

Executive Summary

The Duck Pond Watershed is located in northern Hillsborough County in an area in which a number of land and water management issues are currently being addressed by citizen's action groups and state, regional and local government agencies. The URS Corporation Team was retained by Hillsborough County to prepare the Duck Pond Watershed Management Plan as a part of the County's overall watershed management program. The objectives of the plan were to describe the existing drainage, flooding, water quality, natural systems and water supply conditions within the watershed and to develop alternatives to improve areas not currently meeting the County's level of service.

The Study area is identified as the Duck pond Watershed, but the study area includes portions of the Cypress Creek and Hillsborough River Watersheds. The total study area encompasses approximately 5,160 acres within the Cypress Creek and Hillsborough River Watersheds. Approximately 1,404 and 3,756 acres are within the Cypress Creek and Hillsborough River Watersheds, respectively. Flooding, water quality and natural systems were evaluated for approximately 4,343 acres (6.79 square miles) (see Figure 2-1). This 4,343 acres will be identified as the Duck Pond Watershed (DPW) for the remainder of this report. Approximately 4,203 acres of the 4,343 acres and an additional 817 acres south of Fowler Avenue within the City of Tampa was modeled using the County SWMM stormwater model. The areas not modeled include Sub-basin 620100 (approximately 35 acres) and Sub-basin 580509 (approximately 106 acres). Sub-basin 620100 is located on the USF golf course and was not modeled in the USF North drainage system because it consists of a marsh wetland isolated from the USF north drainage system. Sub-basin 580509 is located on the USF campus adjacent the intersection of Fowler Avenue and Bruce B. Downs Boulevard. Sub-basin 580509 was not modeled because it is not within the Duck Pond Watershed. Sub-basin 580509 discharges south through a circular culvert under Fowler Avenue. A break down of the areas within the study area is shown on Table 1.1

The project area is primarily urban, and drains into either Cypress Creek or the Hillsborough River. Several major roads, including Nebraska Avenue, Bruce B. Downs Blvd., 56th Street, Fletcher Avenue, and Fowler Avenue travel through the project area. The basin is composed of 193 smaller units or sub-basins ranging in size from approximately 0.61 to 251.3 acres. Land elevations in the DPW vary between a high of about 75 feet NGVD in the southeast portion of the project area to a low of around 25 feet NGVD. Flooding in several areas of the watershed was reported during the El Niño rainfall events during late 1997 and early 1998.

The DPW lies within the Polk Upland physiographic unit as defined by White. This unit is part of the Central or Mid-Peninsular physiographic zone, one of three in Florida. This zone is characterized by discontinuous highlands formed by sub-parallel ridges that are separated by broad valleys. The project area has six major drainage systems each with their own outfall. These include; Duck Pond, Bruce. B. Downs, USF North, USF East, USF Campus East and Raintree Systems. The Bruce B. Downs, USF North, USF East and USF Campus East outfall to Cypress Creek. The Raintree System discharges directly to the Hillsborough River. The Duck Pond System outfalls to a storm sewer system within the City of Tampa south of the University Square Mall. These systems in conjunction handle the majority of the stormwater conveyance within the project area.

Executive Summary

There are some lakes, wetland areas and depressions located within the project area. Hydrologically, surface flows originate for the most part through stormwater runoff with some influence from groundwater flows from lake seepage.

One purpose of the study was to develop a computer simulation model of the Duck Pond watershed under current conditions. Runoff parameters for the watershed were developed from land use, soils and topographic maps. Hydraulic input data for the County SWMM stormwater model was developed from survey data, topographic maps and permit data. The model was calibrated to historical storm events to ensure the accuracy of the model. The calibrated model was then used to calculate the location and degree of flooding within the watershed for the 2.33-year, 5-year, 10-year, 25-year, 50-year and 100-year design storm events. The model was then used to determine the level of service based on County criteria for the watershed.

Pollutant loads for several selected pollutants (chemicals, parameters) were estimated using the Hillsborough County supplied spreadsheet model, the Pollutant loading and Removal Model (PLRM). Pollutants considered include 12 parameters: Biochemical Oxygen Demand (BOD), Total Suspended Solids (TSS), oil/grease, Total Nitrogen (TN), Nitrogen Oxides (NO_x), Total Kjeldahl Nitrogen (TKN), Total Phosphorus (TP), Total Dissolved Phosphorus (TDP), Cadmium (Cd), Copper (Cu), Lead (Pb), and Zinc (Zn). The water quality level of service (LOS) was calculated by comparing the actual net load to the load for a low-density single family residential land use without treatment of the same areas. Five levels of LOS were considered (A, B, C, D, and F). Depending upon the difference in these loads, LOS designation ranging from A through F was determined for each sub-basin in the watershed.

Upon completion of the existing conditions analysis, an analysis of alternatives to reduce flooding, water quality, and natural systems problems was performed. Many projects were recommended for the Duck Pond Watershed to address flood control, water quality, and natural system improvements. The construction or implementation of these projects will be dependant on funding availability, right-of-way availability, permitting, and other related issues.

Hillsborough County has taken a positive step forward in the implementation of the recommended projects by coordinating with SWFWMD and HCEPC and by allowing public input throughout the development of the watershed management plan. Hillsborough County has met with the Southwest Florida Water Management District (SWFWMD) to review the Duck Pond Watershed Management Plan. The SWFWMD indicated during this meeting consideration is given to requiring all new developments in the drainage systems draining to Duck Pond West and Duck Pond East (Nebraska Avenue System, 131st Avenue System, Mall West/East System and Robbins Lumber System) to meet drainage criteria for closed basins. The SWFWMD has not made this official, however, Hillsborough County should inquire with the SWFWMD about this potential requirement prior to implementing any of the recommended preferred alternatives in the Duck Pond Watershed.

Additional funding for project construction or implementation may be available from grants or joint agreements with SWFWMD, FDEP, EPA, and the City of Tampa. As development

Executive Summary

continues in the watershed, additional flood control and water quality / natural system improvements may be required in the future.

The listing of final recommended projects in the Duck Pond Watershed include:

- Construct the preferred alternatives in the order shown on Table 19.1.
- Construct Hillsborough County projects: CIP 49290, CIP 47006, 40025, 47036, 47320, 47288, 47291, 47290 and CIP 47008. Descriptions and locations of these CIP projects can be found on Table 13.2 and Figure 13-2, respectively.
- Consider implementing modified versions of the eliminated Alternatives 12 and 17 at Duck Pond West and the 131st Pond, respectively. The flood control aspect of these two alternatives could be eliminated by eliminating major excavation, storm sewer pipe and outfall structures. These two projects could become wetland enhancement projects, such as re-grading and re-planting the banks to create an enhanced littoral shelf.
- Remove invasive species located throughout Duck Pond Watershed in ditches and along right-of-ways (e.g. cogongrass along right-of-ways, skunkvine and air potato in ditches). Continue public education on the importance of controlling invasive species in yards. Cost will vary.
- Utilize grassed swales or detention areas where feasible, for water quality treatment for proposed CIP projects.
- Coordinate with the City of Tampa with regards to the following improvements the City may implement south of Fowler Avenue.
 - ✍ Provide pumping capacity from the existing Donut Pond to 30th Street.
 - ✍ Install an additional 24-inch culvert under the railroad tracks.
 - ✍ Install a new 5-acre detention pond north of 113th Avenue at the current site of the Scruggs Manor apartment complex.These improvements by the City of Tampa will be necessary to implement Alternative 14 (see table 19.1) because this alternative increases the discharge rate leaving the Duck Pond Watershed into the City of Tampa system.
- Remove debris and overgrown vegetation in the Outfall ditch extending from 15th Street immediately south of 127th Avenue to Duck Pond West.
- Remove nuisance plant species from 131st and Nebraska Avenue ponds.
- Remove silt and dead vegetation from clogged pipes, manholes and inlets in the storm sewer at the intersection of 127th Avenue and 15th Street.

Executive Summary

- Regularly conduct the following maintenance items:
 - ✍ Mow canal banks and retention ponds on County-owned property and drainage easements
 - ✍ Repair or install cross-drain and side-drain pipe culverts in County easement or right-of-way
 - ✍ Cleaning and removal of debris and silt from drainage structures in County easement or right-of-way
 - ✍ Dragline cleaning and reshaping of canals and drainage ditches in County easement or right-of-way
 - ✍ Roadside ditch cleaning in County easement or right-of-way

Executive Summary

Table 19.1 Priority Rank of The Preferred Alternatives

Alternative No.	Project Description	Priority Ranking	Preliminary Cost Estimate
1	Proposed storm sewer along 122 nd Avenue from the Hillsborough County Pond to Duck Pond West.	1	\$ 602,848
18	Expand existing Nebraska Avenue Pond adjacent the CSX RR	2	\$ 250,163
2	Proposed storm sewer along 12 th Street from Fowler Avenue to 122 nd Avenue.	3	\$ 200,577
3	Proposed storm sewer along 14 th Street from Fowler Avenue to 122 nd Avenue.	4	\$ 226,355
4	Proposed storm sewer along 15 th Street from Fowler Avenue to 122 nd Avenue.	5	\$ 226,355
5	Proposed storm sewer along 17 th Street from Fowler Avenue to 122 nd Avenue.	6	\$ 226,135
14	* Increase discharge rate from duck Pond East by modifying the existing outfall structure.	7	\$93,811
16	Expand existing conservation pond on 22 nd Street north of 127 th avenue	8	\$ 295,914
23	Proposed storm sewer along 22 nd Street from 127 th Avenue to 139 th Avenue	9	\$667,596
19	Proposed storm sewer along 20 th Street from 127 th Avenue to Fletcher	10	\$ 463,302
21	Proposed storm sewer along 20 th Street from 139 th Avenue to Fletcher Avenue.	11	\$ 239,558
22	Proposed storm sewer along 20 th Street from 139 th Avenue to 143 rd Avenue	12	\$ 203,674
6	Proposed storm sewer along 120 th Avenue from Nebraska Avenue to Hillsborough County Pond.	13	\$ 139,125
7	Proposed storm sewer along 131 st Avenue from 15 th Street to Nebraska Avenue	14	\$ 475,472
10	Proposed storm sewer along 124 th Avenue from CSX RR to Nebraska Avenue	15	\$ 167,557
8	Proposed storm sewer along 139 th Avenue from CSX RR to Nebraska Avenue	16	\$110,790
9	Proposed storm sewer along Taliaferro Avenue from 127 th Avenue to Nebraska Avenue	17	\$175,655
26	Wetland Enhancement at existing wetland east of 56 th Street in the Raintree North Drainage system	18	\$144,780
27	Wetland Enhancement at existing wetland south of Fletcher Avenue in the USF East Drainage System	19	\$144,780
25	Wetland Enhancement at existing wetland south of B.B. Downs Boulevard in the B.B. Downs Drainage System	20	\$144,780
24	Wetland Enhancement at existing wetland east of 46 th Street on the USF golf course.	21	\$144,780

* Must be done in conjunction with the City of Tampa improvements downstream.