controlled through performance standards to achieve developments which are compatible with surrounding land use patterns and the Goals, Objectives, and Policies of the Land Use Plan.

FUTURE OF HILLSBOROUGH
LAND USE CLASSIFICATION

Light Industrial (LI)

RESIDENTIAL GROSS DENSITY	TYPICAL USES	MAXIMUM FLOOR AREA RATIO OR SQUARE FEET	SPECIFIC INTENT OF CATEGORY
No residential allowed. Except limited accessory residential (e.g. on-site security guard)	Processing, manufacturing and assembly of materials including food products, storage, furniture or apparel manufacturing, packaging plants, wholesaling, storage of non hazardous materials, warehouse/showrooms with retail sales (which occupy no more than 20% of the floor area of the principal use[xxviii]), offices, research/corporate parks as the predominant uses and subordinate uses or services such as hotels, motels, restaurants, suburban scale retail establishments, and recreational facilities. Free standing suburban scale neighborhood commercial uses are pursuant to locational criteria or 20% of the project's land area when part of a larger industrial/office park (greater than 300,000 square feet). Agricultural uses may be permitted pursuant to policies in the agricultural objective areas of the Future Land Use Element.	.5 FAR For properties that are located within 0.5 mile of a fixed-guideway transit station (light rail, bus rapid transit, etc.), the allowable densities/intensities and range of uses may be subject to the Goals, Objectives, and Policies related to Fixed-Guideway Transit (See Objectives 54-57 and related policies). The location and type of fixed-guideway transit stations can be found on the MPO Long Range Transportation 2035 Cost Affordable Transit System Map. The Future Transit Envelope can be found on the Future Transit Envelope Map that is adopted as part of the Future Land Use Map Series.	This land use category is used to designate, geographically on the Land Use Plan Map and/or textually in the Land Use Element, those areas of concentrated industrial development that involve processing of non-hazardous and non-toxic materials and create a minimal degree of impact to the surrounding environment, in terms of potential leakage of objectionable liquids and gases and levels of noise, vibration, dust, and/or odor. Development in these areas is subject to the Goals, Objectives, and Policies and land use category descriptions related to industrial activities. Commercial uses shall be limited to same criteria of size and location as suburban-scale retail and commercial. Commercial uses shall be subordinate to industrial activities and be limited to suburban-scale retail and commercial uses.[xxix]

FUTURE OF HILLSBOROUGH
LAND USE CLASSIFICATION

Heavy Industrial (HI)

RESIDENTIAL GROSS DENSITY	TYPICAL USES	MAXIMUM FLOOR AREA RATIO OR SQUARE FEET	SPECIFIC INTENT OF CATEGORY
No residential allowed. Except limited accessory residential (e.g. on-site security guard)	Permissible uses may be: light and heavy industrial uses including the processing, manufacturing and assembly of materials with associated storage as well as existing electric generation plants and expansions thereof. Typical uses include phosphate/nitrate fertilizer manufacturing (excluding phospho-gypsum stack systems), explosive storage and or manufacturing facility, biohazardous waste incinerator and bulk solvent chemical storage and or processing. Heavy industrial uses shall be defined as any facility which emits at least one of the following: 1) 600 pounds or more per year of lead or lead compounds, or; 2) 100 tons or more per year of any other air pollutant subject to regulation under Chapter 403 F.S. or; 3) 10 tons or more per year of any one hazardous air pollutant as defined by the Hillsborough County Environmental Protection Commission, or 4) 25 tons or more per year of any combination of hazardous air pollutant as defined by the Hillsborough County Environmental Protection Commission. Rural scale neighborhood commercial uses pursuant to the locational criteria. Agricultural uses may be permitted pursuant to policies in the agricultural objective areas of the Future Land Use Element.	.5 FAR. FAR's not to be applied to processing, storage and other uses characterized by outdoor storage. For properties that are located within 0.5 mile of a fixed-guideway transit station (light rail, bus rapid transit, etc.), the allowable densities/intensities and range of uses may be subject to the Goals, Objectives, and Policies related to Fixed-Guideway Transit (See Objectives 54-57 and related policies). The location and type of fixed-guideway transit stations can be found on the MPO Long Range Transportation 2035 Cost Affordable Transit System Map. The Future Transit Envelope can be found on the Future Transit Envelope Map that is adopted as part of the Future Land Use Map Series.	This land use category is used to designate, geographically on the Land Use Plan Map and/or textually in the Land Use Element, those areas of industrial development that have a potential to produce the most intense objectionable accompanying effects. The industrial development's normal operation may have an adverse impact to the surrounding environment; however, these effects are reasonably controlled and operated through applicable regulations. The adverse impact could be a result of noise, dust fallout or air quality/odor. Since heavy Industrial uses include the largest and most toxic sources of air pollutant they would not be compatible with residential uses and shall not be permitted in the Mixed Use categories in the Plan.

FUTURE OF HILLSBOROUGH
ENERGY INDUSTRIAL PARK LAND USE CLASSIFICATION[xxx]

Energy Industrial Park (EIP)

RESIDENTIAL GROSS DENSITY

There is no residential density permitted in this category with the exception of Security/Caretaking housing or lodging ancillary to research, energy and education functions.

TYPICAL USES

Industrial, manufacturing, and processing for the purpose of alternative renewable energy production. The EIP can also include: Industrial, Office, Research, Commercial. Institutional/Educational, Distribution, Utilities, Agricultural and Aquacultural uses and related activities. Together with companies or users that find it advantageous to locate next to renewable energy production and/or renewable energy research type facilities.

Typical uses include but are not limited to:

Environmentally responsible renewable Energy Generation facilities
Industrial, Processing, Manufacturing, Warehousing, Distribution and Production facilities
Freight or storage yards including open storage
Alternative energy related agricultural and aquaculture uses
Solar Farms
Wind mills and other machines designed to capture wind
Greenhouses, silos, barns warehouses and other agricultural uses
Institutional uses such as adjunct university offices, labs and classrooms, lodging ancillary to research, energy and education functions and support uses
Research activities
Security/Care taker housing
Ancillary Retail /Commercial uses
Business Services
Personal Services
Government Offices and Services
Professional Offices
Day Cares
Medical Clinics
Railroad switching and classification yards that serve the uses on site
Utilities including transmission lines, etc.

Renewable alternative energy production or research includes but is not limited to the following uses: agriculture, aquaculture, solar technology, windmills or similar machines designed for the capture of wind power, renewable energy research facilities and supporting structures and facilities such as greenhouses, silos, barns, warehouses, classrooms, research laboratories, etc.

MAXIMUM FLOOR AREA RATIO OR SQUARE FEET

The maximum floor area ratio shall not exceed 0.50 for Energy Uses and .35 for Industrial, Research, Manufacturing, Institutional, Warehousing and Distribution facilities. Ancillary Retail/Commercial and Office uses shall not exceed a 0.25 FAR.

Minimums and Maximums:
Minimum of 40 percent of the gross land area within the EIP shall be specifically for alternative energy production, resource recovery facilities, agricultural, processing, research facilities supporting such uses or the manufacture and/or distribution of such technologies (Collectively the Energy Uses). The Park will include facilities that generate energy from at least two renewable (i.e.: sustainable) energy technologies which may include Biomass-to-energy, Wind, Solar, or Aquaculture and Municipal Solid Waste to Energy. Because this field is ever changing, other renewable alternative energy technologies shall also be permitted as they are deemed feasible and become available.

Industrial, Research, Manufacturing, Institutional, Warehousing, and Distribution facilities that find it advantageous to locate next to renewable energy production and or renewable energy research type facilities shall also be permitted. Such uses shall not exceed 30 percent of overall net land area. Overall net acreage includes all contiguous portions of land owned or controlled by the same entity within the EIP designation, calculated by excluding right-of-way, wetlands, stormwater management areas, and environmental preservation areas dedicated to the public. The Planned Development (PD) zoning shall outline the phasing of the project in order to insure that at least two of the Renewable Energy Producing Facilities, as defined in the PD conditions, are constructed and are ready to operate in accordance with Hillsborough County Building Department permits before a Certificate of Occupancy can be issued for any non-renewable energy oriented Industrial, Research, Manufacturing, Institutional, Warehousing, and Distribution use

Retail/Commercial and Office uses shall be ancillary to Energy Uses, or to Industrial, Research, Manufacturing, Institutional, Warehousing and Distribution uses and shall not exceed 10 percent of the gross land area. The Planned Development (PD) zoning shall outline the phasing of the project in order to insure that at least two of the Renewable Energy Producing Facilities, as defined in the PD conditions, are constructed and are ready to operate in accordance with Hillsborough County Building Department permits before a Certificate of Occupancy can be issued for any Retail/Commercial use.

Retail/Commercial uses shall be located in clusters near or at the entries to the project or within the project rather than in a strip commercial development arrangement.

For properties that are located within 0.5 mile of a fixed-guideway transit station (light rail, bus rapid transit, etc.), the allowable densities/intensities and range of uses may be subject to the Goals, Objectives, and Policies related to Fixed-Guideway Transit (See Objectives 54-57 and related policies). The location and type of fixed-guideway transit stations can be found on the MPO Long Range Transportation 2035 Cost Affordable Transit System Map. The Future Transit Envelope can be found on the Future Transit Envelope Map that is adopted as part of the Future Land Use Map Series.

SPECIFIC INTENT OF CATEGORY

This land use category is used to designate, geographically on the Land Use Plan Map and/or textually in the Land Use Element, those areas in the County potentially suitable for energy industrial activities. The energy industrial park category offers flexibility in permitted uses and in creativity for design with a required site plan zoning. The site plan required in this category requires, at a minimum, an integrated site plan controlled through performance standards to achieve developments which are compatible with surrounding land use patterns and the Goals, Objectives, and Policies of the Land Use Plan.

To be consistent with the purpose of this category, the energy industrial park will provide adequate transition and buffering with adjacent single family residential uses or zoning.

FUTURE OF HILLSBOROUGH
LAND USE CLASSIFICATION

Electrical Power Generating Facility (EPGF)

RESIDENTIAL GROSS DENSITY	TYPICAL USES	MAXIMUM FLOOR AREA RATIO OR SQUARE FEET	SPECIFIC INTENT OF CATEGORY
1 dwelling unit per 5 gross acres.	All new Electrical Power Generating Facilities and related uses and all uses allowed in the Agriculture/Rural 1/5 (A/R) land use plan classification.	0.5 FAR. FAR's not to be applied to processing, storage and other uses characterized by outdoor storage. Development permitted in this designation is subject to the Goals, Objectives and Policies of the comprehensive plan, applicable development regulations and established locational criteria for specific land uses. For properties that are located within 0.5 mile of a fixed-guideway transit station (light rail, bus rapid transit, etc.), the allowable densities/intensities and range of uses may be subject to the Goals, Objectives, and Policies related to Fixed-Guideway Transit (See Objectives 54-57 and related policies). The location and type of fixed-guideway transit stations can be found on the MPO Long Range Transportation 2035 Cost Affordable Transit System Map. The Future Transit Envelope can be found on the Future Transit Envelope Map that is adopted as part of the Future Land Use Map Series.	This land use category is used to designate geographically on the Future Land Use Map and textually in the Future Land Use Element those areas that are potentially suitable for the construction and operation of future electric power generating facilities consistent with the infrastructure needs of the population and subject to the requirements of the Future of Hillsborough Comprehensive Plan and all other Federal, State and Local Laws, policies and permits. The uses authorized in the Agricultural/Rural - 1/5 (A/R) land use plan category are also authorized. New development of uses associated with an electrical power generating facility shall be approved through a planned unit development rezoning process. An application to rezone land for an Electrical Power Generating Facility may only be filed after submission of an application to the State under the Power Plant Siting Act. If the Siting Board denies the Siting, then the zoning shall revert to the underlying Zoning in existence at the time of application.

FUTURE OF HILLSBOROUGH
LAND USE CLASSIFICATION

Public/Quasi-Public (P/Q-P)

RESIDENTIAL GROSS DENSITY	TYPICAL USES	MAXIMUM FLOOR AREA RATIO OR SQUARE FEET	SPECIFIC INTENT OF CATEGORY
	Major existing and programmed government-owned facilities, and other public uses. This category also accommodates quasi-public uses such as private establishments generally available to the public for use; for example, churches, hospitals, schools, clubs, major (regional, district or community) recreation services and related uses, tourist attractions, utility, and transportation facilities. The Land Use Plan Map generally shows major existing or programmed facilities.	Public facilities and uses are located throughout the county. Intensities of future public uses shall be guided by the floor area ratios of surrounding plan categories, including those of adjacent jurisdictions, to insure compatibility with surrounding development. For properties that are located within 0.5 mile of a fixed-guideway transit station (light rail, bus rapid transit, etc.), the allowable densities/intensities and range of uses may be subject to the Goals, Objectives, and Policies related to Fixed-Guideway Transit (See Objectives 54-57 and related policies). The location and type of fixed-guideway transit stations can be found on the MPO Long Range Transportation 2035 Cost Affordable Transit System Map. The Future Transit Envelope can be found on the Future Transit Envelope Map that is adopted as part of the Future Land Use Map Series.	To recognize areas where, public facilities, public structures or grounds, regional, district or community recreation uses or facilities and other private establishments generally available to the public are located.

FUTURE OF HILLSBOROUGH
LAND USE CLASSIFICATION

Environmentally Sensitive Areas (E)

RESIDENTIAL DENSITY	GROSS	TYPICAL USES	MAXIMUM FLOOR AREA RATIO OR SQUARE FEET	SPECIFIC INTENT OF CATEGORY
Not Applicable		Conservation	Not Applicable	To generally identify those lands which may be environmentally sensitive. These areas include Conservation or Preservation Areas as defined in the Conservation and Aquifer Recharge Element. Conservation Areas and Preservation Areas include environmentally sensitive uplands and wetlands. Development in these areas may be restricted by federal, state, and/or local environmental regulations. Development in these areas is subject to the Goals, Objectives and Policies of the Future of Hillsborough, applicable land development regulations, and established locational criteria for specific land use. The use of Environmentally Sensitive Areas for residential density credits is described in the Future Land Use Element. The Environmentally Sensitive Area designation on the Land Use Plan Map identifies and depicts areas which may be environmentally sensitive and which require on-site evaluation to determine their existence, type and extent on a given parcel. Certain E-designated areas on the Future Land Use Map are depicted as Significant Wildlife Habitat (Conservation Area), as defined in the Conservation and Aquifer Recharge Element

FUTURE OF HILLSBOROUGH
LAND USE CLASSIFICATION

Natural Preservation (N)

RESIDENTIAL DENSITY	GROSS	TYPICAL USES	MAXIMUM FLOOR AREA RATIO OR SQUARE FEET	SPECIFIC INTENT OF CATEGORY
Not Applicable		Open space or passive nature parks	Not Applicable	To recognize public or privately owned lands of significant environmental importance set aside primarily for conservation purposes. If land is privately owned, the owner(s) and all other persons having an interest in such lands shall execute an easement, declaration of restrictions or similar instrument restricting the uses of such land to those which are consistent with this land use category. The applicable instrument shall be recorded in the Public Records of Hillsborough County, Florida. No residential is permitted except for facilities determined necessary to serve a caretaker of the recreational or environmental property. All other development is prohibited in these areas except for compatible recreational/educational development. Educational uses should be limited to those which utilize the natural amenities found on the site i.e. the study of flora, fauna or wildlife.

[i] CPA 10-17 - Clarification of Policies on Minimum Densities
[ii] CPA 12-22 – Economic Potential Policies Update – Remove impediments to Economic development in the plan.
[iii] CPA 12-22 – Economic Potential Policies Update – Remove impediments to Economic development in the plan.
[iv] CPA 12-23 – Clarifies application of land use category flex provision and blending of density and intensity calculations.
[v] CPA 12-23 – Clarifies application of land use category flex provision and blending of density and intensity calculations.
[vi] CPA 12-23 – Clarifies application of land use category flex provision and blending of density and intensity calculations.
[vii] CPA 12-23 – Clarifies application of land use category flex provision and blending of density and intensity calculations.
[viii] CPA 10-18 - Provides for a reduction in the minimum lot area required by a property's zoning to allow for a subdivision in certain circumstances.
[ix] CPA 13-02 – Revisions to Policies related to open space and gathering places
[x] CPA 12-22 – Economic Potential Policies Update – Remove impediments to economic development in the plan.
[xi] CPA 13-02 – Revisions to policies related to open space and gathering places
[xii] CPA 12-22 – Economic Potential Policies Update – Remove impediments to economic development in the plan.
[xiii] CPA 13-02 – Revisions to policies related to open space and gathering places
[xiv] CPA 09-08 – Relocated provision related to Application of Densities on Lands Fronting on Water Bodies from the Livable Communities Element.
[xv] CPA 13-03 – Revisions to policies related to RSB
[xvi] CPA 13-02 – Revisions to policies related to open space and gathering places
[xvii] CPA 13-02 – Revisions to policies related to open space and gathering places
[xviii] CPA 12-22 – Economic Potential Policies Update – Remove impediments to economic development in the plan.
[xix] CPA 12-22 – Economic Potential Policies Update – Remove impediments to economic development in the plan.
[xx] CPA 07-24 - Amends the text that implements the Light Industrial and Light Industrial Planned future land use categories and the locational criteria provisions to allow for expanded range of uses.
[xxi] CPA 12-22 – Economic Potential Policies Update – Remove impediments to economic development in the plan.
[xxii] CPA 13-02 – Revisions to policies related to open space and gathering places
[xxiii] CPA 10-24 Refines existing policy language regarding Tampa Executive Airport to provide greater guidance regarding the coordination of planning efforts around the airport.
[xxiv] CPA 08-04 Amends Policy 47.15 regarding certain property designated Planned Environmental Community on the Future Land Use Map.
[xxv] CPA 09-12 – Provides guidance on maintaining compatibility of new residential projects with the existing residential character of an area within the Lutz Community Plan boundary.
[xxvi] CPA 12-20 – Scenic Corridors Policy Update – Revisions to Scenic Corridors policies regarding the update of the Scenic Road program and process.
[xxvii] CPA 12-22 – Economic Potential Policies Update – Remove impediments to economic development in the plan.
[xxviii] CPA 07-24 - Amends the text that implements the Light Industrial and Light Industrial Planned future land use categories and the locational criteria provisions to allow for expanded range of uses.
[xxix] CPA 07-24 - Amends the text that implements the Light Industrial and Light Industrial Planned future land use categories and the locational criteria provisions to allow for expanded range of uses.
[xxx] CPA 10-04 - Establish a new Land Use Category entitled Energy Industrial Park (EIP) (Related to CPA 10-05)



Future of Hillsborough

Comprehensive Plan for Unincorporated Hillsborough County Florida

RECREATION AND OPEN SPACE

As Amended by the Hillsborough County Board of County Commissioners June 5, 2008 (Ordinance 08-13)

Department of Community Affairs Notice of Intent to Find Comprehensive Plan Amendments in Compliance published August 4, 2008 {DCA PA No. 08-1ER-NOI-2901- (A)-(I)}

August 26, 2008 Effective Date

Hillsborough County

Recreation and Open Space

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Hillsborough County

Recreation and Open Space

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EXECUTIVE SUMMARY

The purpose of the Recreation and Open Space Element is to provide guidance to unincorporated Hillsborough County to enhance recreation and open space areas, while designating adequate and appropriately located land for recreational facilities to meet the needs of the anticipated population. Through its goals, objectives and policies, this Element establishes criteria for recreation and open spaces, provided by both the public and private sector, to meet the needs of the growing community. The Element addresses the needs to plan for the development of additional leisure time recreation facilities to provide the necessary recreational opportunities to keep pace with the demands generated by growth.

This Element has been prepared to meet the requirements of the Local Government Comprehensive Planning and Land Development Regulation Act, Chapter 163, Florida Statutes (FS). The act requires a comprehensive plan for recreation and open space to assess current needs and opportunities, analyze future needs and provide goals, objectives and policy statements which will be used by the County to enhance the public and private recreation and open space opportunities available to the public. The Recreation and Open Space Element has also been prepared in accordance with Chapter 9J-5, Florida Administrative Code (FAC), "Minimum Criteria for Review of Local Comprehensive Plans and Determination of Compliance".

The Hillsborough County Board of County Commissioners adopted the Park Site Improvement Program Ordinance in 1985. The Board determined that the provision of adequate park facilities is an essential public service by recognizing that increasing the number of parks in order to serve the needs of the growing population is a responsibility of government, and it is in the best interest of the public health, safety and welfare. The Ordinance states that "in order to ensure that existing and future residents of Hillsborough County have adequate park facilities to serve the needs of the growing community, the Board of County Commissioners of Hillsborough County must create a program that deals with existing park deficiencies as well as providing for the location and construction of park improvements to meet future needs."

The Park Site Improvement Program is the product of this Ordinance. The Ordinance describes the types of parks for which the Parks and Recreation Department is responsible – local, regional, and special parks. It includes standard levels of service and analyzes the extent of future needs.

Based on County Parks and Recreation Department standards, the Recreation and Open Space Element reassesses the current deficiencies and future needs based upon updated parks facilities and

acreage data. The size of the park has a great bearing on a park's development potential. Furthermore, acreage is correlated to population and used as a means of evaluating recreational levels of services.

The analysis of current and future needs by park planning areas was performed. These are defined in the Ordinance as generalized budgeting zones created for the purpose of implementing the provisions of the Ordinance relating to expenditure of park impact fees. The impact fee is a mechanism whereby residential development may be assessed a pro rata share of its economic impact on the local park system.

In analyzing the existing deficiencies by park planning areas, it was found that the northeast area has a neighborhood park acreage deficiency in the County. The south, central, and the northwest areas presents an acreage surplus. Concerning district parks, the central area has a deficiency. The south, northwest, and northeast areas of the County, however, have a surplus of district parks. Regional parks were analyzed on a countywide basis because of their larger scale. There is also surplus park acreage in this category. The analysis of projected recreation needs was conducted for two planning horizons: 1988 - 1994 and 1994 - 2010. Concerning neighborhood parks, the northeast area presents the highest acreage need for the two planning horizons. In relation to district parks, the northeast area has the highest acreage needs for the first horizon, and the central area presents the highest acreage needs for the second horizon.

Alternatives to correct existing deficiencies and address future needs are proposed through the Goals, Objectives and Policies of this Element. Furthermore, the Objectives and Policies prescribe eventual implementation activities by providing ways in which the programs and activities shall be conducted to achieve the identified goal. The Goals, Objectives and Policies chapter of this Element is divided into three sections: correcting existing deficiencies and preventing future inadequacies, undertaking work programs, and developing innovative financing techniques.

The Element proposes the creation of a countywide open space network which would utilize existing natural resources and combine them to create a county-wide system. This network would enhance County land use plans and management, and it would more efficiently utilize lands that are currently underutilized. The open space network concept promotes the efficient utilization of public lands by combining public service activities, such as recreation, stormwater management, aquifer recharge and protection of wildlife habitat corridors into an open space network.

The interconnections of these public lands can be accomplished primarily through existing rights-of-way, existing and extended bike paths, nature trails, rivers, and scenic corridors in order to minimize

public acquisition of private land. The implementation of this concept would increase the availability of open spaces and recreational areas and improve their access throughout the County.

In addition to being consistent with the Tampa Bay Regional Policy Plan and the State Comprehensive Plan, this Element is internally consistent with other elements of the plan, such as Future Land Use, Conservation, Coastal Management, and Capital Improvements Elements. In general, the Recreation and Open Space Element provides guidance in supplying recreational opportunities while protecting natural resources for the residents of unincorporated Hillsborough County.

I. INTRODUCTION

Parks are an essential component of every community. There are proven correlations between the presence of parks and enhanced environmental, economic, and social conditions. The Hillsborough County Parks, Recreation and Conservation Department (PRC) is responsible for the provision and maintenance of recreational opportunities to over one million residents. In addition, the department also oversees the maintenance of approximately 44,500 acres of preservation land that is classified as acquired, approved, or proposed ELAPP (Environmental Lands Acquisition and Protection Program). While there is a considerable amount of park, greenway, and conservation land within the County, this space must concurrently accommodate all of the diverse active and passive recreation needs of residents.

In the year 2025 the number of people living in Hillsborough County is projected to reach over 1.5 million, the majority of which (67%) are anticipated to live in unincorporated Hillsborough County. As land becomes an increasingly scarce resource, its allocation will become more and more important.

Hillsborough County's population increase can be attributed to it's geographic location, climate, business, tourist attractions and excellent recreational sites. Residents and visitors alike enjoy the County's recreational resources. In addition to providing neighborhood and district parks, Hillsborough County offers a number of recreational facilities centered around the Hillsborough, Alafia and Little Manatee Rivers and the state parks which serve a regional recreation demand. As the County's population grows, the demand for recreational resources increases and the County's financial ability to supply recreation and open space facilities becomes more strained.

The Parks, Recreation and Conservation (PRC) Department is responsible for more than 70,000 acres of parkland; 56 year-round recreation centers offering activities and classes for all ages; therapeutic programs; youth and adult athletics; and partnerships with community and civic organizations throughout the county. Specifically, it is responsible for the following services:

- Management of Environmental Lands (ELAPP)
- Marine Public Safety
- Park Construction (In-house and Contractual)

- Neighborhood, District, and Regional Park Programs and Maintenance
- Organized Youth and Adult Athletic Programs
- After-School Recreational Programs
- Summer Enrichment Program
- Therapeutic Programs
- Parks and Planning Design

The demands for sufficient active and passive recreational opportunities, and the need to protect valuable open space have become major issues in the past 10 years. Urban sprawl has eliminated large quantities of undeveloped open space throughout unincorporated Hillsborough County, and new recreation facilities to meet the needs of the expanding population have not been provided at an adequate rate for neighborhood and district parks. The County, other local agencies, and the private sector must share the responsibility of meeting current and future demands for recreational facilities and open space.

The Park Site Improvement Program Ordinance, adopted by the Board of County Commissioners, classifies the provision of adequate park facilities as an essential public service. The Board recognizes the government's responsibility to provide additional local parks to serve the County's growing population as essential to the public health, safety and welfare.

The Recreation and Open Space Element meets the requirements of the Local Government Comprehensive Planning and Land Development Regulation Act, Chapter 163, FS. The act requires the comprehensive plan for recreation and open space to assess current needs and opportunities, analyze future needs and provide goals, objectives and policy statements which will be used by the County to enhance the public and private recreation and open space opportunities available to the public. The element also conforms with Chapter 9J-5, FAC, "Minimum Criteria for Review of Local Comprehensive Plans and Determination of Compliance."

The purpose of the Recreation and Open Space Element is to provide guidance to unincorporated Hillsborough County to enhance recreation and open spaces, while designating adequate and appropriately located land for recreation facilities to meet the needs of the anticipated population. The Recreation and Open Space Element also requires the development of an open space network throughout the County, and provides criteria, through its goals, objectives and policies, for recreation and open spaces to be provided by both the public and private sector to meet the needs of the growing community. The Element addresses the need to plan for the development of new recreational facilities to provide the necessary recreational opportunities to meet the demands of the increasing population.

The recreation and open space plan must ensure the protection and proper future use of the natural environment including rivers, state parks and wetlands. Since open space lands may be either privately or publicly owned and range in character from vacant urban lands to large open spaces and forestlands, methods of protecting these lands are often varied and complex. The Element guides the improvement and development of recreational facilities while protecting natural resources for the residents of unincorporated Hillsborough County.

II. INVENTORY AND ANALYSIS

The inventory of open spaces, parks and recreational facilities targets the identification of current deficiencies, as the first step in developing a program for correction. A listing of parks is provided in Appendix 1 of this Element. In addition a listing of Athletic Facilities is provided in Appendix 3. Tables 3.a and 3.b present the inventory of public and private recreational facilities in unincorporated Hillsborough County. The existing land use map (cross-referenced in the Future Land Use Element) presents locations of the unincorporated County parks.

The parks and recreational facilities classifications (neighborhood, district and regional parks) and presents standard levels of service are described in the Section 4 – Goals, Objectives and Policies. Parks and Recreation Department staff inventoried recreational facilities under the Department's jurisdiction.

Data for private or quasi-public recreational facilities was obtained from the "Florida Recreation and Park Facilities Inventory for Hillsborough County," conducted by the Florida Department of Natural Resources (FDNR). Planning Commission staff identified existing conditions and deficiencies by relating existing park acreage to 2007 population figures.

Through the Park Site Improvement Program Ordinance, the Parks and Recreation Department developed the following standard levels of service for neighborhood and district parks. The Department has also adopted the following standards for regional parks:

Standard Levels of Service

	acres	**persons**
Neighborhood Park*	1.6	1,000
District Park*	1.8	1,000
Regional Park*	20	1,000
Local Park**	3.4	1,000

* See Definitions for a detailed description of these terms.

** Replaces the categories for Neighborhood and District parks

The analysis of current as well as future needs for this element has been done by park planning areas. The Park Site Improvement Program Ordinance defines the park planning areas as generalized budgeting zones created for the purpose of implementing the provisions of the Ordinance relating to expenditure of park impact assessment.

The impact assessment is a mechanism whereby residential development may be assessed a pro rata share of its economic impact on the neighborhood and district (replaced with local) park system.

Error! Reference source not found. through 3 present existing conditions (deficiencies/surplus) for eighborhood, district and regional parks by park planning areas. These tables show that the County is currently operating below the standard acreage requirement for providing neighborhood parks and below the standard for district parks in one of the park planning areas. However, the regional park category presents an acreage surplus.

REGIONAL PARKS

The County currently has 97,734 acres of regional parks or a surplus of 81,377.8 acres above the acres needed to provide the standard level of service (20 acres/1,000 persons) for regional parks.

TABLE 1 REGIONAL PARKS EXISTING DEFICIENCY/SURPLUS

	2008 acreage above (below)	Current Level of Service
Countywide	97,734	97.73

The Goals, Objectives and Policies chapter of this Element provides alternatives to correct the park deficiencies identified above. The Implementation chapter recommends both financing mechanisms

and government agencies' responsibilities required to meet the park needs of the unincorporated County.

The above analysis of needs focuses on park acreage in relation to existing population and adopted park standards. However, the analysis of availability and adequacy of the recreational facilities within the parks, according to the different park classifications, are just as important in addressing recreational needs. Appendix 3 lists facilities found in prototype neighborhood and district parks. The facilities found in regional parks will vary according to the available resources.

Appendix3 presents an inventory of recreational facilities operated by the Parks, Recreation and Conservation Department.

The analysis of this inventory shows a number of neighborhood parks that lack the prototype facilities. Examples of these undeveloped parks are Bray and Chelsea, Country Run and Hamilton Parks. However, there are other neighborhood parks, such as Progress Village and Nuccio Parks that have the variety of facilities such as tennis and multipurpose courts, baseball fields, swings and slides.

Similarly, the inventory of district park facilities shows undeveloped parks, such as Rhodine Bell and Sheldon Road Parks. However, there are other district parks, such as Brandon and Keystone Landfill Parks that have the prototype facilities of a district park, such as football, soccer, softball, shuffleboard, and tennis courts, as well as swings and other play facilities.

The current inventory of park and recreational facilities represents the best available data. The Parks and Recreation Department needs to maintain an up-to-date parks and recreational facilities inventory to accurately identify existing and future needs which will guide the development of future capital improvement programs.

In addition, by maintaining an inventory of private, and quasi-public recreational facilities, potential joint programs may be developed to address current recreational demands. Appendix 1) presents an inventory of state, private clubs, private commercial, and private non-profit parks and recreational facilities.

Most of the listed facilities are related to outdoor recreation activities such as campgrounds and golf courses. Other sites and facilities such as movie theatres and bowling alleys are not listed but do provide residents and tourists with recreation opportunities.

There is a need to regularly conduct condition and user surveys to determine the adequacy and availability of the existing facilities. Concerning availability through access, the Department currently coordinates the provision of mass transit services to recreational areas. However, the provision of access to beaches, shores, lakes, and rivers needs to be studied and should be considered only when the integrity of these natural systems can be protected.

To efficiently address current and future needs, it is important to identify existing as well as potential resources that can contribute to meeting recreational needs. Updating and maintaining an inventory of parks and recreational facilities to accurately know their availability and condition would assist in addressing this need.

III. FUTURE NEEDS AND ALTERNATIVES

According to Policy 1.c.1.f.(2), local park needs are calculated based on 3.4 acres per 1,000 people; and regional park needs are calculated based on 20.0 acres per 1,000 people. Local park acreage also includes trails. Regional parks consist of regional and state parks as well as lands purchased under the Environmental Lands Acquisition and Protection Program (ELAPP). Trails located in regional parks are not included in the total acreage since they are

wholly contained by the park and are already included in the park's parcel acreage. For this reporting period, LOS requirements are based on the 2007 Hillsborough Planning Commission population estimates, which indicate that unincorporated Hillsborough County had 804,340 residents. Based on that amount, the LOS guidelines would call for 2,735 acres of local parks and 16,087 acres of regional parks. Hillsborough County counted 4,170 acres of local parks and 97,734 acres of regional parks for this as of 2007. Hillsborough County categorizes their local parksinto four regions: Northeast, Northwest, Central, and South regions. The map in Appendix 2 depicts the park regions and locations of parks within the County. Additionally, several projects to enhance and expand the County's park system are itemized

in the CIP. It is expected that these projects will improve the LOS.

The County currently exceeds the adopted level of service for local and regional parks. Even without the addition of new park acreage the County will exceed the LOS throughout the term of the CIP. However, in the CIP the County has identified additional park projects that will further exceed or sustain the adopted level of service Table 22 and Table 23 show the funded park projects that will maintain or expand park services and acreage and promote the level of service, as identified in the Parks Facilities Program of the Hillsborough County Board of County Commissioners' adopted CIP as amended on October 17, 2007 for a six-year period starting with the fiscal year beginning October 1, 2007 and continuing through the fiscal year

ending September 30, 2013.

Projected open space, park and recreation needs are used to allocate existing and future revenue sources and to develop a program of prioritization on which capital improvement programs are to be based. In July 1996, Hillsborough County Parks and Recreation Department made recommendations to the Board of County Commissioners for the revision of the park land classification from three to two categories. This revision was recommended in order to accommodate the required parkland acreage needed for future growth in the unincorporated County. The Park Site Improvement Ordinance was amended and now classifies park land into two classifications; local parks serving an area defined by approximately two to five miles; and regional parks serving an area defined by approximately a 30-mile radius.

Table 2 and Table 3 show projected park needs for the two park categories analyzed: local and regional parks. The Planning Commission July 1995 projected populations were related to the standard levels of service presented in the Inventory and Analysis chapter yielding projected park acreage needs. Projected needs were calculated for the two planning horizons: 1995 through 2005 and 2005 through 2015.

LOCAL PARKS

Table 2 lists future needs for neighborhood parks. For the first planning horizon, the central area presents the highest park demand with 151 acres needed, followed by the northwest (111 acres), northeast (76 acres) and south (60 acres). For the second planning horizon, the northeast has the highest future need of 92 acres, followed by the central (91 acres), south (59 acres), and northwest (35 acres).

TABLE 2 LOCAL PARK FUTURE NEEDS BY PLANNING AREAS

	1995-2005	2005-2015
Park Planning Area	**Acres Needed**	**Acres Needed**
Northwest	- 111	35
Northeast	76	92
Central	151	91
South	60	59

Error! Reference source not found. shows the existing and projected neighborhood park acreage eeded.

In addition to listing future park acreage needed for the two planning horizons, Table 2 presents an equivalent of such acreage into actual number of parks needed. The minimum allowable size for a local park is 5 acres. By the year 2015, 497 acres of local parkland will be needed. However, it is important to note that the number of parks needed will vary because parks are usually larger than the minimum required size.

Future recreational uses, within each park planning area, are depicted on the future land use map (cross-referenced in the Future Land Use Element). This map shows acreage figures, for local parks,

that will be needed to meet the demand for the two planning horizons analyzed (2005-2015 and 2025). Because the location of recreational facilities to address future needs will be dictated by the location of future growth (based on the Park Site Improvement Program Ordinance), this map does show the actual location of future parks.

The crown jewel of the Hillsborough County Park System is its Regional Park System. There are 10 regional parks in the system with a combined total of 16,463 acres. In 2006, attendance at these parks totaled 4,069,744 visitors. Each park is staffed and maintained by park rangers. The Regional Parks section also manages the Upper Tampa Trail. The Trail serves nearly 300,000 visitors a year and provides urban and rural trail experiences for bicyclists and hikers.

TABLE 3 REGIONAL PARK FUTURE NEEDS BY PLANNING AREAS

	1995-2005	2005-2015
Park Planning Area	**Acres Needed**	**Acres Needed**
Northwest	651	211
Northeast	448	540
Central	889	534
South	353	351

Table 3 presents future needs for regional parks. Similar to the analysis of current regional park conditions, the future needs have been analyzed in a countywide basis. Table 3 shows the regional park acreage needed for the two planning horizons based on population projections. It has been found that the existing surplus on regional parks covers the acreage needed through the year 2015.

Error! Reference source not found. shows the existing and projected regional park acreage needed.

Note: The existing 1996 regional park acreage already covers the total County demand through the year 2015. Figure 4 presents unincorporated Hillsborough County 2015 local parkland resulting percentages by planning areas. **Error! Reference source not found.** shows that, by the year 2015, 24 ercent of the local parks will be located in the northwest area of the County, 27 percent in the

northeast, 28 percent in the central, and 20 percent in the south areas of the unincorporated County..

The Capital Improvement Element addresses both the current needs outlined in the Inventory and Analysis chapter, and the projected needs described above. The Capital Improvement Element addresses all public facilities needed to support projected growth, including recreational facilities and identifies financing mechanisms to meet existing and future needs. The current approach of the Capital Improvements Element is to correct deficiencies and meet the future needs over a five year timeframe from the base date and every five years thereafter.

In order to correct the existing deficiencies identified in the previous chapter, and to address future needs, the Goals, Objectives and Policies as well as the Implementation chapters provide alternatives for meeting those needs. The current and future needs have been grouped into three major areas and alternatives are provided for them. The first area addresses the correction of existing deficiencies; the second area proposes undertaking work programs; and the third area addresses financing mechanisms and levels of service. The following chapter proposes specific goals, objectives and policies in those areas to meet the recreational demands of the residents of Hillsborough County.

APPENDIX 1

Parks Inventory

Regional Parks

Park Name	Address	Total Acres	Property Owner*	Visitor Center (#)	Visitor Center (SF)	Restroom Bldg. (#)	Concession Bldg. (#)	Storage Bldg. (#)	Picnic Shelter (#)	Playground (#)	RC Car Track (#)	Trail - multiuse paved (miles)	Trail - hiking (miles)	Trail - equestrian (miles)	Trail - canoe/kayak (miles)	Trail - multi-use soft path (miles)	Bike/Ped Bridge (#)	Bike/Ped Overpass (#)	Bike/Ped Underpass (#)	Boardwalk (Linear Ft.)	Dock (#)	Fishing Dock/Pier (#)	Boat Ramp- Motor (#)	Boat Ramp- Canoe/Kayak (#)
Alderman's Ford	9625 Canoe Launch Loop, Lithia 33567	581.93	HC	1	832	3	0	5	11	1	0	1.8	0	0	0	4.2	0	0	0	1,875	0	0	0	1
E.G. Simmons	2401 19th Ave NW, Ruskin 33570	344.75	HC	0	0	4	0	10	2	3	0	0	0	0	0	0	0	0	0	123	2	4	1	0
Edward Medard	5726 Partner Loop, Plant City 33567	1,283.87	SWFWMD	0	0	5	0	0	15	1	0	0	0	0	1	1	0	0	0	600	5	1	5	1
Eureka Springs	6230 Eureka Springs Rd, Tampa 33610	30.69	HC	0	0	1	0	5	1	0	0	1	0	0	0	0	0	0	0		0	0	0	0
Lake	17302 N Dale Mabry Hwy, Lutz 33549	488.65	St. Petersburg	0	0	4	3	13	13	2	1	0	0	0	0	5	0	0	0	0	1	0	2	1

Lake Rogers	9010 N Mobley Rd, Odessa 33556	274.17	St. Petersburg	0	0	0	0	0	7	0	0	0	0	0	0	2.7	0	0	0	0	0	0	0	1
Lettuce Lake	6920 E Fletcher Ave, Tampa 33637	237.94	HC	1	3,840	3	0	5	12	1	0	1.25	0	0	0	1	0	0	0	3,350	0	0	0	0
Lithia Springs	3932 Lithia Springs Rd, Valrico 33547	159.47	Mosaic	1	450	3	0	7	4	1	0	0.44	0	0	0	0	0	0	0	162	1	0	0	1
Murray Grove Equestrian Park	9400 E South Mobley Rd, Odessa 33556	331.3	HC	0	0	0	0	0	0	0	0	0	0	0	0	7.5	0	0	0	0	0	0	0	0
Old Fort King Trail	12702 N US Hwy 301, Thonotosassa 33592	56.64	HC	0	0	0	0	0	0	0	0	2.9	0	0	0	6.9	3	0	0	0	0	0	0	0
Suncoast Trail (in Hillsborough Co)	Address not assigned	12.2	FL Turnpike District	0	0	0	0	0	0	0	0	1.25	0	0	0	0	0	0	0	0	0	0	0	0
Sydney Dover	717 N Dover Rd, Dover 33527	705.6	HC	0	0	0	0	2	0	0	0	0	0	0	0	7.5	0	0	0	0	0	0	1	1
Tampa Bypass Canal	7115 N US Hwy 301, Tampa 33610	7.07	SWFWMD	0	0	0	0	0	0	0	0	0	0	0	0	1.2	0	0	0	108	3	0	1	0

Town N Country Greenway	Address not assigned	22.95	HC	0	0	0	0	1	1	0	0	2	0	0	0	0	2	0	0	0	0	0	0	1
Upper Tampa Bay Park	8001 Double Branch Rd, Tampa 33615	596.51	HC	1	7,875	4	0	5	11	1	0	0	1.43	0	0	0	0	0	0	1,485	0	0	0	1
Upper Tampa Bay Trail	9201 W Waters Ave, Tampa 33635	89.96	HC	1	1,045	0	0	1	0	0	0	8	0	3	0	0	1	1	1	407	0	0	0	1
Veterans Memorial	3602 N US Hwy 301, Tampa 33619	13.91	HC	1	4,320	0	0	4	2	0	0	1.5	0	0	0	0.11	0	0	0	0	0	0	0	0
Wilderness Park at Cowhouse Slough	Address not assigned	1,997.80	SWFWMD	0	0	0	0	0	0	0	0	0	0	6.75	0	10.44	0	0	0	0	0	0	0	0
Wilderness Park at Dead River	15098 Dead River Rd, Thonotosassa 33592	5.54	SWFWMD	0	0	1	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1
Wilderness Park at Flatwoods	14302 Morris Bridge Rd, Branchton 33592	6,345.32	SWFWMD	1	2,214	2	0	2	0	0	0	9	0	0	0	8.3	0	0	0	0	0	0	0	0
Wilderness Park at J.B.	12702 N US Hwy 301, Thonotosass	50.23	SWFWMD	0	0	1	0	0	1	0	0	0	0.26		0	0.75	0	0	0	900	0	0	1	1

Sargeant	a 33592																							
Wilderness Park at Morris Bridge	13330 Morris Bridge Rd, Branchton 33592	9.34	SWFWMD	0	0	1	0	3	1	0	0	0	2.2	0	0	11.8	0	0	0	2,503	0	0	1	1
Wilderness Park at Trout Creek	12550 Morris Bridge Rd, Branchton 33592	455.72		0	0	1	0	1	4	0	0		0.8	0	0	0.9	0	0	0	480	0	0	0	1
TOTAL		**14,101.56**		**7**	**20,576**	**33**	**3**	**65**	**85**	**10**	**1**	**29**	**7**	**10**	**1**	**69**	**6**	**1**	**1**	**11,993**	**12**	**5**	**12**	**13**

Preserves (Regional and Local)

Park Name	Address	Total Acres	Property Owner*	Managing Entity*	Restroom Bldg. (#)	Storage Bldg. (#)	Picnic Shelter (#)	Security Residence (#)	Security Residence (Total SF)	Parking Lot Paved (#)	Parking Paved (spaces)	Parking Lot Unpaved (#)	Parking Unpaved (spaces)	Trail - multiuse paved (miles)	Trail - hiking (miles)	Trail - mountain biking (miles)	Trail - equestrian (miles)	Trail - [illegible] (miles)
Alafia North Prong		1,602.11	SWFWMD	HC	0	0	0	0	0	0	0	0	0	0	0	0	0	16.
Alafia Scrub		79.37	HC / FCT	HC	0	0	0	0	0	0	0	0	0	0	1.7	0	0	1.4
Alafia South Prong		2,138.90	SWFWMD	HC	0	0	0	0	0	0	0	0	0	0	8.5	0	8	26
Alderman's Ford Preserve		985.90	FIITF	HC	0	0	0	0	0	0	0	0	0	0	5.3	0	2.3	6.4
Alderman's Ford South Prong Addition		854.80	SWFWMD	HC	0	0	0	0	0	0	0	0	0	0	0	0	0	7.6
Apollo Beach Nature Preserve	6767 Surfside Dr., Apollo Beach 33572	22.52	HC	HC	1	0	2	0	0					0	0	0	0	0

Apollo Beach Preserve		57.65	HC / FCT	HC	0	0	2	0	0					0.1				
Bahia Beach Coastal Restoration		148.87	HC / DEP	HC	0	0	0	0	0	0	0	0	0	0	0	0	0	1.6
Balm Boyette Scrub		4,790.32	FIITF	HC	1	0	0	0	0					0	3.3	20	0	50
Balm Scrub		1,570.26	HC	HC	0	0	0	0	0	0	0	0	0	0	0	0	0	19.
Bell Creek		477.16	HC / FIITF	HC	0	4	0	0	0					1.4	3.9	0	0	6.2
Blackwater Creek		1,832.04	HC	HC	0	0	0	0	0	0	0	0	0	0	6.1	0	0	24.
Blackwater Hammock		7.72	HC	HC	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5
Bower Tract		1,585.24	FIITF	HC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Boy Scout		554.30	HC	HC	0	0	0	0	0	0	0	0	0	0				0
Brook Creek Headwaters		1,078.34	SWFWMD	HC	0	2	0	1	2,600	0	0	0	0	0	9.5	0	0	15
Brooker Creek Buffer		410.18	HC	HC	0	0	0	0	0	0	0	0	0	0	0	0	0	5.5
Bullfrog Creek Scrub		1,580.65	HC / FFWCC	HC / FFWCC	0	0	0	0	0	0	0	0	0	0	0	0	0	6
Camp	4202 24th St. SE,	139.00	HC	HC	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Bayou	Ruskin 33570																	
Cockroach and Piney Point Creeks		2,668.77	SWFWMD	HC / SWFWMD	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Cockroach Bay		1,426.97	HC / FDEP	HC / FDEP	0	3	0	0	0					0	0	0	0	7.5
Cockroach Bay Boat Ramp	5299 Cockroach Bay Road, Ruskin 33510	0.28	SWFWMD	HC	0	0	0	0	0	1	1	1	36	0	0	0	0	0
Cockroach Creek Greenway		553.86	HC	HC	0	0	0	0	0	0	0	0	0	0				0
Cypress Creek		2,538.00	HC	HC	0	0	1	1	1,650	0	0	0	0	0	1.4	0	0	15
Cypress Street		40.96	HC	Tampa	0	0	0	0	0	0	0	0	0	0.7	0	0	0	0.8
Dairy Farm		378.91	HC	FDEP	0	0	0	0	0	0	0	0	0	0	0	0	0	2.7
Delaney Creek		10.86	HC	HC Public Works	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4
Diamond Back		9.12	HC	HC	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2
Ekker		86.50	SWFWMD	HC	0	2	0	1	2,000	0	0	0	0	0	0	0	0	2
Fishhawk		2,748.65	HC / FCT / SWFWMD	HC	0	0	0	0	0	0	0	0	0	0	0	0	0	22.

Florida College		158.63	HC / FCT	HC	0	0	0	0	0	0	0	0	0	0	0.6	0	0	0
Fred and Ida Schultz		133.98	SWFWMD	HC	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Fulkerson Road		154.40	SWFWMD	SWFWMD	0	0	0	0	0	0	0	0	0	0	0	0	0	2.3
Golden Aster Scrub		1,181.00	HC / FIITF	HC	1	0	1	0	0	0	0	0	0	0.4	6.5	0	0	16.
Lithia Springs Preserve		39.36	HC	HC	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5
Little Manatee River		2,081.24	Florida (Parks, Inholdings and Additions)	HC / FDEP	0	4	1	1	2,500	0	0	0	0	0	1.6	0	0	7.7
Little Manatee River Corridor		3,767.55	SWFWMD	HC	0	3	0	2						0	0	0	0	24.
McIntosh-Zack		362.98	HC	Plant City	0	0	0	0	0	0	0	0	0	0	0	0	0	3.5
McKay Bay		145.43	HC	HC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Morris Bridge Road 70-acre site		70.03	SWFWMD	HC	0	0	0	0	0	0	0	0	0	0	0	0	0	1
New Tampa Flatwoods		121.67	FCT / Tampa	Tampa	0	0	0	0	0	0	0	0	0	0	0	0	0	2.7

Oakridge	Address not assigned	933.20	SWFWMD	DEP	0	0	0	0	0	0	0	0	0	0	0	0	0	13.
Pam Callahan		102.49	HC	HC	0	0	0	0	0	0	0	0	0	0				1.6
Rhodine Scrub		448.10	HC	HC	0	0	0	0	0	0	0	0	0	0	0	0	3.2	6.7
Rivercrest Park Addition		448.10	Tampa	Tampa	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2
Riverhills Park Addition		31.46	Temple Terrace	Temple Terrace	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5
Rocky Creek Coastal Preserve		352.20	HC	HC	0	0	0	0	0	0	0	0	0	0	0	0	0	0.7
Rocky-Brushy Creek Greenway		15.73	HC	HC	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2
South McDill 48		47.16	Tampa	Tampa	0	0	0	0	0	0	0	0	0	0	0	0	0	1.5
The Kitchen		539.89	HC	HC	0	0	0	0	0	0	0	0	0	0	0	0	0	2.9
Tower Restoration		12.79	Tampa	Tampa	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5
Town 'N Country Preserve		130.60	HC	HC	0	0	0	0	0	0	0	0	0	0	1.2	0	0	1.9
Triple Creek		1,009.36	HC / FCT	HC	0	0	0	0	0	0	0	0	0	0	2.3	0	0	11.

Ranch																		
Upper Little Manatee - East Portion		719.09	SWFWMD	HC	0	0	0	0	0	0	0	0	0	0	0	0	0	7.5
Upper Little Manatee - West Portion		667.05	SWFWMD	HC	0	0	0	0	0	0	0	0	0	0	0	0	0	5.7
Violet Cury		160.86	HC / FCT	HC	0	0	0	0	0	0	0	0	0	0	2.3	0	0	4.2
Wolf Branch		1,433.64	HC	HC	0	0	0	0	0	0	0	0	0	0	0	0	0	8.6
English Creek		260.53	HC	Hillsborough Comm. College	0	0	0	0	0	0	0	0	0	0	0	0	0	0
McKay Bay-Palm River Greenway		145.43	FIITF	Tampa	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Port Tampa Restoration		451.04	Tampa	Tampa	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL		**46,503.20**			**3**	**18**	**7**	**6**	**8,750**	**1**	**1**	**1**	**36**	**2.6**	**54.2**	**20**	**13.5**	**371**

Special Type

Park Name	Address	Total Acres	Property Owner*	Managing Entity*	Maintenance Unit	Restroom Bldg. (#)	Storage Bldg. (#)	Gazebo Bldg. (#)	Picnic Shelter (#)	Parking Lot Paved (#)	Parking Paved (spaces)	Parking Lot Unpaved (#)	Parking Unpaved (spaces)	Boat Ramp- Motor (#)	Boat Ramp- Canoe/Kayak (#)
Administration Office	1101 E River Cove Ave, Tampa 33604	2.60	Tampa	HC	1	1	0	0	2	1	3	1		0	0
Alafia River Access	105134 Bridgewood Dr, Riverview 33569	0.16	HC	HC	2	0	0	0	0	0	0	0	0	0	0
Alafia River Boat Ramp	4014 Alafia Blvd, Brandon 33511	0.98	HC	HC	2	0	0	0	0			1	6	1	0
Audrey Lane	8811 Audrey Ln, Tampa 33615	0.15	HC	HC	1	0	0	0	0	0	0	0	0	0	0
Baker Creek Boat Ramp	12000 Thonotosassa Rd, Thonotosassa 33592	12.17	HC	HC	1	0	0	0	0					1	0
Baycrest Boat Ramp	4916 Bay Crest Dr, Tampa 33615	0.25	HC	HC	1	0	0	0	0					1	0
Brandon Forest Gravesite	2918 Forest Circle, Seffner 33584	0.2	HC	HC	2	0	0	0	0	0	0	0	0	0	0

Chillura Courthouse Square	407 Morgan St, Tampa 33602	1.04	HC	HC	2	0	0	1	0	0	0	0	0	0	0
Courtney Campbell Boat Ramp	Address not assigned	2.05	HC	HC	1	0	0	0	0					2	0
Domino Boat Ramp	2210 8th St SW, Ruskin 33570	0.47	HC	HC	2	0	0	0	0					1	0
East Point Construction Unit	5288 Eureka Springs Rd, Tampa 33610	2.10	HC	HC	2	0	2	0	0					0	0
Lake Weeks Boat Ramp	910 Lakeside Dr, Seffner	4.21	HC	HC	2	0	0	0	0	0	0	1	6	1	0
Maintenance Unit 1 (North)	1109 E 139th Ave, Tampa 33613	15.34	HC	HC	1	0	1	0	0	2	40	0	0	0	0
Maintenance Unit 2 (South)	1626 Nature's Way Blvd, Valrico 33596	30.71	HC	HC	2	0	1	0	0		121	0	0	0	0
Salty Sol Fleishman Boat Ramp	5108 W Gandy Blvd, Tampa 33611	8.96	HC	Tampa	1	0	0	0	0					3	0
Sumner's Acres Boat Ramp	Address not assigned	2.93	HC	HC	2	0	0	0	0	0	0	0	0	0	1
TOTAL		**84.32**				**1**	**4**	**1**	**2**	**3**	**164**	**3**	**12**	**10**	**1**

LOCAL PARKS

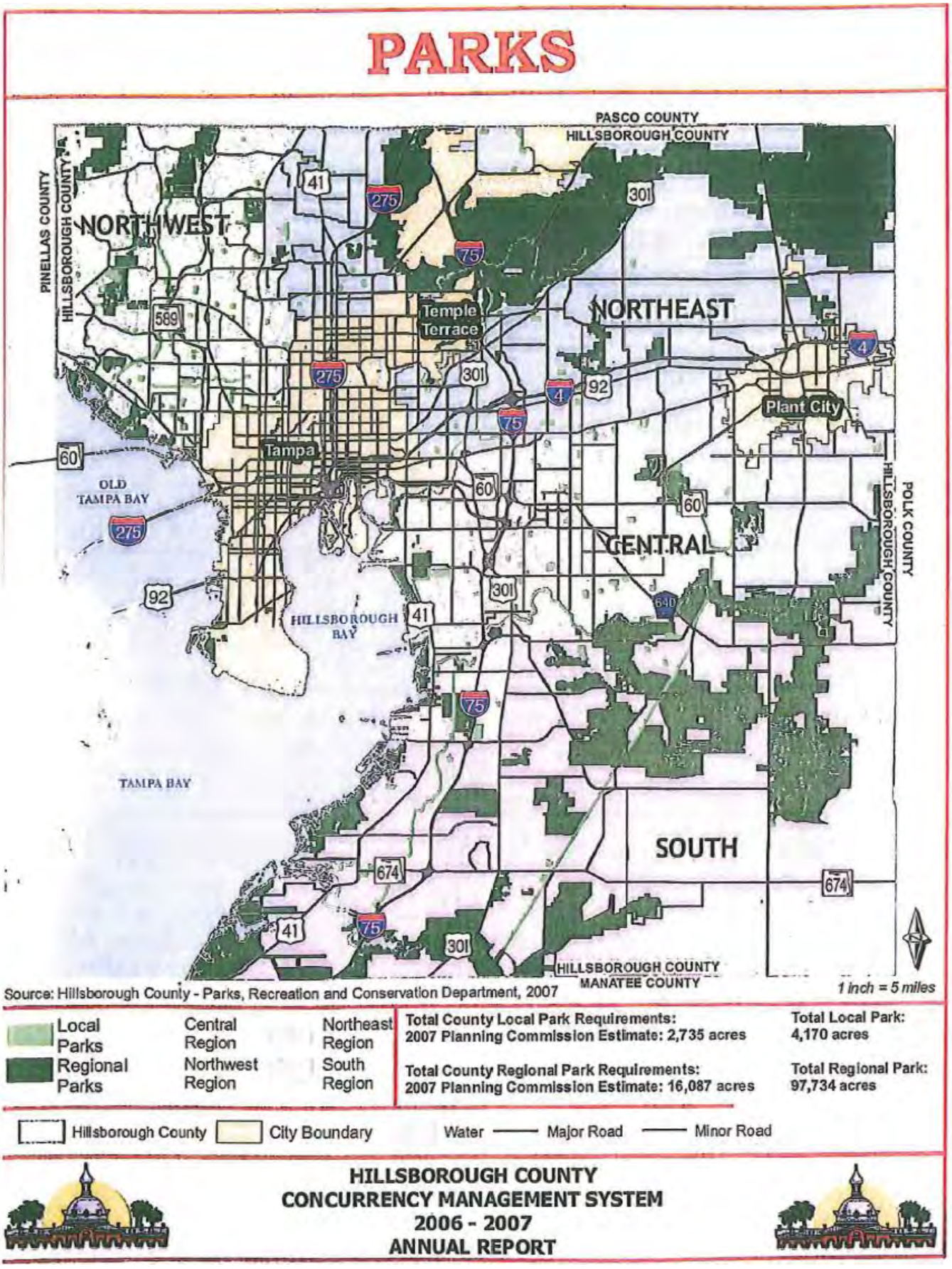
Park Name	Address	Total Acres	Visitor Center (#)	Visitor Center (SF)	Restroom Bldg. (#)	Concession Bldg. (#)	Storage Bldg. (#)	Picnic Shelter (#)	Playground (#)	RC Car Tract (#)	Trail - multiuse paved (miles)	Trail - hiking (miles)	Trail - equestrian (miles)	Trail - canoe/kayak (miles)	(miles)	Bike/Ped Bridge (#)	Bike/Ped Overpass (#)	Bike/Ped Underpass (#)	Boardwalk (Linear Ft.)	Dock (#)	Fishing Dock/Pier (#)	Boat Ramp- Motor (#)	Boat Ramp- Canoe/Kayak (#)
Alderman's Ford	9625 Canoe Launch Loop, Lithia 33567	581.93	1	832	3	0	5	11	1	0	1.8	0	0	0	4.2	0	0	0	1,875	0	0	0	1
E.G. Simmons	2401 19th Ave NW, Ruskin 33570	344.75	0	0	4	0	10	2	3	0	0	0	0	0	0	0	0	0	123	2	4	1	0
Edward Medard	5726 Partner Loop, Plant City 33567	1,283.87	0	0	5	0	0	15	1	0	0	0	0	1	1	0	0	0	600	5	1	5	1
Eureka Springs	6230 Eureka Springs Rd, Tampa	30.69	0	0	1	0	5	1	0	0	1	0	0	0	0	0	0	0		0	0	0	0

	33610																						
Lake	17302 N Dale Mabry Hwy, Lutz 33549	488.65	0	0	4	3	13	13	2	1	0	0	0	0	5	0	0	0	0	1	0	2	1
Lake Rogers	9010 N Mobley Rd, Odessa 33556	274.17	0	0	0	0	0	7	0	0	0	0	0	0	2.7	0	0	0	0	0	0	0	1
Lettuce Lake	6920 E Fletcher Ave, Tampa 33637	237.94	1	3,840	3	0	5	12	1	0	1.25	0	0	0	1	0	0	0	3,350	0	0	0	0
Lithia Springs	3932 Lithia Springs Rd, Valrico 33547	159.47	1	450	3	0	7	4	1	0	0.44	0	0	0	0	0	0	0	162	1	0	0	1
Murray Grove Equestrian Park	9400 E South Mobley Rd, Odessa 33556	331.3	0	0	0	0	0	0	0	0	0	0	0	0	7.5	0	0	0	0	0	0	0	0
Old Fort King Trail	12702 N US Hwy 301, Thonotosassa 33592	56.64	0	0	0	0	0	0	0	0	2.9	0	0	0	6.9	3	0	0	0	0	0	0	0

Suncoast Trail (in Hillsborough Co)	Address not assigned	12.2	0	0	0	0	0	0	0	0	1.25	0	0	0	0	0	0	0	0	0	0	0	0
Sydney Dover	717 N Dover Rd, Dover 33527	705.6	0	0	0	0	2	0	0	0	0	0	0	0	7.5	0	0	0	0	0	0	1	1
Tampa Bypass Canal	7115 N US Hwy 301, Tampa 33610	7.07	0	0	0	0	0	0	0	0	0	0	0	0	1.2	0	0	0	108	3	0	1	0
Town N Country Greenway	Address not assigned	22.95	0	0	0	0	1	1	0	0	2	0	0	0	0	2	0	0	0	0	0	0	1
Upper Tampa Bay Park	8001 Double Branch Rd, Tampa 33615	596.51	1	7,875	4	0	5	11	1	0	0	1.43	0	0	0	0	0	0	1,485	0	0	0	1
Upper Tampa Bay Trail	9201 W Waters Ave, Tampa 33635	89.96	1	1,045	0	0	1	0	0	0	8	0	3	0	0	1	1	1	407	0	0	0	1
Veterans Memorial	3602 N US Hwy 301, Tampa 33619	13.91	1	4,320	0	0	4	2	0	0	1.5	0	0	0	0.11	0	0	0	0	0	0	0	0
Wilderness Park at Cowhous	Address not assigned	1,997.80	0	0	0	0	0	0	0	0	0	0	6.75	0	10.44	0	0	0	0	0	0	0	0

e Slough																							
Wilderness Park at Dead River	15098 Dead River Rd, Thonotosassa 33592	5.54	0	0	1	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1
Wilderness Park at Flatwoods	14302 Morris Bridge Rd, Branchton 33592	6,345.32	1	2,214	2	0	2	0	0	0	9	0	0	0	8.3	0	0	0	0	0	0	0	0
Wilderness Park at J.B. Sargeant	12702 N US Hwy 301, Thonotosassa 33592	50.23	0	0	1	0	0	1	0	0	0	0.26		0	0.75	0	0	0	900	0	0	1	1
Wilderness Park at Morris Bridge	13330 Morris Bridge Rd, Branchton 33592	9.34	0	0	1	0	3	1	0	0	0	2.2	0	0	11.8	0	0	0	2,503	0	0	1	1
Wilderness Park at Trout Creek	12550 Morris Bridge Rd, Branchton 33592	455.72	0	0	1	0	1	4	0	0		0.8	0	0	0.9	0	0	0	480	0	0	0	1
TOTAL		**14,101.56**	**7**	**20,576**	**33**	**3**	**65**	**85**	**10**	**1**	**29**	**7**	**10**	**1**	**69**	**6**	**1**	**1**	**11,993**	**12**	**5**	**12**	**13**

APPENDIX 2


PARKS
PASCO COUNTY
HILLSBOROUGH COUNTY
PINELLAS COUNTY
HILLSBOROUGH COUNTY
NORTHWEST
NORTHEAST
CENTRAL
SOUTH
Temple Terrace
Plant City
Tampa
OLD TAMPA BAY
HILLSBOROUGH BAY
TAMPA BAY
POLK COUNTY
HILLSBOROUGH COUNTY
HILLSBOROUGH COUNTY
MANATEE COUNTY
41
275
301
75
589
4
92
60
640
674
Source: Hillsborough County - Parks, Recreation and Conservation Department, 2007
1 inch = 5 miles
Local Parks
Regional Parks
Central Region
Northwest Region
Northeast Region
South Region
Total County Local Park Requirements:
2007 Planning Commission Estimate: 2,735 acres
Total Local Park:
4,170 acres
Total County Regional Park Requirements:
2007 Planning Commission Estimate: 16,087 acres
Total Regional Park:
97,734 acres
Hillsborough County
City Boundary
Water
Major Road
Minor Road
HILLSBOROUGH COUNTY
CONCURRENCY MANAGEMENT SYSTEM
2006 - 2007
ANNUAL REPORT

APPENDIX 3

Athletic Complexes

Athletic Complexes

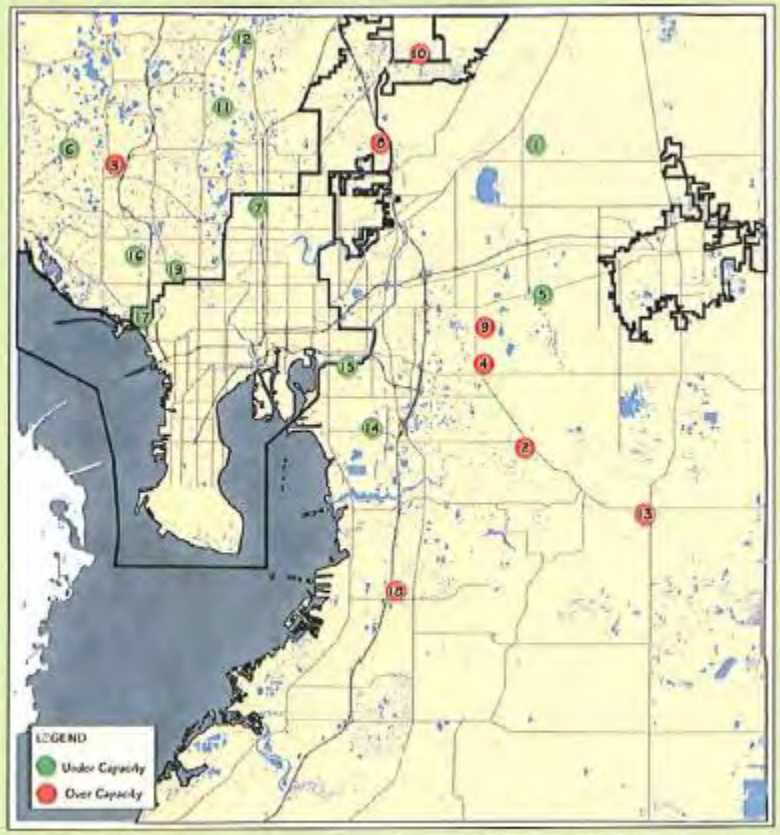
1. Aldermans Ford
2. Antioch Park
3. Bealsville Recreation Center
4. Bethune Recreation Center
5. Bloomingdale Park
6. Brandon Recreation Center
7. Burnett Park (Mango Recreation Center)
8. Citrus Park
9. Clayton Park
10. Dan McMullen Field
11. Dover District Park
12. Ed Radice Park
13. Evans Recreation Center
14. Heather Lakes Park
15. J.C. Handly Park
16. Limona Park
17. Mort Recreation Center
18. North Brandon
19. North East Little League
20. Northlakes Recreation Center
21. Orange Groove Park
22. Oscar Cooler Park
23. Pinecrest Elementary School
24. Progress Village Recreation Center
25. Providence East Park
26. Providence West Recreation Center
27. Roy Haynes Recreation Center
28. Rubin Padgett Park (Palm River Recreation Center)
29. Shimberg Park
30. Skyway Park
31. Thonotosassa - Main Street
32. Thonotosassa Recreation Center
33. Town & Country Recreation Center
34. Vance Vogel Park
35. West Park
36. William Owen Pass Park
37. Winston Recreation Center

Athletic Complex Map



(Source: ftp://hillsboroughcounty.org/, December 2006)

Youth Baseball



Total # of Fields: 107
Total # of Current Team: 793
Total Average Capacity: 74%*

*Assumption: 1 field per 10 teams

Youth Soccer



Total # of Fields: 43
Total # of Current Team: 717
Total Average Capacity: 115%*

*Assumption: 1 field per 12 teams

IV. GOALS, OBJECTIVES AND POLICIES

The Goals, Objectives and Policies presented in this chapter are the focus of the Recreation and Open Space Element. They guide the County in correcting deficiencies and addressing projected recreational demands. Additionally, the Objectives and Policies prescribe eventual implementation mechanisms by providing ways in which the programs and activities shall be conducted to achieve the identified Goal.

This chapter is divided into three sections. The first section addresses the correction of existing deficiencies by proposing land use incentives and regulations for the appropriate designation, conservation, improvement, and development of existing open space and recreation areas. The second section proposes specific work programs that will contribute to the elimination of existing deficiencies and will also address future needs. The third section addresses levels of service and recognizes the need to use alternative financial techniques.

GOAL: Ensure that appropriate public parks, recreational facilities and open spaces are available and reasonably accessible to the public, including the elderly and handicapped, by correcting existing deficiencies, meeting future needs and maintaining a feasible and adequate level of service within the Unincorporated County.

Correcting Existing Deficiencies and Preventing Future Inadequacies

OBJECTIVE 1: The County shall continue to correct existing deficiencies and prevent future inadequacies to an efficient system of open space, park and recreational facilities proportionately distributed to meet the needs of the population.

Policy 1.1: [i]

Appropriate incentives shall be used to encourage developers to provide public recreation facilities that follow County standards in their projects. Methods such as but not limited to tax incentives, density transfers, impact fees, park dedication and rational allocation of funds, shall be used to assist in acquiring and developing recreational facilities.

Policy 1.2:

The designation and acquisition of recreation and park sites, as well as open space and natural reservations, shall proceed in accordance with long-range comprehensive plans.

Policy 1.3:

Park and recreation lands shall be planned for multiple usages and located in areas most suitable to adequately satisfy the needs of the public.

Policy 1.4:

Planning of park and recreational facilities shall include protection of environmental and natural resources, energy efficiency and the orderly extension and expansion of other public facilities and services

Policy 1.5:

The County shall continue to avoid duplication or unnecessary competition of park and recreational services within county-sponsored programs, or between the County and other public or private organizations.

Policy 1.6:

The County shall continue to adequately supervise and maintain existing parks and recreational facilities in a safe and aesthetically pleasing condition.

Policy 1.7:

New developments shall continue to provide sufficient recreational facilities through payment of established impact fees or the dedication of usable open space to satisfy the active and passive recreational needs of future residents.

Policy 1.8:

Recreation and park sites shall be held inviolate against diversion to other uses except in instances of overriding public interest, in which case they will be effectively replaced.

Policy 1.9:

Recreation and open space provision shall be programmed according to development build out densities, to provide needed recreational facilities and open spaces concurrent with demand.

Policy 1.10: [ii]

New development and redevelopment will be required to provide community gathering places, park and recreation areas internal to projects as outlined in the Future Land Use Element. In addition, cluster developments shall be encouraged to preserve areas that can be used for open space, park and recreation areas.

Policy 1.11: [iii]

RESERVED

Policy 1.12:

The design of parks shall continue to be dictated by the topography of the site and shall consider demographics and character of the neighborhood, compatibility with adjacent land uses, and issues such as safety and future maintenance of the facilities.

Policy 1.13:

The County shall continue to jointly develop parks and recreation facilities with the cities of Tampa, Temple Terrace, Plant City, and other government agencies and private organizations.

Policy 1.14:

The County shall evaluate the four park impact fee zones to determine whether the zone boundaries should be adjusted to better serve populations in the county, and, if so, shall amend the boundaries.

Access To Open Spaces, Parks And Recreation Facilities

OBJECTIVE 2: The County shall continue providing improvements for public access to parks and recreational facilities and waterfront lands, including beaches and shores, by implementing the policies listed below. (Note: Policies in the Coastal Management Element also address public access to beaches and shores.)

Policy 2.1:

The County shall use incentives, such as park impact fee credits, to encourage new development projects containing waterfront sites suitable for County parks, to provide public access to the water.

Policy 2.2:

The County shall continue to provide public access to beaches, lakes and rivers. Such access shall be designed in a manner which protects natural system integrity.

Policy 2.3:

The County shall not vacate dead end roads on waterfronts and shall use these areas for passive open space, wherever feasible.

Policy 2.4:

When considering public acquisition of waterfront lands for recreational purposes, the amount of public access shall be balanced between the adjacent owners' rights to use the resources, the County's desire to provide additional recreational opportunities for the residents of the County, and the environmental appropriateness of public access.

Policy 2.5:

The County shall include or require the inclusion of access for recreational uses of waterfront lands during right-of-way acquisition for public facilities.

Policy 2.6:

The County shall continue to make park and recreation facilities and services accessible to the elderly and handicapped through barrier-free design or modifications to existing facilities.

Policy 2.7:

The coordination of present and future recreation sites and existing and planned transportation systems shall be continued in order to provide public accessibility to all recreational sites.

Policy 2.8:

New development shall be compatible with the uses of adjacent public recreational lands and, where appropriate, provide for non-vehicular access in a manner that is safe and protects public property.

Policy 2.9:

The County shall request private land owners to allow public recreational access to properties with resources that are considered valuable for recreation and open space use.

Policy 2.10:

Cooperative use agreements by which to negotiate public access with non-profit, quasi-public, or private entities shall continue to be utilized.

Protection and Management Of Open Spaces

OBJECTIVE 3: The County shall provide protection and enhancement of open spaces by public agencies and private enterprises by implementing the following policies:

Policy 3.1:

The County, through such programs as the Environmental Lands Acquisition and Protection Program, shall continue to identify, secure ,and manage open space for the purpose of conservation, preservation, and provision of open space corridors and park and recreational needs.

Policy 3.2:

Acquisition of new park and recreational lands shall be made only after the new land is determined to be clearly superior to other existing public lands for park and recreation uses in the same area.

Policy 3.3:

Land development regulations shall provide specific open space definitions and standards addressing open space landscaping, and signage which includes protection of open spaces, and their natural vegetation and water quality.

Policy 3.4

Incentives, such as density credits, shall be used to encourage the provision of open space within future developed areas.

Policy 3.5:

Criteria shall be developed and used to review all proposals for development in existing and proposed open space areas for compatibility with the natural setting.

Policy 3.6:

Suitable open spaces not developed as parks shall be equipped (e.g., with benches, picnic tables, shaded areas, etc.) to allow public use and enjoyment.

Policy 3.7:

Open spaces with unique natural features, scenic vistas, or cultural, historic and archaeological resources shall be publicly accessible, where such access does not detract from or diminish the resource.

Policy 3.8:

Development of leisure facilities in environmentally sensitive open spaces shall be allowed only if environmental quality is maintained or enhanced.

Policy 3.9:

Public/private beautification efforts on public property shall continue, but only when resources are available to maintain the additional inventory.

Policy 3.10:

The County shall provide information to private landowners about methods to preserve and maintain open space, such as creation of homeowner associations, recreation districts and community development districts.

Policy 3.11:

A map designating recreational trails in Hillsborough County shall be developed, maintained and updated as trails are identified and approved by State, regional and local entities.

Policy 3.12:

The County, in cooperation with State, regional and local entities, shall ensure that no actions will be taken which will impair the use of designated recreational trails.

Policy 3.13:

To ensure the health and abundance of trees and landscaped areas in County parks, the County shall consider the development of a horticulture program within the Parks, Recreation and Conservation Department, which includes a qualified horticulturist and an urban forester along with other appropriate resources.

Hillsborough Greenways Master Plan

OBJECTIVE 4: The County shall develop a greenway system by implementing the Hillsborough Greenways Master Plan which identifies ways to interconnect recreation and conservation land.

Policy 4.1:

Where necessary to connect publicly owned recreation and conservation lands to develop the greenway system, the County shall encourage voluntary public acquisition of land (by fee and less-than-fee techniques) and other voluntary landowner participation.

Policy 4.2:

Public lands shall be efficiently used by combining public service activities, such as recreation, stormwater management and aquifer recharge areas and linking them into the greenway system, wherever possible.

Policy 4.3:

Connect wherever possible, recreation and conservation lands by using existing rights-of-way, trails, and other open space corridors.

Policy 4.4:

The County shall explore possibilities to develop standards for greenways as an alternative approach to address future recreational needs.

Policy 4.5:

The County shall coordinate with the land acquisition programs of local municipalities and regional, state, and federal agencies to encourage the connection of existing publicly owned parcels of land into the greenway system.

Policy 4.6:

To protect sensitive ecosystems and wildlife corridors, locate and design greenway facilities in an environmentally sensitive manner, including limiting or prohibiting public access where necessary to protect such resources.

Policy 4.7:

Because of the need for local funding to continue implementing the BOCC- Approved Greenways Master Plan, the County shall evaluate ways to fund greenway trail projects (including but not limited to developer contribution) and shall implement those supported by the Board of County Commissioners.

Policy 4.8:

The County shall coordinate trail planning among neighboring jurisdictions to match and link elements when a trail crosses jurisdictional boundaries in order to enhance trail connectivity. Trails should connect to a variety of uses including existing and proposed residential, commercial and recreational use.

Work Programs

OBJECTIVE 5: The County shall continue a public information campaign and data base to educate the public and facilitate future programming.

Policy 5.1:

The County shall continue to regularly conduct condition surveys and capital improvement programming to guide park and recreation facilities maintenance and improvement.

Policy 5.2:

The following mechanisms shall continue to be used to provide public safety: separation of vehicular and pedestrian traffic flows, warning signs, telephones, lighting, first aid stations, grading of banks, and the elimination of blind areas.

Policy 5.3:

The County shall conduct annual User Preference and Assessment Surveys to obtain feedback on facilities, programs and activities offered to identify unmet resident and visitor demands.

Policy 5.4:

The County shall inventory, analyze and recommend specific programming responsibilities among the various public and private agencies responsible for recreation including parks, schools, libraries, social services, county and state agencies as well as private enterprises to provide a variety of year-round programs such as physical, athletic, social, arts, environmental and nature programs.

Policy 5.5:

The ability of existing sites and facilities to meet the changing needs of the population shall continue to be assessed annually.

Policy 5.6:

Marketing techniques and resources, such as radio, television, signage and literature, shall continue to be used to improve public awareness of recreational programs, facilities , and the natural resources that the County possesses to promote their conservation.

Policy 5.7:

The County shall continue to develop and circulate a quarterly events calendar to increase public awareness of planned events and activities.

Volunteer Staff

OBJECTIVE 6: The County shall continue a program for volunteers to assist in tasks for which funding has been limited.

Policy 6.1:

Adult and youth volunteers shall be utilized to staff youth programs in the County's recreational system.

Policy 6.2:

Volunteers or para-professionals shall be utilized in the supervision and monitoring of recreational facilities, and in the restoration, preservation, supervision and monitoring of public open space lands.

Policy 6.3:

Internship programs shall continue in conjunction with educational institutions to provide students with the opportunity to undertake tasks, such as research projects, for which they can receive academic credit.

Inventory Recreational Lands and Facilities

OBJECTIVE 7: The County shall on an annual basis conduct a computerized inventory of public, non-profit and private recreational lands and facilities.

Policy 7.1:

The County shall update the parks inventory, especially concerning acreage, by using its computerized mapping equipment for the development of a Geographic Information System map.

Policy 7.2:

An up-to-date inventory of recreational facilities provided within the parks will be maintained through a computerized system in order to identify capital improvement program needs.

Policy 7.3:

The inventory of recreational facilities shall include determination of the facilities available to the public.

Public/Private Cooperative Agreements

OBJECTIVE 8: Public/private cooperative agreements shall continue to be used to complement the County's system of park and recreational facilities, and to alleviate local and regional resource based park deficiencies.

Policy 8.1:

The use of cooperative agreements with other government bodies, public and private schools, non-profit agencies, churches and the private sector shall be continued to assure facilities for indoor and outdoor recreational opportunities.

Policy 8.2:

A process that coordinates public and private resources shall be continued to provide residents with a balanced program of athletic, aquatic, community recreational and resource oriented park activities.

County-Owned Lands

OBJECTIVE 9: The County shall annually review County-owned lands to determine their suitability for open space, park or recreation facilities and prioritize them for such uses.

Policy 9.1:

The County shall explore multiple use opportunities on County-owned lands and opportunities for connections with the greenway system.

Policy 9.2:

Incompatible uses surrounding existing recreational sites and facilities shall be identified, and such uses shall be eliminated or mitigated through methods such as buffering.

Water/Aquatic Resources

OBJECTIVE 10: The County shall provide resources that will implement its aquatic plan to utilize water resources for active and passive recreational activities.

Policy 10.1:

The plan for aquatic recreation provides for activities with emphasis on both swimming and non-swimming activities (boating, sailing, skiing, fishing, etc.).

Policy 10.2:

Adequate personnel shall be provided to enforce rules and regulations on water bodies

Policy 10.3:

Locations for public swimming pools shall be identified and facilities built where feasible.

Natural Resource Protection

OBJECTIVE 11: The County shall continue a program to allow for appropriate utilization and protection of natural resources.

Policy 11.1:

The County's park and greenway system shall encompass and encourage preservation and restoration of natural features and scenic areas.

Policy 11.2:

Nature study areas shall continue to be developed in appropriate natural resource-oriented parks. These areas may include boardwalks, nature trails and informational signage with provisions for protecting the natural resources.

Levels of Service/Financing

OBJECTIVE 12: Adopted standards for parks and recreational facilities will continue as adopted through the Park Site Improvement Program Ordinance.

Policy 12.1:

Level of service standards in local parks shall be 3.4 acres per 1,000 persons with a minimum size of 10 acres per local park.

Policy 12.3:

Level of service standards in Regional resource based parks shall be 20 acres per 1,000 persons with a minimum size of 250 acres per Regional resource based park.

Policy 12.4:

The provision of open spaces and recreational facilities in the conceptual urban reserve areas of Hillsborough County will depend on decisions that will be made on the provision of public facilities and services in those areas.

Alternative Funding Sources

OBJECTIVE 13: The County shall continue to use all leisure financing techniques available for providing recreational opportunities.

Policy 13.1:

Use of all grant, foundations and other funding sources shall be continued and recreation needs shall be prioritized through the capital improvement program in order to provide a sound recreation and greenway system.

Policy 13.2:

A separate list of additional leisure project needs shall be maintained to supplement the capital improvement program, and to take advantage of unexpected or specialized funding opportunities.

Policy 13.3:

The County's recreational facilities operation and maintenance functions shall be analyzed to identify those types of activities that may be improved or better performed by the private sector under contract to the County.

Policy 13.4:

Joint financing shall be encouraged for activities and programs that can be combined, such as landscaping of rights-of-way and development of the greenway system.

Policy 13.5:

By 2009, the County will develop incentives for developments to provide greater recreation and open spaces. Incentives may include reevaluation of the parks qualifying for impact fee credits and density and intensity bonuses for greater open space and recreation areas.

V. PLAN IMPLEMENTATION AND MONITORING

Implementation means carrying a plan through to achieve the objectives by means of the programs, activities, incentives and regulations stated in the Goals, Objectives and Policies chapter. The strategy to implement the Recreation and Open Space Element focuses on three main areas: first, correcting deficiencies; second, undertaking new work programs; and third, using alternative financing sources.

Correcting deficiencies and preventing future inadequacies will be partly achieved by developing and supporting methods such as tax incentives, impact fees, land dedication and rational allocation of funds to assist acquisition and development of land to be used for open space, park and recreation facilities. Appropriate impact fees will continue to be required of new developments to provide for recreational needs of future residents. This section proposes that incentives also be offered to developers that provide recreational facilities which follow parks and recreation standards.

New work programs include a number of studies, including the implementing of guidelines to maintain and improve management and information practices. These improvements will be accomplished through methods such as condition surveys, capital improvement planning, user surveys, and utilization of marketing techniques to increase awareness of existing park and recreational facilities and programs as well as the value of the natural resources of the county.

Alternative financing sources, such as but not limited to the Florida Recreation Development Assistance Program, Land and Water Conservation Fund, Conservation and Recreation Lands, and Save Our Rivers, can continue to be used to address deficiencies. New work programs will also include an analysis of activities which could be performed by the private sector to provide some park and recreation services and development of an open space network as a way to promote a connected system for recreation and conservation purposes.

A variety of products will be produced in the implementation period. While some of them will be in the form of studies, e.g., privatization, others will be in the form of land use incentives, regulations and educational programs.

Various departments and agencies, as well as the private sector, will play a role in plan implementation. Although the County's Parks and Recreation Department will be the agency most directly involved in implementing this element, other agencies will also be actively involved and responsible in the implementation of the plan.

The County's planning and Development Management Department may be appropriate for the development of open space regulations and the Planning Commission can assist in specific projects, such as the update of the inventory acreage through computerized mapping.

The measurability of objectives will facilitate the monitoring and evaluation process for the next five years of the plan and for the long term period. This process will show accomplishments in the first five-year period describing the degree to which goals, objectives and policies have been successfully reached. In the same way, this process will show obstacles or problems which resulted in the underachievement of goals, objectives or policies, as well as identify additions or modifications to correct discovered problems. Additionally, the monitoring process will provide means of ensuring continuous evaluation of the plan during the five-year period.

Implementation strategies are provided by way of example and are not all-inclusive. Where the development of appropriate land development regulations pursuant to Chapter 163.3202, FS, is not specified as an implementation mechanism for any policy, nothing shall preclude the use of land development regulations to implement that policy. Alternative implementation mechanisms, where more effective than those enumerated in the matrix, or where otherwise appropriate to achieve compliance with policies, may be utilized in lieu of, or in combination with, those enumerated in the matrix.

Using other implementation mechanisms not identified in the matrix shall not require a plan amendment, as described under Section 163.3187, FS. Hillsborough County may publish an abbreviated version of this Comprehensive Plan, without inclusion of the Implementation Matrix and any such publication shall be considered as a complete ordinance.

VI. CONSISTENCY

The Recreation and Open Space Element is one of seventeen elements comprising the Future of Hillsborough – A Comprehensive Plan for Unincorporated Hillsborough County. This Element directly ties in with the Future Land Use, Conservation, Coastal Zone and the Public Facilities Elements. Each Element is internally consistent in that a set format was used for all elements, the same population projections were used for all Elements and the same 5 and 20 year planning time frames were utilized in projecting future needs for all Elements. It is important to coordinate the Recreation and Open Space Element with the adjacent jurisdictions of Tampa, Temple Terrace and Plant City because countywide efforts can be undertaken jointly to address existing and future recreational needs.

Chapter 9J-5, FAC requires the comprehensive plan's goals, objectives and policies to be compatible with and further the State Comprehensive Plan and the Tampa Bay Comprehensive Regional Policy Plan. Each local government comprehensive plan is also required to identify the State Plan goals and policies that are relevant to the local planning effort and explicitly show where in the Comprehensive Plan these have been considered and affirmatively addressed.

State Comprehensive Plan

State Comprehensive Plan Policy; Natural Systems and Recreational Lands (10)(b)2. – Acquire, retain, manage, and inventory public lands to provide recreation, conservation, and related public benefits.

Future of Hillsborough Consistency – Policies 1.1, 1.2, 1.5, 1.6, 1.8, 1.10, 2.1, 3.1, 3.3, 3.11, 7.1, 7.2

State Comprehensive Plan Policy; Natural Systems and Recreational Lands (10)(b)3. – Prohibit the destruction of endangered species and protect their habitats.

Future of Hillsborough Consistency – Policies 1.4, 4.1, 4.2

State Comprehensive Plan Policy; Natural Systems and Recreational Lands (10)(b)6. – Encourage multiple use of forest resources, where appropriate, to provide for timber production, recreation, wildlife habitat, watershed protection, erosion control, and maintenance of water quality.

Future of Hillsborough Consistency – Policies 1.3, 4.2, 9.1

State Comprehensive Plan Policy; Natural Systems and Recreational Lands (10)(b)7. – Protect and restore the ecological functions of wetlands systems to ensure their long-term environmental, economic, and recreational value.

Future of Hillsborough Consistency – Policy 1.4

State Comprehensive Plan Policy; Natural Systems and Recreational Lands (10)(b)11. – Expand state and local efforts to provide recreational opportunities to urban areas, including the development of activity-based parks.

Future of Hillsborough Consistency – Policies 1.1, 1.11, 2.10, 2.11, 8.1, 8.2, 13.1, 13.2, 13.3, 13.4

State Comprehensive Plan Policy; Natural Systems and Recreational Lands (10)(b)12. – Protect and expand park systems throughout the state.

Future of Hillsborough Consistency – Policies 1.1, 1.2, 1.4, 4.1, 4.2, 4.3

State Comprehensive Plan Policy; Natural Systems and Recreational Lands (10)(b)13. – Encourage the use of public and private financial and other resources for the development of recreational opportunities at the state and local levels.

Future of Hillsborough Consistency – Policies 13.1, 13.2, 13.3

Tampa Bay Comprehensive Regional Policy Plan

Tampa Bay Comprehensive Regional Policy Plan - Goal: 10.10. – By 1995, There will be adequate park and recreational facilities equitably and geographically distributed for projected numbers of people in the region.

Future of Hillsborough Consistency – Objective 1

Tampa Bay Comprehensive Regional Policy Plan – Policy: 10.10.1. – Methods shall be encouraged, such as tax incentives, impact fees, and density transfers, to be used to acquire lands with recreation potential.

Future of Hillsborough Consistency – Policy 1.1

Tampa Bay Comprehensive Regional Policy Plan – Policy: 10.10.2. – A system for the rational allocation of funds shall be developed to assist local governments in acquiring and developing recreational facilities of regional and statewide significance

Future of Hillsborough Consistency – Policy 1.1

Tampa Bay Comprehensive Regional Policy Plan – Policy: 10.10.3. – Park and recreation lands shall be planned for multiple usages and located in areas most suitable to adequately satisfy the needs of the resident and seasonal population. Planning of park and recreational facilities shall include consideration of protection of environmental and natural resources, energy efficiency and the orderly extension and expansion of other public facilities and service.

Future of Hillsborough Consistency – Policies 1.3, 1.4

Tampa Bay Comprehensive Regional Policy Plan – Policy: 10.10.4. - Urban development shall afford sufficient land or opportunity for the active/passive recreational needs of the future residents of the development as an expense of new development.

Future of Hillsborough Consistency – Policies 1.2, 1.7, 1.9

Tampa Bay Comprehensive Regional Policy Plan – Policy: 10.10.5. – Land set aside for recreational purposes shall be determined suitable for that purpose during the site planning process and should not be land which is remaining after development.

Future of Hillsborough Consistency – Policy 1.2

Tampa Bay Comprehensive Regional Policy Plan – Policy: 10.10.6 . – The designation and acquisition of recreation and park sites shall be in accordance with long-range comprehensive plans for regional, county and city development and redevelopment. Local governments may limit urbanization of areas of demonstrable recreational value.

Future of Hillsborough Consistency – Policy 1.2

Tampa Bay Comprehensive Regional Policy Plan – Goal: 10.11. – By 1995, parks and recreational facilities will be properly maintained and adhere to best management practice.

Future of Hillsborough Consistency – Objective 5

Tampa Bay Comprehensive Regional Policy Plan – Policy: 10.11.1. – Recreation and park sites shall be held inviolate against diversion to their uses except in instances of overriding public needs.

Future of Hillsborough Consistency – Policy 1.8

Tampa Bay Comprehensive Regional Policy Plan – Policy: 10.11.2. – A regional base of knowledge on existing and planned park and recreation sites shall be maintained.

Future of Hillsborough Consistency – Policies 5.6, 7.1, 7.2

Tampa Bay Comprehensive Regional Policy Plan – Policy: 10.11.3. – The Tampa Bay Region shall support, where feasible, a high priority for public land acquisition by the State of Florida and local governments for recreation and/or open space use of property within areas of the region projected to receive major hurricane damage from coastline storm surge.

Future of Hillsborough Consistency – Conservation Element, Objective 17

Tampa Bay Comprehensive Regional Policy Plan – Goal: 10.12. – By 1991, all segments of the population shall have access to coastal beach areas, parks, and recreational facilities.

Future of Hillsborough Consistency – Objective 2

Tampa Bay Comprehensive Regional Policy Plan – Policy: 10.12.1. – Access to park/recreation facilities and services for the elderly, handicapped and economically disadvantaged, shall be required.

Future of Hillsborough Consistency – Policy 2.7

Tampa Bay Comprehensive Regional Policy Plan – Policy: 10.12.2. – Programs that will guarantee reasonable and adequate public access to public shoreline and estuarine beaches, should be required. Such access shall be designed in a manner which protects dune stability.

Future of Hillsborough Consistency – Policy 2.3

Tampa Bay Comprehensive Regional Policy Plan – Policy: 10.12.3. – New development shall be compatible with the recreational use of adjacent areas and, where appropriate and feasible, provide for non-vehicular access.

Future of Hillsborough Consistency – Policy 2.9

Tampa Bay Comprehensive Regional Policy Plan – Goal: 10.13. – By 1991, developed parks for passive use must retain natural features above all other considerations.

Future of Hillsborough Consistency – Policy 1.12

Tampa Bay Comprehensive Regional Policy Plan – Policy: 10.13.1. – The region's park and open space system shall encompass and encourage restoration of natural features, scenic areas and sites of historic and archaeological significance.

Future of Hillsborough Consistency – Policy 11.1

Tampa Bay Comprehensive Regional Policy Plan – Policy: 10.13.2. – The provision of adequate public beach access shall be considered requisite to any and all shoreline development. Public access to identified recreation sites shall be ensured and shall be designed to protect the integrity of natural features, including where present, beaches and shores (DCA, LGCP Minimum Criteria Rule).

Future of Hillsborough Consistency – Policy 2.1

[i] CPA 12-22 – Economic Potential Policies Update – Remove impediments to economic development in the plan.

[ii] CPA 13-02 Revisions to policies related to open space and gathering places.

[iii] CPA 12-22 – Economic Potential Policies Update – Remove impediments to economic development in the plan.

APPENDIX H
Public and Advisory Group Meetings

Hillsborough County Florida

Public Meeting
Double Branch Bay Management Plan

Date: **Thursday, Oct. 25, 2018**

Time: **6:30 p.m.**

Place: **Upper Tampa Bay Park**
8001 Double Branch Road
in Tampa

Purpose: Hillsborough County Conservation & Environmental Lands Management will hold a public meeting to present information on proposed plans for habitat management and recreational usage at Double Branch Bay Preserve.

The meeting will have an open house format, and provide attendees an opportunity to review, ask questions, and comment on proposed use options.

Additional project information is available online at **HCFLGov.net/CountyProjects** under the Community Projects Link.

Contact: Questions about the meeting and the project may be directed to Ross Dickerson (813) 672-7876. Para información, llamar al (813) 272-5275. For hearing and speech impaired assistance, call 711.

In accordance with the Americans with Disabilities Act, persons needing special accommodations to participate, and those seeking an interpreter, should contact Hillsborough County at (813) 307-1891 no later than 48 hours prior to the meeting.

REAL ESTATE

» TRANSACTIONS

continued from 8

4420 Wilkinson Ln., to Gale Austin & Sabrina Austin by Ernest W. Wallace Jr., $260,000, 08-17-2018.
3341 W Woodlawn Ave., to Marcos Ferrer Ferrer & Lilia Aurora Delcollado by Maria Alicia Rearns & Carl Rearns, $239,000, 09-12-2018.
106 W Powhatan Ave., to William Nolan by John Fraction, $240,000, 08-03-2018.
6310 S Englewood Ave., to Elena Flores by United Investments & Services LLC, $230,000, 08-31-2018.
10226 Grant Creek Dr., to Tecumdre Leon by Dennis Rivera, $226,000, 08-15-2018.
16107 Gardendale Dr., to Mark Donald Nebbeling by Michael Taylor & Lois Taylor, $226,000, 09-12-2018.
8302 Dovefield Ln., to John Daniel Linden & Kylie Nicole Munroe by Unique Florida LLC, $225,500, 09-04-2018.
7001 N Dakota Ave., to Ernesto Cruz & Ana M. Diaguez by Second Spirus Palm Tampa LLC & Spirit Use Real Estate Investment Management Inc., $225,000, 09-06-2018.
16124 Canal Pointe Ct., to Jermayne Ramon Lakeb Taylor & Maranda Jean Taylor by Steven J. Clark, $225,000, 08-30-2018.
10604 Cobham Wood Ct., to 11437 Newgate Crest LLC by County Clk Hillsborough & Affordable Florida Property LLC, $222,800, 08-06-2018.
4528 Rolling Green Ln., to Dolly M. Hunter & Rene A. Hunter by Tim Hancock & Tim Hancock Trustee, $220,000, 08-20-2018.
9420 Crest Hill Dr., to Viet Hollenberg Rosor Trustee & Hollenberg Family Trust by Carl Hertenstein & Deborah Hertenstein, $210,000, 08-31-2018.
8030 Umber Way, to Arun Asok Kumar & Nayana Narendran Lekha by Joann Weaver, $210,000, 09-18-2018.
2001 E 2nd Ave., to Alexandra K. Macleod by Kim Harreck & Ossie Harreck, $210,100, 08-01-2018.
7623 Tamarind Ave., to Offspeed Spiderweb LLC by Jay Beecham, $225,400, 08-13-2018.
6623 N 60th St., to Hz Of Tampa Bay LLC by Mildred Howard, $205,000, 09-17-2018.
8317 Millwood Dr., to Janice Chambers & John Chambers by John R. Zee & Ann Zee, $205,000, 09-12-2018.
4716 W Wallcraft Ave., to Pavel Soshnikov by Victor Dominguez & V. A. Dominguez, $203,000, 09-15-2018.
7614 Clay Dr., to Nadia Tenoun & Garret Lentz by Us Bank Na & Structured Asset Securities Corp, $200,000, 09-07-2018.
4714 Willow Spring Ct., to Guadalupe M. Caceres & Amalda Perez Alonso by Dana I. Hanna & Rene Figueroa, $199,000, 08-30-2018.
4010 W Waterman Ave., to Ernesto Diaz by Ronald W. Dickman, $198,000, 09-07-2018.
16027 Nassau Point Dr., to Edner Alcin Jr. & Berlide Alcin by Anthony William Lembo, $195,000, 09-04-2018.
6402 N Lois Ave., to Leodani Pena Serrano by Oscar A. Espinosa & Obdelice Espinosa, $195,000, 09-04-2018.
815 E Eligh Ave., to Buying & Selling Properties LLC by Matthew J. Gomez, $193,100, 09-14-2018.
8012 Cardinal Dr., to John Billingsley by Colton C. Stafford & Jayne Michelle Stafford, $192,800, 09-04-2018.
7304 Wayneene Ave., to David Robert Alcea by William A. Brown & William A. Brown Trustee, $190,000, 09-07-2018.
4308 W Pearl Ave., to Andrew J. Quattrone & Jessica M. Quattrone by Papi Vincent R & Lynne S. Reed aty., $190,000, 09-13-2018.
6206 N Glen Ave., to Gary Lafrance Dequina & Yeshen Fonseca Rodriguez by Mica Segui & Mica Segui Trustee, $190,000, 09-14-2018.
3408 W Saint Conrad St., to Odalys Monzon Pedron & Alexis Cruz Martinez by Agustin Vargas & Daisy Vargas, $185,000, 09-07-2018.
7603 E White Water Ct., to Pedro Calee Jose Ventura Diaz by Christopher E Traver & Kathleen M. Traver, $184,000, 08-31-2018.
4524 W Elm St., to John W. Mcateer & Mary J. Mcateer by Thomas R. Carroll & Lavonne W. Carroll, $181,500, 09-05-2018.
4702 Kilkenny Dr., to Hp Florida I LLC by Mark Gill & Monette Q. Bayne Gill, $180,000, 09-17-2018.
11342 Cedar Hollow Ln., to Christine Lynne Eidinger by Gerald G. Kaiklanen & Diane E. Haiklanen, $178,000, 09-12-2018.
6723 Tumestone Haven Pl., to Adriana Calero by Bobby W. Jernigan Jr. & Andrea Michelle Jernigan aty, $176,800, 08-24-2018.
8422 N Boulevard St., to Deisy Laynegonzalez & Deisy Layon Gonzalez by Juan Carlos Bonilla, $176,800, 09-17-2018.
14041 Arbor Knoll Cir., to Jose Luis Paredes & Roxany De Alba Alvarez by Clara M. Mackay, $175,500, 08-02-2018.
801 E Lambright St., to Justin M. Becker & Joyce L. Becker by Ebt Series Xvi LLC, $170,000, 09-14-2018.
10533 Blackmore Dr., to Nationstar Mortgage LLC by County Clk Hillsborough & Carol L. Bright, $169,000, 08-27-2018.
1803 E Diana St., to Angela Sattlemyre by Ryan Orchard, $169,000, 09-04-2018.
220 W Amelia Ave., to Angela D. Fischer by Spirit Use LLC & Spirit Use Real Estate Investment Management Inc, $165,000, 08-31-2018.
2127 E 60th St., to Leonardo Fabre Valmore by Debra Jacobs Meyers, $162,000, 08-20-2018.
7301 N Lois Ave., to Jorge Luis Penerosl & Jose A. Penerosl by Charles Cangle & Tamie Michelle Dees, $162,000, 09-04-2018.
3008 E Eskimo St., to William T. Lackeson by David Myers & Eduardo Chevarria, $158,000, 09-12-2018.
12236 Country White Cir., to Anne Nancy Abead & Nancy Gnasem by Dustin P. Black & Shannon J. Black, $157,000, 08-29-2018.
7602 Savannah Ln., to Wand Funding LLC by County Clk Hillsborough & Marna G. Lang, $156,100, 08-23-2018.
2214 W Paxton Ave., to Damon Hames Inc by Ace Home Offer LLC, $155,000, 08-15-2018.
5006 Aberdeen Ct., to Hy T. Tan & Hen Lam by Maurice D. Q. Duong & Hanh Dao Duong, $155,000, 08-28-2018.
2115 W Alabama St., to Pedro Millan & Sarah Lynn Millan by Mark David Damaso & Derek John Damaso, $152,000, 08-30-2018.
1101 W Arch St., to Green Renovation Solutions LLC by Hattie Mae George, $147,800, 08-30-2018.
1610 E Palm Ave 1810 E Palm Ave., to Alfred Marine Lottie III by Lig Partners LLC, $145,000, 09-06-2018.
15030 Arbor Reserve Cir. 15030 Arbor Reserve Cir., to 3939 Dirdich LLC by Joseph John Maguire, $143,000, 09-10-2018.
3422 N Sunrise Villas Ct., to Anabel D. Duque & Juan E. Duque by Raymond Kennedy & Zorica Kennedy deed, $144,600, 09-07-2018.
6412 28th Ave., to Carlos O. Enamorado by Rachel Holdings LLC, $140,000, 08-16-2018.
1203 E Osborne Ave., to Ryan David Maldonado by Lawrence F. Brass & Nancy Brass, $140,000, 09-13-2018.
10418 Hanner Ave., to Jerry W. Washburn by Kristin Ferber, $135,000, 08-14-2018.
9022 N 22nd St., to Adolfo Ortega by Octavia Wright, $135,000, 08-30-2018.
10082 Dawnview Dr., to Jashua Arthur Castillo by Savings Fund Society Fsb Wilmington & Christiansen Trustee, $135,000, 09-05-2018.
8410 Hilltop Ct., to Anas Gomez Corp by Gelyan Garcia Trustee & 2015 Crespo Irrevocable Trust, $123,500, 08-27-2018.
7404 N Howard Ave., to Juan Carlos Medina by Charles Lindgren, $130,000, 09-04-2018.
7807 New York Dr., to Edward Watson by Spin 2 LLC, $130,000, 09-10-2018.
8037 Thomas Pl., to Ernesto Arribar Vegahernandez & Ernesto Arribar Vega Hernandez by Pheibeal Sammangan & Samahan Sammangan, $130,000, 09-11-2018.
14208 Arbor Springs Cir., to 3939 Dirdich LLC by Jianging Yang & Hang Li, $130,000, 09-13-2018.
3424 W Tampa Bay Blvd. 3424 W Tampa Bay Blvd., to Lisa M. Figueredo by Diane Devers, $123,000, 09-07-2018.
14228 Village View Dr., to Stephanie Mora by Rebecca Garcia & Rebecca Pinfrock, $123,000, 08-16-2018.
8613 E Chelsea St., to Bristol Direct LLC by Patricia Jean Brown Trustee & Norman Kaher Cochran Living Trust, $125,000, 08-20-2018.
18007 Birdie Club Dr., to Siddhartha Kapleel & Anuradha Jain by Michael M. Freeman & Elsie M. Freeman, $122,000, 08-20-2018.
13022 Arbor Reserve Cir. 13022 Arbor Reserve Cir., to 3939 Dirdich LLC by Xingquan Chen & Jianmei Zhao, $122,000, 09-10-2018.
3209 Chipco St., to Bear Clean Tape LLC by James Alfred Britz, $117,000, 09-06-2018.
7104 Limestone Ln., to Frank Heredia Perez by Rvbg Investments LLC, $117,000, 09-14-2018.
17285 Amenia Gables Cir., to Charles F. Miller III & William L. Patterson by Dorene Monahan & Raymond Tapia, $112,000, 09-05-2018.
6640 N Garland Ave., to Ebdeda Qi 1 LLC by Deborah A. Hacker & Deborah A. Alea, $109,000, 08-20-2018.
14327 Village View Dr., to Hermancita D. Jagmohan by Juan C. Yepes & Zoraida Yepes, $105,000, 08-23-2018.
8411 N Lamar Ave., to Duvano Chery & Penique Chery by Jesus Oscar & Julio Oscar, $100,000, 09-13-2018.
2214 W Paxton Ave., to Damon Hames Inc by Ace Home Offer LLC, $36,400, 08-15-2018.
2118 E Ellicott St., to Ebanesse Reyes by Denise Soto, $96,000, 09-07-2018.
4004 Cedar Limb Ct., to Dewey P. Burch & Alaina M. Anderson by Juan C. Serrato, $34,800, 09-06-2018.
13320 Orange Sunset Dr., to Emre Tatari by David Goldsmith, $80,000, 09-10-2018.
1340 Clair Mel Cir., to Jaslyn Benson by John Francis Craig & Nancy M. Craig, $78,000, 08-16-2018.
6806 Fountain Ave., to Asap Investments Inc & 6806 Fountain Ave Trust by Kristopher Wilkerson & Patrick Wilkerson, $78,000, 09-13-2018.
4477 W Humphrey St., to Nationstar Mortgage LLC & Mortgage Co Champion by County Clk Hillsborough & Jamie B. Murphy, $70,300, 08-30-2018.
8603 Sussex Ct., to Presume Group LLC by Lorrie D. Peek & Chanel Maxwell, $70,000, 09-11-2018.
7822 E Bank Dr., to Fairway Home Solutions LLC by Latinos Wealth Group LLC & Latinos Wealth Group Inc, $68,000, 08-31-2018.
2322 E 38th Ave., to Riviera Real Estate Investments Inc by Debra A. Dabney, $63,000, 09-06-2018.
7806 Edlindge Dr. 7806 Edlindge Dr., to Ccp Fund VI LLC by Edward Braddock Jr., $63,000, 09-12-2018.
2806 Baron St., to Ryan J. Lab by William A. Dennis III, $60,000, 08-15-2018.
1903 Hillside Dr., to Brinco Investments Inc by Thomas Stephen Estate Lancaster & Laura Hutcheson Per Rep Lancaster, $60,000, 09-13-2018.
2234 Somerset Park Dr. 2234 Somerset Park Dr., to Juan Francisco Nieves by Alfredo Bushell, $59,900, 08-11-2018.
4207 E Hanna Ave., to Jd Acquisitions Inc by Leana Lynn Ugarte, $53,000, 08-28-2018.
8461 Highland Oak Dr. 8461 Highland Oak Dr., to Jacqueline Parks by Highlands At Hunters Green Condo Assn Inc, $52,000, 08-13-2018.
2311 E North Bay St., to 2651 1st Ave S Inc by Morningside Funding LLC, $50,000, 09-06-2018.
2603 E Genesee St., to Tanele Vincent by Carmela Homes LLC, $47,800, 08-30-2018.
8409 N 11th St., to Fair Price Properties LLC & First Bay Capital LLC by Ray Charles Hutchins, $45,800, 08-14-2018.
4013 E 12th Ave., to Branch Banking & Trust Co by County Clk Hillsborough & Boone Enterprises LLC, $40,200, 08-21-2018.
1003 E 18th Ave., to West Tampa Holdings LLC by Re Trustee LLC, $40,000, 08-21-2018.

TEMPLE TERRACE

1012 N Riverhills Dr., to Peter G. Kaufmann by Janet L. Dunnihue Trust & Janet L. Dunnihue Trustee, $330,000, 08-23-2018.
7821 Capwood Ave., to Ravi D. Singh & Cherry A. Singh by John J. Patacherial & Elsamma Patacherial, $315,000, 08-07-2018.
6329 Tremap Cir., to Richard Williams by Gregory G. Deese & Jaime Deese, $137,000, 09-07-2018.

VALRICO

1209 Brilliant Cut Way, to Kathryn J. Schroeder by Beverly Ann Frable, $370,000, 09-12-2018.
2807 Chelsea Wood Dr., to Eugene T. Sanchez & Donna P. Sanchez by Harnet Gamboa, $364,300, 08-14-2018.
3702 Crestfield Dr., to Eric Labusch & Elizabeth Labusch by William T. Urscheler & Kathleen Urscheler, $335,000, 08-17-2018.
3006 Appletree Dr., to Thu Tam T. Vo by David W. Kocher & Linda Kocher, $330,000, 09-10-2018.
2306 Stonebridge Trl., to Jerrald Rage by Charlene Nancy Harrell, $285,000, 08-03-2018.
1310 Emerald Hill Way, to Dina Weller by Mario Mendora, $282,000, 03-07-2018.
3409 Bloomingdale Oaks Ct., to Jared Petree & Donna Petree by Ariel P. Regencia & Felipe P. Regencia, $274,000, 08-01-2018.
3106 Partridge Point Trl., to Leroy M Cole & Heather M. Cole by Joseph M Taylor, $270,000, 08-11-2018.
7817 Valterra Vista Wy., to Steven E. Stuart & Marian L. Stuart by Autry Craig Beasley & Kimberly M. Beasley, $265,000, 08-14-2018.
1207 Highgrove Ct., to Gregory Trevor & Kristina Trevor by Judy L. King & Thomas Q. King II, decd, $245,800, 08-07-2018.
317 Sonoma Dr., to Justin Palmer by Suzanne Cervenka, $220,000, 08-13-2018.
1036 Hardwood Dr., to Jason Sypolt & Rebecca S. Sypolt by Jason Mcconnell & Cindy L. Mcconnell, $203,000, 08-14-2018.
305 Sand Ridge Dr., to Melissa Sue Dawsend by Ruben Smith, $202,500, 08-24-2018.
2824 Cambie Loop, to Rayne Larusco by Vicki Kesch, $182,500, 08-20-2018.
2303 Washington Rd., to Kathy Bisbee & Stephen Bisbee by Melissa A. Avera & Melissa A. Hall, $180,000, 08-06-2018.
211 Sawbeach Dr., to Haskell Dene Spradlin Trustee & Rhonda Jean Spradlin Trustee by Chelsa Shannon Olson & Chelsa E. Weston, $180,000, 08-01-2018.
4137 Moreland Dr., to Jason Heox by Taylor Dowdell & Taylor Dowdell Murray, $117,500, 08-07-2018.
3434 Camden Oaks Pl., to Revolution Holdings LLC by Lisa B. Ham & Ronald A. Ham, $78,800, 08-14-2018.

Compiled from public records. This is not a complete listing of all the real estate transactions. Addresses reflect the location of the property that changed hands.

Today's Crossword Solved

MOB LABAMBA CANAL SPA
TBA IRONORE ASTRA TUX
WHIRLINGDERVISHES ACE
TERI LEO ORO THANKS
FANBLADES CLOCKHANDS
ATA TRU OATS
AUTOMOBILETIRES ATON
ARISEN SYS AIL MOROSE
ALMA EAT COMPACTDISCS
GOADS OAF STAVE CAT
NEWER TORNADOES TSARS
IOA THECW LEN EPSON
FERRISWHEELS EOU WISP
IMPOST RLS OPT EDENIC
GASS CELESTIALBODIES
TEMP TOT TLC
TURNTABLES CAROUSELS
MOSAIC ULM EAU ALLI
ANA GOAROUNDINCIRCLES
KEG MONEY FIRTREE ITS
ERE AKIND CENSORS SOY

SCRABBLE GRAMS

This Week's Answer:

COLOGNE — 63
MUDPACK — 104
[illegible] — 12
CURRENT — 59
TOTAL 238

WONDERWORD

This Week's Answer:

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• HEAD INJURIES • NECK & BACK PAIN
• SPINAL INJURIES • ARTHRITIS FLARE-UPS

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LEGAL NOTICE

NOTICE BY CARROLLWOOD SOUTH SPECIAL TAXING DISTRICT OF INTENT TO USE THE UNIFORM AD VALOREM METHOD OF COLLECTION OF A NON-AD VALOREM ASSESSMENT

CANCELLED

Notice is hereby given to all owners of lands located within the boundaries of the Carrollwood South Special Taxing District that the Carrollwood South Special Taxing District intends to use the uniform ad valorem method for collecting the non-ad valorem assessments levied by the Carrollwood South Special Taxing District as set forth in Section 197.3632, Florida Statutes and that the Board of Supervisors of Carrollwood South Special Taxing District will hold a public hearing on November 12, 2018 at 7:30pm at the address of 4434 Summer..., Tampa FL 33618.

The purpose of the public hearing is to consider the adoption of a Resolution authorizing the Carrollwood South Special Taxing District to use the uniform method of collection non-ad valorem assessments levied by Carrollwood South Special Taxing District as provided in Section 197.3632, Florida Statutes.

The Carrollwood South Special Taxing District has adopted a non-ad valorem assessment to be collected each year until discontinued for maintenance of the common grounds of Carrollwood South Special Taxing District.

This non-ad valorem assessment is related to a change in purpose for an existing assessment in the use of the revenue from such assessment.

Interested parties may appear at the public hearing to be heard regarding the use of the uniform ad valorem method of collecting such non-ad valorem assessments. If any person decides to appeal any decision with respect to any matter considered at this public hearing, such person will need a record of proceedings and for such purpose such person may need to ensure that a verbatim record of the proceedings is made at their own expense and which record includes the testimony and evidence on which the appeal is based.

Dated this 8th day of October, 2018

Carrollwood South Special Taxing District
By: Candis Coon, Secretary

Public Meeting

Hillsborough County Florida

Citrus Park Upper Tampa Bay Trail Realignment

Date: Monday, Oct. 22, 2018
Time: 6:30 p.m. - 8:30 p.m.
Place: Citrus Park Elementary School Cafeteria, 7700 Gunn Highway, Tampa, FL 33625

Purpose: Hillsborough County will hold a public meeting to present information on a private proposal for a realignment of a section of the Upper Tampa Bay Trail along Gunn Highway across from the Citrus Park Sportsplex. The developer will make a presentation on a realignment of the trail. The proposed realignment will be marked at the location for viewing by the public on Friday October 19, 2018.

This public information meeting will provide attendees an opportunity to review, ask questions, and comment on the proposal.

Proposal information and an online public comment form are available online at HCFLGov.net/CountyProjects. All comments, whether written, in-person, or online, carry equal weight.

Questions about the meeting may be directed to Hillsborough County at (813) 272-5900. Para información, llamar al (813) 272-5900.

All meeting facilities are ADA compliant. Any additional necessary accommodations will be provided with a 48-hour notice. TTY: (813) 301-7173. Para información, llame al (813) 272-5900.

Public Meeting

Hillsborough County Florida

Double Branch Bay Management Plan

Date: Thursday, Oct. 25, 2018
Time: 6:30 p.m.
Place: Upper Tampa Bay Park, 8001 Double Branch Road in Tampa

Purpose: Hillsborough County Conservation & Environmental Lands Management will hold a public meeting to present information on proposed plans for habitat management and recreational usage at Double Branch Bay Preserve.

The meeting will have an open house format, and provide attendees an opportunity to review, ask questions, and comment on proposed use options.

Additional project information is available online at HCFLGov.net/CountyProjects under the Community Projects Link.

Contact: Questions about the meeting and the project may be directed to Ross Dickerson (813) 672-7876. Para información, llamar al (813) 272-5275. For hearing and speech impaired assistance, call 711.

In accordance with the Americans with Disabilities Act, persons needing special accommodations to participate, and those seeking an interpreter, should contact Hillsborough County at (813) 307-1891 no later than 48 hours prior to the meeting.

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COMMUNITY NEWS

Volunteer crafters prepare for annual bazaar

The group makes holiday decorations and repurposes old furniture to benefit nonprofits.

BY LORORA LAKE
Times Correspondent

FOREST HILLS — More than 40 crafters gather every Tuesday during the day or evening to create special Christmas tree ornaments, wreaths, table decorations and more.

On Fridays, about 15 more volunteers join them to refurnish and repurpose old furniture — turning dressers, cabinets and desks into tables.

From one of a kind items — made from gourds, old containers, mirrors and window frames — to items "mass produced" by hand in "piecemeal work" by different volunteers, they craft witches, snowmen, reindeers and colorful fall foliage floral arrangements.

All the work and more — including collectibles, plants, books and baked goods — will be for sale at the Forest Hills Presbyterian Church's 19th annual Holiday Bazaar on Saturday (Oct. 20).

But the crafting sessions produce a lot more than items that help raise funds for nonprofits. They bring friendship and support to those who attend the work sessions.

"I have heard people laugh and cry in here," said Tracie Snowden as she painted a table top in the church's craft house on a recent Tuesday evening.

• • •

For Snowden, it is a family affair, bringing along her mother, Lyla Asmones, and her daughter, Bella Snowden, 16, who joined the group this year. The craft ministry requires a participant be out of high school.

"When I was little, I wanted to go crafting; it looked like a lot of fun," said Bella Snowden, now a freshman at Hillsborough Community College.

Tracie Snowden started attending the church in 1989 but was too busy with young children until 2007 when she started attending the craft session.

"I didn't even know there was a bazaar but heard they needed donations," Tracie Snowden said. "I brought some books and puzzles while they were setting up. I almost dropped the box right then. I said, 'I need to be a part of this!'"

She encouraged her mother to join the group. She attends the church but has never joined it.

"It's really nice. Everyone is so kind; they don't treat me like I'm not a member," Asmones said.

Jennifer Gregory, the church's craft coordinator, said, "The crafters connect with people you might not normally meet just in church."

Gregory sets up the projects before the crafters arrive and assigns tasks to each.

About 30 crafters regularly attend the Tuesday day time sessions and a dozen attend Tuesday evenings. They start in March each year to be ready for the bazaar, always on the third Saturday in October.

"The night group takes over for the day group. Sometimes they finish a project or they just do the next step in the piecemeal operation," Gregory said.

Barbara Lien, who has been with the group for all 19 years, said, "As soon as something is finished, they whisk it way. Sometimes we don't even see it until it is at the bazaar."

Lien said she has seen changes over the years "in the amount produced, the amount of materials to work and the number of people involved. Also, there is more and more creativity. We are getting more people with highly specialized talents."

But everyone doesn't have to be talented. They can begin as "basters" painting the undercoats on projects before others paint on designs. They also can learn how to use glitter, paint and other craft materials.

• • •

Wendy Craig joined the church in the spring and got involved soon after.

"My mom and dad also did crafts so it was in my DNA to do this kind of thing. I let them know and they were so proud," Craig said.

The church's pastor, Claudia Henderson, said the proceeds are given to local nonprofits or to local organizations doing outreach, such as medical assistance or education, in other countries.

In recent years, the bazaar, which also includes a produce market, pancake breakfast and barbecue lunch, has raised about $25,000 each year and donated to about 15 groups. The church itself and the Presbyterian women's organization also contributed additional funds to some recipients.

"The people who do the work get to help decide where the money goes," said the pastor of the 400-member church.

Contact Lorora Lake at hillsnews@tampabay.com.

IF YOU GO

Holiday Bazaar

Forest Hills Presbyterian Church's 19th annual Holiday Bazaar with crafts, refinished furniture, collectibles, books, plants, a bake sale and fresh produce is from 8 a.m. to 2 p.m. Saturday (Oct. 20) at 709 W Linebaugh Ave. There is no admission charge. Visitors also can purchase a pancake breakfast or barbecue lunch. For information, see fhpctampa.com or facebook.com/FHPCHolidayBazaar.



LORORA LAKE | Special to the Times
Crafter Wendy Craig paints a chair with a Halloween theme bazaar.

» PROPS
continued from 1

Longtime clients are congratulating Ecenia on retirement, but they're also nervous they won't be able to find a replacement.

"This is a huge loss," said Sherry Silk, chief executive of the Humane Society of Tampa Bay, whose annual Tuxes & Tails Fundraising Gala has featured items from Ecenia's company for a decade.

The theme for this year's Oct. 13 gala: wintery Nordic Nights.

"Where else would we have gotten a giant glacier?" Silk said. "I hope someone else can fill the void. Whatever we ask for, she's always had."

Need an 18-foot Eiffel Tower for a Paris-themed event? Ecenia has one stored alongside a 16-foot Statue of Liberty hand and torch. Nearby is a rubber puppet of Little Shop of Horrors' giant baddie plant Audrey II.

Her company made all three items.

Ecenia also has a collection of life-sized Hollywood figurines her company bought some years ago, including Marilyn Monroe and the Blues Brothers. Phone booths and all manner of lamp posts are scattered across her storage center.

There is even a 2,000-square-foot shed just for storing the building columns her company has created.

"When the Bollywood Oscars were here, they used a lot of those," Ecenia said, referring to the 2014 International Indian Film Academy awards.

When the 1990 film *Edward Scissorhands* was filmed in Lakeland, producers turned to Ecenia for props such as the paper doll chain fashioned by the Johnny Depp character.

She also worked on the 1993 film *Carlito's Way* and 1997's *Cousins*, both shot partly in Florida.

Among the most complicated sets her company built was a 108-by-24-foot replica of Mount Everest with a built-in avalanche option.

One of the stranger props was a bloody sheep leg.

"Wishing her all the best, as for the first time in her life, she is slowing down — something we don't do much of in this industry," said Keith Arsenault, theater manager at Hillsborough Community College. "She's been a force in the local performing arts community for decades."

Her mother Rita Ecenia sang with *Lee Brown and His Band of Renown* and had a small role as a theater dancer in the movie *Abbott and Costello Meet the Mummy*.

During World War II, her father Paul Ecenia organized and performed in variety shows for the troops. He also received a purple heart.

Together, her parents opened Madeira Beach's flowery, a waterfront club where they also performed.

"They put me in dance when I was 3," Ecenia said.

She was teaching dance at 16.

As a teen, working in shows at the old Tampa Community Theatre in Drew Park, Ecenia gravitated to the crew over the cast.

"There was an old magician Noel Lester who took me under his wing and showed me how to make cool scenery," she said.

She left Tampa in the 1970s to perform in Houston and New York City and by the 1980s decided it was time to pursue her true passion.

"I had this need to work with my hands. I came back to Tampa and started my business."

At its peak in the 1990s and early 2000s, Ecenia employed 12 people.

Over the last few years, her workforce dwindled to two.

"I've been slowly getting ready for this. It's just time to retire. I'll miss the people, but I'm ready."

Contact Paul Guzzo at pguzzo@tampabay.com. Follow @PGuzzoTimes.

Do you have Parkinson's Disease and experience hallucinations?

Seeing things or hearing things that are not actually present?

Talking to people who are not there?



You may be eligible to participate in a clinical research study with an investigational medication.

Hillsborough County Florida

Public Meeting
Double Branch Bay Management Plan

Date: Thursday, Oct. 25, 2018
Time: 6:30 p.m.
Place: Upper Tampa Bay Park
8001 Double Branch Road
In Tampa

Purpose: Hillsborough County Conservation & Environmental Lands Management will hold a public meeting to present information on proposed plans for habitat management and recreational usage at Double Branch Bay Preserve.

The meeting will have an open house format, and provide attendees an opportunity to review, ask questions, and comment on proposed use options.

Additional project information is available online at HCFLGov.net/CountyProjects under the Community Projects Link.

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The *too-good-to-be-true* 20 minute workout and the nurse practitioner who swears by it.

By Yvette Varnadore, ARNP, CNN



Yvette Varnadore age 44

Stiletto aerobics. Exercise pills. Miracle abs. I didn't go to nursing school to be taken in by exercise fads that contradict everything I have ever learned about the body - from my school gym teacher to my nursing education and work experience.

So I was instantly skeptical when I first heard about 20 Minutes to Fitness, a medically-based form of fitness training that claims to take just 20 minutes a week.

Sure, the time saving part sounded good -especially for someone like me who is constantly juggling my family and my career. I want to stay in shape, but don't have time to go to a gym, changing into my work out clothes, waiting on the equipment - it just doesn't work for me.

But come on. I understand how the body works. While the science behind 20 Minutes to Fitness' claims may be real, but let's be realistic, no one can really build their strength in just 20 minutes a week. Can they?

The medical researcher in me wanted to find out. Fortunately, my introductory session was free. I like free. So what did I have to lose except, well, maybe 20 pounds?

The first person I met when I entered 20 Minutes to Fitness was a certified personal trainer with a load of experience. At our first meeting, she asked a lot of questions, answered all of mine, and she especially wanted to understand my personal goals. I told her all about my crazy work schedule, my "on-call" schedule and four children, my desire to lose weight and rid myself of the nagging lower back pain that flares up every time I deliver a baby. Also, I confessed to her I was totally unconvinced this workout would do half of what it promised. She just smiled and said that they hear that a lot.

After we talked, my trainer spent the next 20 minutes working with me one-on-one on special physical therapy equipment. She carefully explained how each piece of equipment focused on the specific muscles being used. She made sure I was correctly positioned on each piece of equipment so I was able to receive the full benefit of the workout while staying safe. Afterwards, I felt exhausted - but great.

In the days that followed, something kept nagging at me. Maybe that first experience was just beginner's luck. Maybe I was letting the "science" behind the workout cloud my senses. Maybe I should just give it a few more weeks. And I'm glad I did.

Three years later, I'm still training at 20 Minutes to Fitness, but am no longer skeptical. Within the first three months, I had increased my strength by more than 25% - a fact confirmed by my trainer's careful record-keeping and progress reviews. Since then, my core has continued to grow stronger. My balance, flexibility and range of motion are also better. That back pain I spoke of earlier - it's gone!

Those extra 20 pounds I was carrying when I started? They're gone, too.

20 Minutes to Fitness, in short, has exceeded my expectations beyond belief. The fact that my trainer works with me one-onone, is patient with me, keeps me safe and always answers all of my questions is just the icing on the cake!

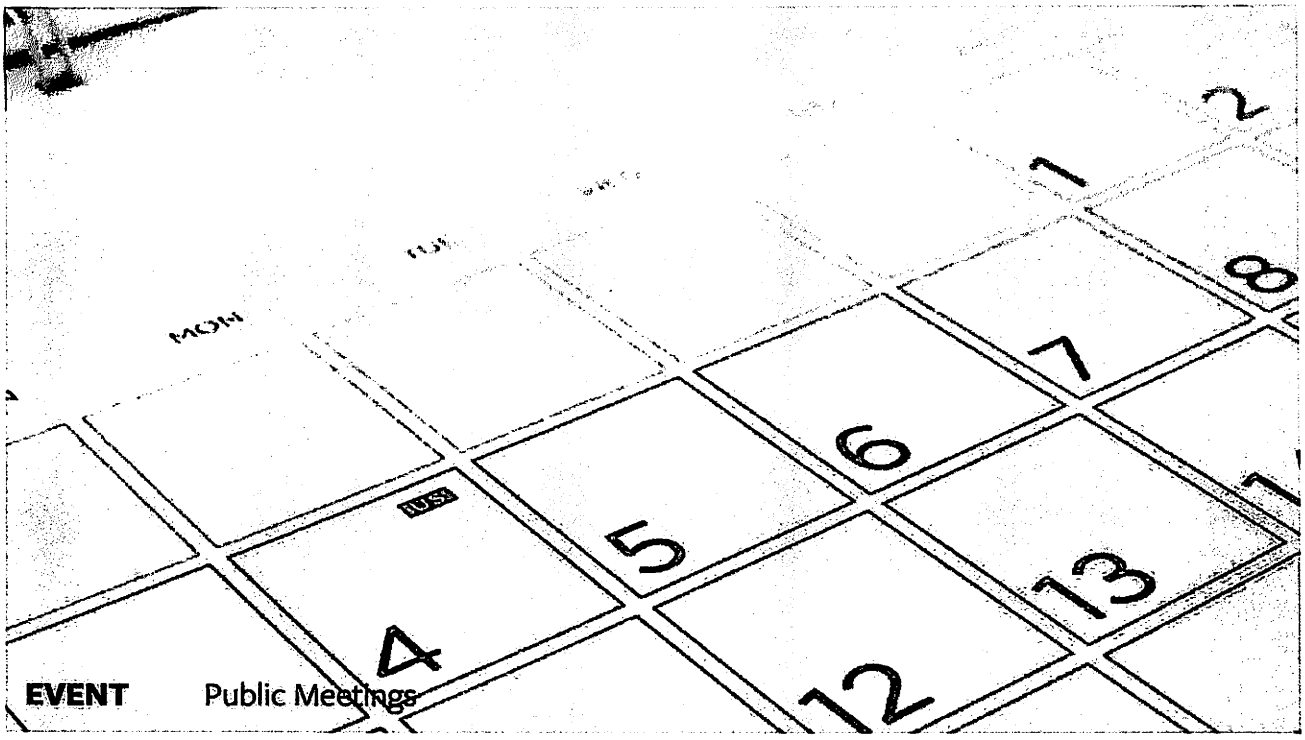
So, yes, 20 Minutes to Fitness works for me. Will it work for you? There's only one way to find out. Did I mention that your first session is free?

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DATE October 25, 2018 | 6:30 PM

Double Branch Bay Preserve Public Meeting

Hillsborough County Conservation & Environmental Lands Management will hold a public meeting to present information on proposed plans for habitat management and recreation usage at Double Branch Bay Preserve

The meeting will have an open house format, and provide attendees an opportunity to review, ask questions, and comment on proposed use options.

Contact

For more information contact Ross Dickerson or call (813) 672-7876.

Event Details

LOCATION

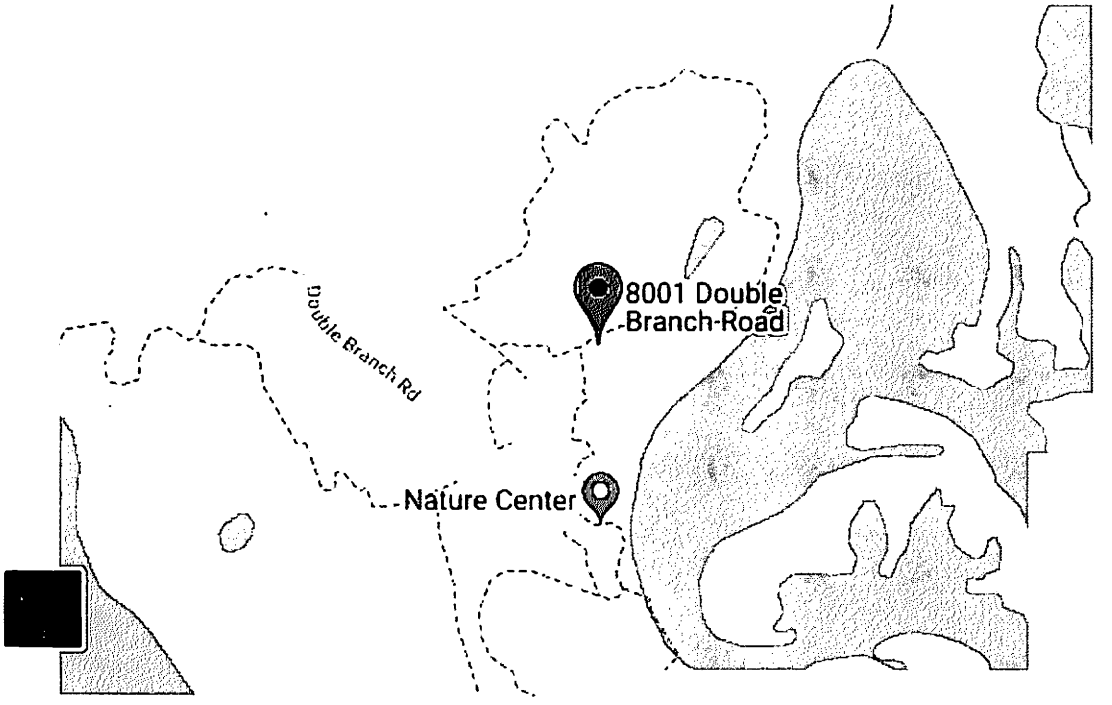
Upper Tampa Bay Park
8001 Double Branch Rd.

Tampa FL, 33635

DATE

October 25, 2018 | 6:30 PM

ELAPP INFORMATION





EVENT Public Meetings

DATE October 25, 2018 6:30 PM

Double Branch Bay Preserve Public Meeting

Hillsborough County Conservation & Environmental Lands Management will hold a public meeting to present information on proposed plans for habitat management and recreation usage at Double Branch Bay Preserve

The meeting will have an open house format, and provide attendees an opportunity to review, ask questions, and comment on proposed use options.

Contact

For more information contact Ross Dickerson or call (813) 672-7876.

Event Details

LOCATION

Upper Tampa Bay Park
8001 Double Branch Rd.
Tampa FL, 33635

DATE

October 25, 2018 | 6:30 PM

CONTACT

Citizen Engagement

P (813) 272-5275

ELAPP INFORMATION



Hillsborough County Florida

Double Branch Bay Management Plan Update
October 25, 2018
6:30 PM
Upper Tampa Bay Park

Please print

How did you hear about this meeting? ☒ Sign ☐ Newspaper ☐ Social Media ☐ Word of mouth ☐ County website ☐ Other

Peter Morrison | Name | Phone 404-614-8462 | Email peterjmorrison@24Kendall.com

How did you hear about this meeting? ☐ Sign ☐ Newspaper ☐ Social Media ☐ Word of mouth ☐ County website ☐ Other

Ashish Ahuja | Name | Phone 561-574-7554 | Email ashishahuja26@hotmail.com

How did you hear about this meeting? ☑ Sign ☐ Newspaper ☐ Social Media ☐ Word of mouth ☐ County website ☐ Other

Dale Pullen | Name | 914-543-2303 | Phone | dpullen1969@gmail.com | Email

How did you hear about this meeting? ☐ Sign ☐ Newspaper ☐ Social Media ☐ Word of mouth ☑ County website ☐ Other

BOB MCELROY | Name | 813-453-3374 | Phone | MCELROY1995@GMAIL.COM | Email

How did you hear about this meeting? ☐ Sign ☐ Newspaper ☐ Social Media ☐ Word of mouth ☐ County website ☐ Other

Name | Phone | Email

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Name | Phone | Email

Summary of Double Branch Bay Public Meeting

The meeting was held on 25 Oct. 2018 at the Upper Tampa Bay Park facility, which is adjacent to Double Branch Bay. In attendance were three members of the public, three members of CELM (Sheryl Bowman, Ross Dickerson, & Bernard Kaiser), and a representative of Water & Air Research, Inc. The Water & Air Research representative gave a brief presentation regarding changes made to the management plan and future goals for the upcoming 10-year planning period.

Following the presentation, the floor was opened for questions about the management plan. The three members of the public in attendance asked general questions about when the marking of canoe trails would take place and whether volunteers could assist with the establishment of the trails. With no other questions or topics raised by the citizens in attendance, the meeting was adjourned.

Invitation List to Participate on the Double Branch Bay Advisory Group

FWC

- Cully Lord, District Wildlife Biologist (Cully.Lord@myfwc.com)

FNPS

- Virginia Overstreet, Vice-President (voverstr@tampabay.rr.com)

Tampa Bay Estuary Program

- Maya Burke, Science Policy Coordinator (mburke@tbep.org www.tbeptech.org)

Florida Audubon

- Ann Paul (apaul@audubon.org)

Tampa Bay Conservancy

- Jeff Steinsnyder, President (president@tampabayconservancy.org)

UF – Rob Northrop

Regional Parks – Jason Chilson

Sierra Club

- Kent Bailey (kent.bailey@florida.sierraclub.org)

Florida Trails Association

- Lenny Chew, Vice-chair (email address only available from Florida Trails Association website).

Citizen at large

- Kevin Love jollyrouge.kl@gmail.com

Sign-In Sheet

Name	Phone	Email
Matthew Koenig	(352) 251-4040	Matthew.Koenig@myfwc.com
Ryan Long	(813) 767-2538	rlong@pascocountyfl.net
Matthew Huntsinger	727-385-6042	Mhuntsinger@pascocountyfl.net
Kevin Lowe	352-442-2535	jellyrange.31@gmail.com
Ann Paul	813/623-6826	apaul@tuckfish.org
Joel Jackson	813-767-5166	joeljackson42@gmail.com
Maya Burke	727 893 2975	mburke@tbep.org

Kaiser, Bernard

From: Northrop,Robert J <northrop@ufl.edu>
Sent: Monday, March 11, 2019 3:18 PM
To: Kaiser, Bernard; Ann Paul; Chilson, Jason; Cully Lord; Jeff Steinsnyder; Kent Bailey; Kevin Love; Matthew R. Huntsinger; Maya Burke; Ryan Long; Virginia Overstreet
Cc: Ackett, Kelli; Bowman, Sheryl; Dickerson, Ross; Kiddy, Christopher
Subject: Re: Reschedule of Double Branch Bay Advisory Group Meeting

[External]

Good Afternoon Everyone,

Unfortunately I need to be out of town this coming Wednesday, March 13th and will be unable to attend the Advisory Group Meeting.

I have read through the Final DRAFT Management Plan. Good onsite investigation and series of management recommendations.

My comment has to do with the need to work with adjacent neighborhoods relative to landscape practices …. plants, fertilization and pesticide use … and with state and local agencies addressing the most significant long-term issue, the poor quality of the water entering the system. These should both be addressed in the Plan … they are mentioned but lack definitive and measurable actions. (hydrology and invasive exotic plants/animals)

Thanks for including me in the review process … Rob

Robert Northrop
Extension Forester
University of Florida IFAS Extension
Hillsborough
5339 CR 579
Seffner, Florida 33584
813-744-5519

Science, Ethics, Conservation

UF | IFAS Extension UNIVERSITY of FLORIDA Hillsborough County Florida Tampa Bay Watershed FOREST WORKING GROUP

From: "Kaiser, Bernard" <KAISERB@hillsboroughcounty.org>
Date: Thursday, February 21, 2019 at 10:15 AM
To: Ann Paul <apaul@audubon.org>, Jason Chilson <ChilsonJ@hillsboroughcounty.org>, Cully Lord <Cully.Lord@myfwc.com>, Jeff Steinsnyder <president@tampabayconservancy.org>, Kent Bailey <kent.bailey@florida.sierraclub.org>, Kevin Love <jollyrouge.kl@gmail.com>, "Matthew R. Huntsinger"

<mhuntsinger@pascocountyfl.net>, Maya Burke <mburke@tbep.org>, "Northrop,Robert J" <northrop@ufl.edu>, Ryan Long <rlong@pascocountyfl.net>, Virginia Overstreet <voverstr@tampabay.rr.com>
Cc: "Ackett, Kelli" <AckettK@hillsboroughcounty.org>, "Bowman, Sheryl" <BowmanS@hillsboroughcounty.org>, Ross Dickerson <DickersonR@hillsboroughcounty.org>, "Kiddy, Christopher" <KiddyC@hillsboroughcounty.org>
Subject: Reschedule of Double Branch Bay Advisory Group Meeting

Hello Advisory Group members,

The meeting of the Advisory Group scheduled for 1:00 to 3:00 p.m. on 27 Feb. has to be rescheduled. **The new meeting time is 13 March, 1:00 to 3:00 p.m.** The meeting will still be held at the Upper Tampa Bay Park Classroom located at 8001 Double Branch Road, Tampa, FL 33635.

A draft of the plan and supporting documentation can be found here: https://www.dropbox.com/s/zqhvodr62gtt0o0/Double%20Branch%20Bay%20Land%20Management%20Plan%20for%202018-2028.pdf?dl=0

Staff of the Environmental Lands Management Section will answer questions and discuss the plan at the meeting and the group will be asked for comments. After the meeting, each member will receive a staff report summarizing the group's comments and the ELM staff recommendation on any proposed changes to the draft management plan. Any additional comments by advisory group members after the meeting would need to be provided in writing. This is the extent of obligation for advisory group members.

If you cannot attend the meeting for any reason or a representative cannot be appointed, we can certainly gather the input via email or telephone. The process is very flexible and adaptable to everyone's schedule. If you could please let me know if you can attend or send a selected designee, we would appreciate it.

Please accept our apologies for any confusion or inconvenience rescheduling of the meeting may cause. We continue to look forward to working with you.

Best Regards,

Bernard W. Kaiser
Environmental Lands Research Analyst
Conservation and Environmental Lands Management

P: (813) 264-8512
M: (813) 504-1236
E: kaiserb@HCFLGov.net
W: HCFLGov.net

Hillsborough County
601 E. Kennedy Blvd., Tampa, FL 33602

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Kaiser, Bernard

From: Paul, Ann <APAUL@audubon.org>
Sent: Monday, April 15, 2019 2:32 PM
To: Kaiser, Bernard
Subject: RE: Double Branch Bay Management Plan Update

[External]

Hi Bernie,
I have these comments, sorry, should have provided before.
Thanks for such a good job with this management plan, reflects well on the department and the work that the staff has done to manage the site.
Ann

- Executive Summary p. 1, perhaps discuss Old Tampa Bay water quality information, available from Tampa Bay Estuary Program
- Paragraph 4, if install the canoe trail, who will maintain it and who will be responsible for removing trash?
- P. 10, regarding adjacent land use, conduct outreach to neighborhood landowners, county right of way managers re use of native plant landscaping, removal of invasive plant spp.
- P. 13, are there any soil management issues, as contamination from septic systems?
- P. 23, is there a need to install channel markers to protect shallow seagrass meadows and oysterbeds?
- P. 26, regarding stormwater runoff, is there an opportunity to work with SWIM? County stormwater staff, highway dept right-of-way?
- P. 27, include salt barrens as well as mud flat discussion, both very important for wintering shorebirds
- Pine stumps are reflective of sea level rise
- P. 31-32, might mention value of salt marsh habitats as nursery habitats for fish, shrimp, crabs and other estuary life, also loss of salt marsh habitat with warming climate, lack of freezes promoting invasion by mangroves, replacing marshes
- P. 33, include value of mangrove habitats for estuary life forms?
- P. 36, "state-listed American Oystercatcher", oysters most often occur near fresh water inflows to the estuary. Management to improve water quality entering the streams that feed into the estuary obviously important. Also might include need to prevent unrestricted harvest of oysters – (related to health concerns) and oysterbar shell resources
- P. 39, efforts to rework Channel A with SWIM, as Rocky Creek and Brush Creek are considered "impaired"
- P. 45 Special Status Species, Tricolored Heron doesn't have a hyphen, likely also have Reddish Egret, Tricolored Heron, Little Blue Heron American Oystercatcher, all state listed "threatened" and Wood Stork, federally listed "threatened"
- P. 46, best time to survey for nesting wading birds is April-June
- P. 48, American Oystercatchers nest just above (not well above) the high tide line. Unlikely to have nesting oystercatchers because of the presence of raccoons and other mammalian predators.
- Pursue adjacent, nearby land acquisition via ELAPP.

From: Kaiser, Bernard <KAISERB@HillsboroughCounty.ORG>
Sent: Monday, April 15, 2019 12:28 PM
To: Paul, Ann <APAUL@audubon.org>
Subject: RE: Double Branch Bay Management Plan Update

Hi Ann,
Do you have any additional comments, beyond those mentioned at our meeting?

Thanks

Bernard W. Kaiser
Environmental Lands Research Analyst
Conservation and Environmental Lands Management

P: (813) 264-8512
M: (813) 504-1236
E: kaiserb@HCFLGov.net
W: HCFLGov.net

Hillsborough County
601 E. Kennedy Blvd., Tampa, FL 33602

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From: Paul, Ann [mailto:APAUL@audubon.org]
Sent: Monday, February 04, 2019 2:42 PM
To: Kaiser, Bernard <KAISERB@HillsboroughCounty.ORG>
Subject: RE: Double Branch Bay Management Plan Update

[External]

Hi Bernie,
I would be glad to serve on the advisory group for the Double Branch Bay Management Plan update.
If you find yourself needing additional reviewers, I think Sally Thompson was involved at the time the Bower tract was purchased by CARL and also Joel Jackson.
Perhaps Mary Figg.
Ann

Ann Paul
Regional Coordinator
w: 813.623.6826
c: 813.624.3149

Audubon Florida
Florida Coastal Islands Sanctuaries
410 South Ware Boulevard, Suite 702
Tampa, FL 33619
FL.Audubon.org

From: Kaiser, Bernard <KAISERB@HillsboroughCounty.ORG>
Sent: Friday, February 1, 2019 3:17 PM
To: Paul, Ann <APAUL@audubon.org>; Chilson, Jason <ChilsonJ@HillsboroughCounty.ORG>; Cully Lord <Cully.Lord@myfwc.com>; Jeff Steinsnyder <president@tampabayconservancy.org>; Kent Bailey <kent.bailey@florida.sierraclub.org>; Kevin Love <jollyrouge.kl@gmail.com>; Maya Burke <mburke@tbep.org>; Rob Northrop UF <northrop@ufl.edu>; Virginia Overstreet <voverstr@tampabay.rr.com>

Cc: Ackett, Kelli <AckettK@hillsboroughcounty.org>; Bowman, Sheryl <BowmanS@HillsboroughCounty.ORG>; Dickerson, Ross <DickersonR@HillsboroughCounty.ORG>
Subject: Double Branch Bay Management Plan Update

Greetings,

The Hillsborough County Conservation and Environmental Lands Management Department's, Environmental Lands Management Section is updating the Double Branch Bay Land Management Plan. We are seeking input from an advisory group consisting of members from other land management agencies, non-profit groups, and citizens at large. We are hopeful that you can assist in the land management plan update and provide us with comments to improve our management of the preserve. A draft of the plan and supporting documentation can be found here: https://www.dropbox.com/s/zqhvodr62gtt0o0/Double%20Branch%20Bay%20Land%20Management%20Plan%20for%202018-2028.pdf?dl=0

The advisory group for Double Branch Bay will meet one time, for about two hours on Wednesday, February 27, 2019 at 1 PM (EST) at the Upper Tampa Bay Park Classroom located at 8001 Double Branch Road, Tampa, FL 33635

Staff of the Environmental Lands Management Section will answer questions and discuss the plan at the meeting and the group will be asked for comments. After the meeting, each member will receive a staff report summarizing the group's comments and the ELM staff recommendation on any proposed changes to the draft management plan. Any additional comments by advisory group members after the meeting would need to be provided in writing. This is the extent of obligation for advisory group members.

If you cannot attend the meeting for any reason or a representative cannot be appointed, we can certainly gather the input via email or telephone. The process is very flexible and adaptable to everyone's schedule. If you could please let me know if you can attend or send a selected designee, we would appreciate it.

Thank you for your attention to this matter. Please feel free to give me a call if I can provide any additional information. We look forward to working with you.

Best Regards,

Bernard W. Kaiser
Environmental Lands Research Analyst
Conservation and Environmental Lands Management

P: (813) 264-8512
M: (813) 504-1236
E: kaiserb@HCFLGov.net
W: HCFLGov.net

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Kaiser, Bernard

From: Koenig, Matthew <Matthew.Koenig@MyFWC.com>
Sent: Friday, March 15, 2019 9:05 AM
To: Kaiser, Bernard
Cc: Lord, Cully; Echaves, Victor
Subject: Double Branch Bay Advisory Group Meeting
Attachments: 2020 IPM Program Handbook.pdf; FY 19-20 IPM Annual Liaison Letter.pdf

[External]

Hi Bernie,

Per our discussion at the advisory group meeting last Wednesday, I am submitting my comments on the draft management plan for Double Branch Bay via e-mail. See below. Overall, I felt that it was a well-written, comprehensive plan.

- The plan talks about writing proposals for exotics contracts and the difficulties associated with searching for qualified contractors. Consider using the FWC TIERS program instead. FWC will handle all aspects of purchasing and hiring. All you need to do is submit a proposal in the TIERS system and attend a ranking meeting at your regional working group. It's a good source of funding for exotics treatments and alleviates the burden of the purchasing process on your land manager. I've attached the program handbook for more information.
- The plan states that you do not intend to conduct a timber assessment for the small portion of flatwoods on the north end of the property. Even if you never intend to harvest timber on the site, a timber assessment could still be valuable by providing detailed recommendations for pine planting in the barren areas affected by wildfires. This is something to consider in the long term if you lack needlecast to carry fire.
- I think your short term and long term prescribed fire objectives should have a tangible acreage component. For instance, your short term objective could be to burn one unit each year. You could make it your smallest unit. Your long term objective could be to burn half of your burnable acreage. That way you can alternate each year and get on a 2-year maintenance rotation. I understand the difficulties of burning in the urban interface, but I think this is achievable for 130 acres of flatwoods.
- Jennifer Myers, our Regional Conservation Biologist, commented that the Line Transect Distance surveys for gopher tortoises may be difficult to apply given the small size of the site and may not be the best method to evaluate gopher tortoises on the area. She suggested contacting the Southwest Region Gopher Tortoise Biologist, Kelly O'Connor. I have included Kelly's contact information below

  Kelly O'Connor
  Kelly.Oconnor@myfwc.com
  Office: (863) 648-3856
  Cell: (941) 737-6907

Matthew Koenig
Wildlife Biologist
23212 Lake Lindsey Rd
Brooksville, FL 34601
Office: (352) 251-4040
Fax: (352) 540-6032

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Kaiser, Bernard

From: Maya Burke <mburke@tbep.org>
Sent: Thursday, March 14, 2019 11:25 AM
To: Kaiser, Bernard
Cc: Ackett, Kelli; Bowman, Sheryl; Dickerson, Ross; Kiddy, Christopher; esherwood@tbep.org
Subject: RE: Reschedule of Double Branch Bay Advisory Group Meeting

[External]

Thanks for the opportunity to review and comment on the Double Branch Bay Management Plan. My comments and references from yesterday's meeting are below:

The report should use the SLR projections recommended by the Tampa Bay Climate Science Advisory Panel (TB CSAP) and committed to by Hillsborough County in the Tampa Bay Regional Resiliency Coalition MOU. The current recommendation is available at https://tbeptech.org/BASIS/BASIS6/BASIS6_Proceedings_FINAL.pdf#page=318. A revised recommended SLR projection is in draft review and will be updated in April 2019. The report will recommend 3 curves from the 4th National Climate Assessment, Intermediate Low, Intermediate, and High. A strategy for how to prioritize management activities in light of these changing circumstances would be useful for preserve staff, regional resource managers, and the public at-large.

An updated version of SLAMM, known as the Habitat Evolution Model (HEM) was developed for the Blue Carbon project. Links to the story map/visualizer and reports are available at:
https://tbeptech.org/TBEP_TECH_PUBS/2016/TBEP_07_16_Tampa-Bay-Blue-Carbon-Assessment-Report-FINAL_June16-2016.pdf
http://maps.wateratlas.usf.edu/blue-carbon/ (I recommend runs 4 and 5 as most appropriate for Double Branch, unless there is evidence of higher local accretion rates).

It would be great if the County could incorporate sea level rise monitoring into the planned monitoring efforts for the preserve. A training manual and related reports from the Critical Coastal Habitat Assessment project are available at:
https://tbeptech.org/TBEP_TECH_PUBS/2017/TBEP_06_17_CCHA_Training_Manual.pdf and video…
https://www.youtube.com/embed/WUKOuxFOtWI
https://tbeptech.org/TBEP_TECH_PUBS/2017/TBEP_05_17_CCHA_Phase_2_baseline_report.pdf
https://tbeptech.org/TBEP_TECH_PUBS/2017/TBEP_08_17_CCHA_Phase1_Baseline_Report_Price_et_al.pdf

A pilot project to change the way the salinity barrier on Channel A is operated was conducted in partnership with SWFWMD, TBEP, and GPI. Results are linked below. It would be nice to see restoration opportunities to restore a more natural flow way in the Preserve. This would advance efforts to improve the habitat value of tidal tributaries in Tampa Bay and enhance Double Branch without requiring additional acquisitions.
https://tbeptech.org/TBEP_TECH_PUBS/2016/TBEP_05_16_Final_Report_ChA_G_042016.pdf
https://tbeptech.org/TBEP_TECH_PUBS/2017/TBEP_11_17_Final_GPI_2nd_Post-Mod_ChA_G_102617.pdf

Some work has been completed or is currently underway to assess the value of mosquito ditches or other altered/restored habitat features for fisheries use. "Fishes in Ditches," Justin Krebs (jkrebs@akrf.com) and Adam Brame (Adam.Brame@noaa.gov) and more recently "Sportfish and Habitat Restoration," Quenton Tuckett (qtuckett@ufl.edu).

https://pubs.er.usgs.gov/publication/70030044

https://soundwaves.usgs.gov/2004/01/research.html

https://scholarcommons.usf.edu/cgi/viewcontent.cgi?referer=https://www.google.com/&httpsredir=1&article=5304&context=etd

Randy Runnels (Randy.Runnels@dep.state.fl.us) with the Tampa Bay Aquatic Preserves is a good contact for information about BMPs and other considerations for dealing with archaeological resources.

New habitat mapping is a deliverable for the Habitat Master Plan Update which will be completed later this year. This could provide additional information about the presence of salterns on the property. Please reach out to Gary Raulerson (graulerson@tbep.org) to see when the GIS layers will be available.

The plan should discuss existing user conflicts (air boats, hunting, etc.) and contemplate mechanisms to address them. This is a new focus included in the updated Comprehensive Conservation and Management Plan for Tampa Bay (CCMP)

https://www.tbeptech.org/CCMP/2017/136_Public_Access.pdf See Activity 3.

It might be useful for the plan to discuss the lagging water quality in Old Tampa Bay, especially due to the recurring, potentially toxic algae *Pyrodinium bahamense.* FWRI and TBEP have partnered on several research projects about this species and are currently investigating the potential for oysters to mitigate the future occurrence of blooms in OTB. Gary Raulerson (graulerson@tbep.org) or Cary Lopez (Cary.Lopez@myfwc.com) would be good to reach out to, especially if opportunities for oyster restoration adjacent to the preserve are available.

Given the challenges identified with staffing and funding, is it a priority to establish new recreational facilities (e.g., kayak landing) within the preserve?

P. 34 Tampa Bay Watch is identified as a potential partner to address stormwater runoff generated upstream of the preserve. It would be good to highlight the Southwest Florida Water Management District and Tampa Bay Estuary Program as other potential partners, as both typically do more work associated with stormwater/water quality. TBW tends to focus efforts on habitat restoration and community engagement, although they do have an active storm drain marking program.

Please let me know if you have any questions about the comments/links provided, or if you would like to discuss other research and restoration work going on in the Tampa Bay watershed. I've also added you to the TBEP Technical Advisory Committee email list.

Best,

Maya

Maya Burke
Science Policy Coordinator
Tampa Bay Estuary Program
263 13th Avenue South, Suite 350, St. Petersburg, FL 33701
727.893.2765
mburke@tbep.org
www.tbeptech.org

From: Kaiser, Bernard <KAISERB@HillsboroughCounty.ORG>
Sent: Thursday, February 21, 2019 10:15 AM
To: Ann Paul <apaul@audubon.org>; Chilson, Jason <ChilsonJ@HillsboroughCounty.ORG>; Cully Lord <Cully.Lord@myfwc.com>; Jeff Steinsnyder <president@tampabayconservancy.org>; Kent Bailey <kent.bailey@florida.sierraclub.org>; Kevin Love <jollyrouge.kl@gmail.com>; Matthew R. Huntsinger <mhuntsinger@pascocountyfl.net>; Maya Burke <mburke@tbep.org>; Rob Northrop UF <northrop@ufl.edu>; Ryan Long <rlong@pascocountyfl.net>; Virginia Overstreet <voverstr@tampabay.rr.com>
Cc: Ackett, Kelli <AckettK@hillsboroughcounty.org>; Bowman, Sheryl <BowmanS@HillsboroughCounty.ORG>; Dickerson, Ross <DickersonR@HillsboroughCounty.ORG>; Kiddy, Christopher <KiddyC@hillsboroughcounty.org>
Subject: Reschedule of Double Branch Bay Advisory Group Meeting

Hello Advisory Group members,

The meeting of the Advisory Group scheduled for 1:00 to 3:00 p.m. on 27 Feb. has to be rescheduled. **The new meeting time is 13 March, 1:00 to 3:00 p.m.** The meeting will still be held at the Upper Tampa Bay Park Classroom located at 8001 Double Branch Road, Tampa, FL 33635.

A draft of the plan and supporting documentation can be found here:
https://www.dropbox.com/s/zqhvodr62gtt0o0/Double%20Branch%20Bay%20Land%20Management%20Plan%20for%202018-2028.pdf?dl=0

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If you cannot attend the meeting for any reason or a representative cannot be appointed, we can certainly gather the input via email or telephone. The process is very flexible and adaptable to everyone's schedule. If you could please let me know if you can attend or send a selected designee, we would appreciate it.

Please accept our apologies for any confusion or inconvenience rescheduling of the meeting may cause. We continue to look forward to working with you.

Best Regards,

Bernard W. Kaiser
Environmental Lands Research Analyst
Conservation and Environmental Lands Management

P: (813) 264-8512

M: (813) 504-1236
E: kaiserb@HCFLGov.net
W: HCFLGov.net

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Notes from the Management Plan meeting of March 13, 2019 at Upper Tampa Bay Park

Presentation was made by Bernard Kaiser.

Comments from various members –

FWC –

*Gopher tortoise survey section not practical.

*Prescribed fire – set short term and long term acreage or MU goal. Will fire spread into salt terns?

*Upland tier.

*Why is timber assessment section not complete?

Kevin Love –

*Clarify primary responsibility regarding prescribed fire.

*Will send comments via email.

*Wants more mechanical treatment; recommended acreage per year?

Joel Jackson –

*Original nominator of site. Put together a coalition. Worked out a deal to extend a sewer line to UTB Park when it was developed in order to help protect local water quality. Preserve was condemned for order of taking (Joel was asked to submit some of the site history in writing for inclusion in the plan).

*Site aerials are in visitor's center. Can they be digitized and included?

*Mentioned importance of archaeological sites.

Ann Paul –

*Aquatic Resource Management Areas – Contact Chris Cooley to see if Double Branch is included and if there is information.

*Questioned salt terns, mentioned sea level rise and if there are impacts to site. Bernie explained that habitat mapping is underway.

*Restoration needs figure – numbers are swapped or backwards.

*Look at nominated parcels for acquisition.

*Executive summary – Should discuss water quality in Tampa Bay.

*Questioned whether we knew we'd have to pick up trash at the proposed canoe launch.

*Wants native plant landscaping on nearby County lands.

*Questioned whether soil contamination was a problem.

*Questioned whether more channel markers would be needed for seagrass protection.

*Page 31 – Add importance of salt marshes, mangroves for food chain.

*Page 32 – Discuss increase in mangrove forest related to increased temperatures.

*Page 33 – Explain why mangrove trimming would be likely in the preserve? (Illegal trimming was explained).

*Page 36 – Questioned the status of American Oystercatchers as presented in the plan.

*Page 36 – Commented that seagrasses are flowering plants.

*Page 37-39 – Talk to SWIM about installation of facilities offsite in Rocky, Brushy Creek Watershed to improve water quality. Onsite water quality improvements (Cabbagehead Bayou) were explained to the committee.

*Page 45 – Special status species table may need updating (Woodstork, Spoonbill, Reddish egret, oystercatcher).

*Page 48 – American oystercatcher – issue with where they nest.

*Invasive discussion – Carrotwood is invasive, should be mentioned.

*Management plan goals – update the dates.

Maya Burke –

*Climate plan advisory panel should be referenced; she will send information.

*Habitat Evolutionary Models (HEM) projects how habitats will change over time.

*Pilot study on how to operate Channel A and G could affect water quality.

*Monitoring station in UTB Park – would prefer that this work be carried to other parks.

*Strategy for treatment of uplands be incorporated here and on other sites.

*Discuss water quality and algae blooms.

*Mosquito ditch restoration - discussion with Bernie.

*Randy Runnels has developed strategies for protecting remote cultural resources.

*Suggested a larger working group to address issues that impact multiple sites such as hunting or airboats.

Kaiser, Bernard

From: Kaiser, Bernard
Sent: Thursday, February 21, 2019 10:15 AM
To: Ann Paul; Chilson, Jason; Cully Lord; Jeff Steinsnyder; Kent Bailey; Kevin Love; Matthew R. Huntsinger; Maya Burke; Rob Northrop UF; Ryan Long; Virginia Overstreet
Cc: Ackett, Kelli; Bowman, Sheryl; Dickerson, Ross; Kiddy, Christopher
Subject: Reschedule of Double Branch Bay Advisory Group Meeting

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Best Regards,

Bernard W. Kaiser
Environmental Lands Research Analyst
Conservation and Environmental Lands Management

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APPENDIX I
Arthropod Control Plan

Florida Department of Agriculture and Consumer Services
Division of Agricultural Environmental Services

ADAM H. PUTNAM
COMMISSIONER

ARTHROPOD MANAGEMENT PLAN - PUBLIC LANDS

Section 388.4111, F.S.
Telephone: (850) 617-7995

Return to:
Mosquito Management Services
6527 Eureka Springs Rd
Tampa FL 33610

For use in documenting an Arthropod Control Pan for lands designated by the State of Florida or any political subdivision thereof as being environmentally sensitive and biologically highly productive therein. Fill this form out if control work is necessary or planned.

Name of Designated Land:

Double Branch Bay

Is Control Work Necessary: ☒ Yes ☐ No

Location:
Western Hillsborough County, along the northern shoreline of Old Tampa Bay, south of Hillsborough Avenue, in Sections 29, 30, 31, 32, & 33 of Township 29 South, Range 17 East.

Land Management Agency:
Hillsborough County Conservation and Environmental Lands Management

Are Arthropod Surveillance Activities Necessary? ☒ Yes ☐ No
If "Yes", please explain:

This property (approximately 1,584 acres) contains mangrove swamps, estuarine, tidal flats, salt marsh, tidally influenced streams, canals, mesic pine flatwoods, hardwood hammock and freshwater marshes. These habitats are ideal breeding environments for sever mosquito species known to vector diseases. The areas surrounding this property are heavily urbanized with subdivisions and commercial areas resulting in a dense human population adjacent to these mosquito habitats. We need to maintain the ability to monitor mosquito populations to ensure timely mosquito management practices are executed.

Which Surveillance Techniques Are Proposed?
Please Check All That Apply:

☒ Landing Rate Counts
☒ Light Traps
☒ Sentinel Chickens
☒ Citizen Complaints
☒ Larval Dips
☐ Other

If "Other", please explain:
N/A

Arthropod Species for Which Control is Proposed:

Mosquito Management Services will be proposed for any mosquito species identified utilizing approved surveillance methods.

Proposed Larval Control:

Proposed larval monitoring procedure:

In the event of a public health concern or citizens in adjacent communities submit requests for service because of a significant increase in adult mosquito activities a technician is sent to the area to conduct adult landing rate counts, identification and canvas the area to identify standing water that is harboring mosquito larva.

Are post treatment counts being obtained: ☒ Yes ☐ No

Biological Control of Larvae:

Might predacious fish be stocked: ☒ Yes ☐ No

Other biological controls that might be used:

N/A

Material to be Used for Larvaciding Applications:

(Please Check All That Apply:)

☒ Bti

☒ Bs

☒ Methoprene

☐ Non-Petroleum Surface Film

☐ Other, please specify:

Please specify the following for each larvacide:

Chemical or Common name:

Bacillus thuringiensis israelensis (BTI) – VectoBac GS
Bacillus sphaericus (BS) – Vectolex FG
Methoprene – Altosid

Rate of application:

BTI, 2.5-20lbs/acre
BS, 5-20 lbs/acre
Methoprene, 2.5-20lbs/acre

Method of application:

BTI, Ground/Aerial
BS, Ground/Aerial
Methoprene, Ground/Aerial

Proposed Adult Mosquito Control:

Aerial adulticiding ☒ Yes ☐No

Ground adulticiding ☒ Yes ☐No

Please specify the following for each adulticide:

Chemical or common name:

Permethrin – Permanone 30-30
Malathion – Fyfanon ULV Mosquito
Naled – Dibrom Concentrate
Phenoxybenzyl cyclopropanecarboxylate, Piperonyl Butoxide – Anvil 10 + 10

Rate of application:

Permanone 30-30, 0.09 – 0.36 oz/acre
Fyfanon ULV Mosquito, 0.38 – 0.75 oz/acre
Dibrom Concentrate, 0.5 – 1.0 oz/acre
Anvil 10 + 10, 0.21 – 0.62 oz/acre

Method of application:

Permanone 30-30, Ground
Fyfanon ULV Mosquito, Ground
Dibrom Concentrate, Aerial
Anvil 10 + 10, Aerial

Proposed Modifications for Public Health Emergency Control:

Arthropod control agency may request special exception to this plan during a threat to public or animal health declared by the State Health Officer of Commissioner of Agriculture. In the event of a declared public health emergency, control may be performed by the arthropod control agency, as part of a larger treatment plan to safeguard public health.

Proposed Notification Procedure for Control Activities:

Manager of the area will be notified by e-mail when treatment of the area will occur. The notice should include a map of the area being treated, the material to be used and the general time of day the treatment will occur.

Records:

Are records being kept in accordance with Chapter 388, F.S.:

☒ Yes ☐No

Records Location:

Hillsborough County
Mosquito Management
Services
6527 Eureka Springs Rd
Tampa, FL 33610

How long are records maintained: Three (3) Years

Vegetation Modification:

None

Proposed Land Modifications:

Is any land modification, i.e., rotary ditching, proposed:
None

Include proposed operational schedules for water fluctuations:
None

List any periodic restrictions, as applicable, for example peak fish spawning times.
None

Proposed Modification of Aquatic Vegetation:
None

Land Manager Comments:

Arthropod Control Agency Comments:

It is Hillsborough County Mosquito Management Services mission to protect the health of county residents by managing disease transmitting and nuisance mosquitoes utilizing integrated mosquito management practices designed to reduce mosquito populations while respecting the environment. All products utilized in the efforts to manage mosquito populations are applied by state certified and licensed applicators and in compliance with label instructions and requirements. The Hillsborough County Mosquito Management Services, with whom this management plan is shared, was established pursuant to Florida Statute 388, to provide suppression of mosquitoes whether disease bearing or merely pestiferous in Hillsborough County. Mosquito Management Services has been and remains an important service providing the residents of Hillsborough County with a healthy environment where outdoor activities can be enjoyed thought the year.

Signature of Lands Manager or Representative — Date: 8/8/18

Signature of Mosquito Control Director / Manager — Date: 8/9/18

Donald Hayes