Future of Hillsborough

Comprehensive Plan for Unincorporated Hillsborough County Florida

POTABLE WATER

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 Potable Water

TABLE OF CONTENTS PAGE

August 26, 2008 Effective Date 1
Table of Contents Page 2
TABLE OF FIGURES PAGE 3

EXECUTIVE SUMMARY 4

I. INTRODUCTION 5

STATUTORY REQUIREMENT 5
PURPOSE 5
ORGANIZATION 5

II. INVENTORY AND ANALYSIS 6

CURRENT STATUS 7
Water Conservation 10
Reclaimed Water Reuse 11
Current Water Demand 12
Level of Service For Potable Water 14

III. FUTURE NEEDS AND ALTERNATIVES 18

Projected Water Demand Methodology 18

IV. GOALS, OBJECTIVES AND POLICIES 24

V. PLAN IMPLEMENTATION AND MONITORING 30

V. PLAN IMPLEMENTATION AND MONITORING 32

VI. DEFINITIONS 34

IV V, and VI of the Element have been adopted by the Board of County Commissioners as required by Part II, Chapter 163, Florida Statutes. The remainder of the Element contains background information.

Hillsborough County
Potable Water

TABLE OF FIGURES

PAGE

FIGURE 1 NORTHWEST POTABLE WATER MASTER PLAN 7
FIGURE 2 CENTRAL POTABLE WATER MASTER PLAN 7
FIGURE 3 SOUTH POTABLE WATER MASTER PLAN 7
FIGURE 4 NORTHWEST HILLSBOROUGH REUSE PLAN 7
FIGURE 5 SOUTH-CENTRAL HILLSBOROUGH REUSE PLAN 7
FIGURE 6 - TOTAL POTABLE WATER DEMAND 13

TABLE OF TABLES

PAGE

TABLE 1 POTABLE WATER SYSTEM CONCURRENCY CAPACITY TEST 17
TABLE 2 POTABLE WATER SUPPLY NEEDS 18

Hillsborough County

EXECUTIVE SUMMARY

The purpose of the Potable Water Element is to identify capital improvements and establish goals, objectives and policies that will ensure Hillsborough County will continue to supply potable water of sufficient quantity and quality for current and future needs in accordance with Chapter 9J-5, FAC, while eliminating identified and projected deficits in the potable water system. The Potable Water Element addresses and directs government activities, and provides guidance to the private sector on how the potable water needs of all residents of Hillsborough County will be met. The goals, objectives and policies of this Element have been developed to correct existing problems and avoid anticipated future potable water system problems through the year 2025.

The Potable Water Element is designed to meet the requirements of the Local Government Comprehensive Planning and Land Development Regulation Act, Chapter 163, Florida Statutes (FS), and has been prepared in accordance with "Minimum Criteria for Review of Local Government Comprehensive Plans and Determination of Compliance", Rule 9J-5.011, Florida Administrative Code (FAC). In addition to being consistent with the Tampa Bay Regional Policy Plan and the State Comprehensive Plan, the Potable Water Element is consistent with all other Elements of the Comprehensive Plan. The 10-year Water Supply Facilities Work Plan, which is considers the Southwest Florida Water Management District's Regional Water Supply Plan (RWSP), has also been incorporated into the Potable Water Element.

The Potable Water Element focuses on the facilities needed by existing residents and the anticipated needs of a growing population in unincorporated Hillsborough County.

I. INTRODUCTION

STATUTORY REQUIREMENT

In 1985, the Florida Legislature passed the Local Government Comprehensive Planning and Land Development Regulation Act (LGCPLDRA), Chapter 163, Florida Statutes (FS). The LGCPLDRA strengthens the role of local governments in developing and implementing a comprehensive plan to guide and control future growth and development. Section 163.3177 6(c), FS, requires local governments to prepare an Element dealing with the Potable Water system.

The "Minimum Criteria for Review of Local Government Comprehensive Plans and Determination of Compliance," Rule 9J-5.011, Florida Administrative Code (FAC), establishes the minimum criteria for preparing the Potable Water Element and is designed to meet the requirements of the LGCPLDRA. This update of the Potable Water Element has been prepared in accordance with Chapter 9J-5, FAC.

Recent planning legislation has strengthened the legal status of local government comprehensive plans. The legislation also provides sanctions for communities that fail to adopt adequate comprehensive plans.

PURPOSE

The purpose of the Potable Water Element is to identify capital improvements and establish goals, objectives and policies that will ensure Hillsborough County is able to supply sufficient quantity and quality potable water for current and future needs.

The Potable Water Element focuses on the existing systems and facilities and projected system needs based on population growth in unincorporated Hillsborough County. This is accomplished in this Element through an inventory and analysis of existing data, identification of present and potential problems and their solutions, and projection of future potable water needs for specific planning periods.

ORGANIZATION

The Potable Water Element consists of five parts: (1) Existing Inventory and Analysis; (2) Future Needs and Alternatives; (3) Goals, Objectives and Policies; (4) Plan Implementation and Monitoring; and (5) Definitions for clarification of any unfamiliar terms used in this Element.

II. INVENTORY AND ANALYSIS

The purpose of an Inventory and Analysis is to identify existing potable water facilities, estimate the existing needs and detail the deficits and/or excess capacities within the system. A general summary of major system components and existing deficits is included in this section.

In developing a plan for and conducting an analysis of potable water facilities needs, numerous constraints and opportunities existed. Some of the key assumptions used and factors considered in developing this Potable Water Element follow:

Population increases for the two service areas in unincorporated Hillsborough County (Northwest Service Area and South-Central Service Area) will occur. This assumption is based upon the County disaggregations of the medium-range, countywide population projections published by the University of Florida Bureau of Economic and Business Research as disaggregated to census tracts and Traffic Analysis Zones (TAZs) by The Planning Commission, and upon County estimates of populations served. The Northwest Service Area population served was estimated to be 182,169 in 2005. Projected population will increase 14 percent by 2015 and 27 percent by 2020. The South-Central Service Area population served was 271,658 in 2005. This population is projected to increase 26 percent by 2015 and 51 percent by 2025.

Concern for the environment and the water resources of the region will keep the restrictions on outdoor uses of potable water and the emphasis on water conservation intact along with the resulting reduction in potable water per capita demand.

The potable water demand per capita, based on the SWFWMD "adjusted gross" definition, will remain below the goal of 110 gpcd through the year 2025.

Existing reclaimed water reuse facilities will be utilized and expanded where practicable.

Expansion of the water reuse program is a primary objective.

Long-term flexibility of reclaimed water reuse programs will be maintained.

The water supply from Tampa Bay Water for Hillsborough County will be available to meet the projected demand per the Interlocal Agreement (so-called Governance).

The proposed goals, objectives and policies will be adopted and implemented.

CURRENT STATUS

The Hillsborough County potable water system is divided into two service areas for planning purposes. The areas are the Northwest and the South-Central Service Areas, as shown in the following maps (the South Central Area of the Water Master Plan is shown as two areas for greater detail) depicting Potable Water Service Areas and the Reclaimed Water Reuse Plans.

FIGURE 1 NORTHWEST POTABLE WATER MASTER PLAN
FIGURE 2 CENTRAL POTABLE WATER MASTER PLAN
FIGURE 3 SOUTH POTABLE WATER MASTER PLAN
FIGURE 4 NORTHWEST HILLSBOROUGH REUSE PLAN
FIGURE 5 SOUTH-CENTRAL HILLSBOROUGH REUSE PLAN

Since the adoption of the Comprehensive Plan in 1989, the County has completed a major Capital Improvements Program (CIP) in which storage, treatment, pumping, and transmission facilities were constructed to correct existing deficiencies within the system and to provide capacity for future growth at least five years in advance of need. In so doing, the County has converted from a system that depended upon local water supply sources of dispersed, "neighborhood" well systems and inter-utility interconnects to one that relies upon regional water supply from Tampa Bay Water.

In the Northwest Service Area (NWSA), the Northwest Hillsborough Potable Water Facility (NWHPWF, a.k.a. Fawnridge) receives raw water supply from the Northwest Hillsborough Regional Wellfield. With a firm capacity of 31.0 million gallons per day (mgd), the NWPWF serves the southwest portion of the NWSA. The Lake Park Pump Station (LPPS) serves the northeast portion of the service area and has a firm pumping capacity of 35.0 mgd. The LPPS receives water from two TBW sources through two Points of Connection: 1) raw groundwater from the Section 21 Wellfield, and 2) regional water supply, which is potable water from a blend of treated groundwater, surface water and desalinated seawater. Water supply is also available from TBW through the Tampa-Hillsborough Interconnect (THI). High service pumps boost the pressure of treated surplus surface water from the City of Tampa distribution system to reduce groundwater withdrawals in the TBW supply system. TBW also has a project planned for completion in 2009 which would add an interconnecting transmission main and treatment modifications at the Northwest wellfield to enable delivery of water from the Regional System to the NWHPWF.

In the South-Central Service Area (SCSA), the Lithia Water Treatment Plant (WTP) treats and distributes raw water supply from the South Central Hillsborough Regional Wellfield (SCHRWF) and the Brandon Urban Dispersed

Wells (BUDW). The Lithia WTP has a firm capacity of 71.4 mgd, and a project is currently underway to expand firm pumping capacity by 23 mgd. Two repump facilities at Bloomingdale and Riverview assist in meeting peak demands. In May 2005, an interim connection to the TBW regional supply system with booster pumping facilities was constructed at Highview, a former WTP site. Highview provides an additional 8 mgd maximum day supply to bolster SCSA capacity until a new permanent Central Water Treatment Facility (CHWTF) is constructed adjacent to the TBW Regional Facility at Falkenburg by 2009. The CHWTF will provide 10 mgd annual average day and 19 mgd maximum day capacity.

The construction of major water treatment and transmission facilities in the CIP greatly improved the ability of the potable water system to deliver the adopted Level of Service. The system now has the capacity to meet both current and future demand. However, concern for the environment and the water resources of the region remains high. The growth in population and expansion of agriculture and industry over the past several decades has placed heavy demands upon the surface and ground water resources. Modifications to the land surface, changes in land use, increased ground water withdrawals, and protracted drought conditions resulted in a stressed environment in many parts of the County. This stress was manifested by declining ground water levels in both the surficial and Floridan aquifers, lowering lake, wetland, and stream levels, and deteriorating water quality, including salt-water intrusion.

In the late 1980s, the Southwest Florida Water Management District (SWFWMD), which is responsible for the management of water resources through the permitting process, initiated Water Resource Assessment Programs for northern and eastern Tampa Bay. These assessments were to analytically determine the safe yield of the ground water aquifer system through computer modeling. Long-term water resources management practices were established based on these results.

In the interim, the SWFWMD created Water Use Caution Areas (WUCAs) in which work groups comprised of representatives from agriculture, industry, public supply, and environmental interests developed short-term management tools. Permit compliance rules were adopted with the objective of reducing water demand and thereby relieving some of the environmental stress associated with ground water withdrawals. The County's utility service areas fall within the boundaries of two WUCA's. The NWSA is in the Northern Tampa Bay WUCA (NTBWUCA), which also includes Pinellas and Pasco counties. The SCSA is in the Southern Water Use Caution Area (SWUCA), which comprises parts of eight counties including southern Hillsborough. For public suppliers, the WUCA rules specified a maximum potable water per capita demand of 150 gallons per day (gpcd) and the requirement of a water conservation user fee

rate (inclined rate structure) by January 1, 1993. Both of these rules were met by Hillsborough County.

Per capita demand is a unit of measure calculated by dividing the total water demand by the number of persons using the water. The WUCA "compliance per capita" includes the subtraction of "significant" non-residential uses above 25,000 gallons per day (gpd) from the total demand to avoid skewing of the parameter for communities with large commercial and/or industrial users. In addition, certain treatment losses are subtracted and incentive credits are allowed for reclaimed water reuse and desalination to encourage the development of alternative sources of supply.

The current NTWUCA goal is for the compliance per capita limit to be at or below 130 gpcd. Rules currently under consideration for the SWUCA would set a limit of below 150 gpcd. However, an earlier WUCA group recommended a maximum per capita limit of 110 gpcd based on an "adjusted gross" formula. The adjusted gross per capita calculation eliminates credits for reclaimed water reuse and desalination. Because the adjusted gross per capita was anticipated to become the new standard, the County adopted Level of Service was changed in the Capital Improvement Element to this method of calculating per capita demand. Except for the years 1999 and 2000 when a major drought occurred, the County has been under the demand per capita goal of 110 gpcd.

In 1998, with the reconfiguration of the West Coast Regional Water Supply Authority into Tampa Bay Water through the adopted Governance Agreement, the agency's basic relationship with its member governments changed. Tampa Bay Water acquired all of the individual water supply sources and thereby became the sole purveyor of water supply to the six member governments. Tampa Bay Water became a true utility with a common "unitary rate" for all member governments. In addition, Tampa Bay Water entered into a Partnership Agreement with the SWFWMD in which Tampa Bay Water committed to reducing groundwater withdrawals to alleviate environmental stress in the region. As a part of a new Consolidated Permit for eleven interconnected wellfields in Pasco and Northwest Hillsborough counties, Tampa Bay Water agreed to an immediate reduction of the total permitted supply from 194 mgd to 158 mgd, and future staged reductions to 121 mgd by 2003 and 90 mgd by 2008. The SWFWMD agreed to provide up to $183M to fund alternative water supply projects in Tampa Bay Water's New Water Master Plan, including projects to develop drought-proof and drought-resistant supply from surface water and desalinated seawater sources. This responsibility came at a time when water demand was increasing and the regional drought was becoming more severe. This imposed serious challenges to the new organization to quickly implement the New Water Master Plan. In 2002, TBW completed construction of the Brandon Urban Dispersed Wells project at 6

mgd. The Regional Surface Water Treatment Plant was completed the same year, and when used in conjunction with the Regional Reservoir, can provide up to 66 mgd of treated surface water from the Alafia and Hillsborough Rivers and Tampa Bypass Canal. TBW also completed construction of a 25 mgd seawater desalination facility in 2003. Since its initial operation, however, deficiencies in the plant were discovered requiring remediation of the pre-treatment process and other components. This work is scheduled to be complete in October 2006.

WATER CONSERVATION

Concurrently with the water resource assessment and WUCA activities, the SWFWMD imposed restrictions that limit the frequency and duration of outdoor water use. Beginning in 1990, irrigation was at first limited to 3 days per week. The frequency was progressively reduced to 2 and then, in early 1991, 1 day per week. In late 1991, the restrictions were relaxed to 2 days per week where they remained until the spring of 2000 when increased irrigation demand created by a drought resulted in the re-enactment of the once-per-week water restriction. Irrigation restrictions were once again relaxed to twice-per-week restrictions in May 2005. These restrictions had a major impact on water demand in unincorporated Hillsborough County.

The County 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 addition to adopting all SWFWMD water use restrictions by Ordinance, the County increased enforcement and public education activities. All new development is required by building code to install rain sensor devices on irrigation systems. Mobile irrigation labs are used to assess the efficiency of residential irrigation systems. In addition, 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. In 2003, the rate structure was modified to provide for a reduction in the monthly bill for low water users and an increase for high water users to send a stronger price signal to encourage further conservation. Historically, the County's water conservation rate has been the most progressive in the tri-county area, having the highest rates for the high-usage categories.

As part of the Partnership Plan with SWFWMD, TBW and its six Member Governments are required to annually submit a Five-Year Water Conservation Plan, which includes Best Management Practices for a wide variety of both indoor and outdoor conservation initiatives. The County participates in this

process annually. The County also works closely with the Water Conservation Technical Advisory Committee (TAC), appointed by the Board of County Commissioners. The eleven-member group represents various stakeholders interested in water resource issues and makes recommendations regarding conservation programs and policies. One program suggested by the TAC was to further evaluate the use of evapotranspiration devices which monitor the need for irrigation based on conditions. The County is currently performing a pilot program on the devices to determine their efficiency and effectiveness for future consideration as a larger conservation project

RECLAIMED WATER REUSE

As a part of the Water Conservation Program, the County also developed an aggressive Reclaimed Water Reuse Program. Reuse of water reclaimed from highly treated wastewater reduces demand on potable water supplies by substituting water of lower quality for certain industrial processes and turf irrigation.

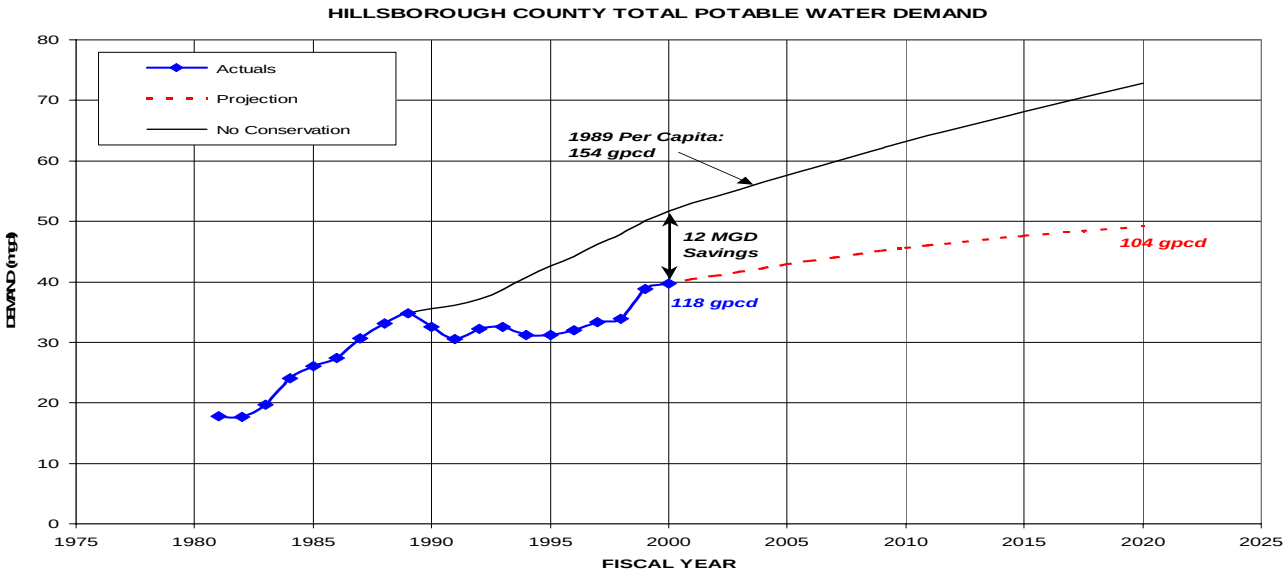
The County expanded the reclaimed water distribution system through the CIP to make the alternative resource available to more users. A significant portion of the funding for these improvements came from the SWFWMD cooperative funding program. In addition, the County initiated a Reclaimed Water Improvement 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.

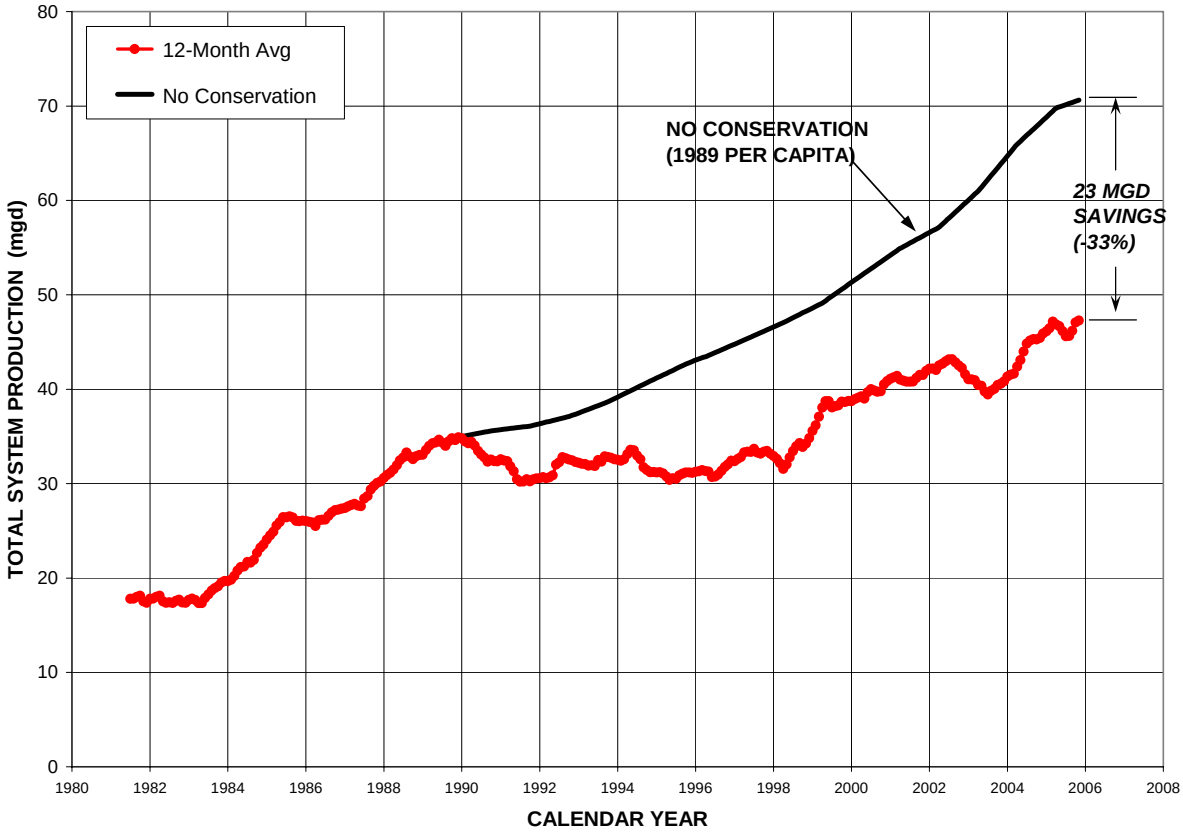
In year 2005, 45% percent of the 34.2 mgd of water reclaimed at the County's sub-regional wastewater treatment plants was reused, with an estimated 10.6 mgd in potable water savings. Because demand doubles during the dry season, only 50% of the available reclaimed water supply can be committed on an annual-average-day basis without extensive seasonal storage. To meet dry season demand in 2005, over one billion gallons of storage would have been required. Meeting this storage requirement by conventional tank storage would be logistically impossible and cost-prohibitive. The County initiated an innovative program to create seasonal storage using Aquifer Storage and Recovery (ASR). The program has met several technical and regulatory problems that have slowed progress, but the approach remains under study. The County is also considering a reclaimed water reservoir for seasonal storage in the South-Central system. The feasibility of a reservoir is currently being analyzed.

CURRENT WATER DEMAND

The County has been very effective in reducing potable water demand. From the early 1980s to the adoption of the Comprehensive Plan in 1989, the total demand of the potable water system increased at an annual rate of approximately 9 percent per year. As a result of the water demand management programs discussed above, demand remained relatively flat until 1999 when the drought dramatically increased irrigation demand and growth began to accelerate. Despite the recent increase in demand, the County is estimated to have saved 23 mgd (approximately 33%) in potable water supply in year 2005 relative to that required to meet the per capita demand of 1989 (see Figure 6). These savings were realized while the customer base increased significantly; i.e. served population increased by 105% from 1989 to 2005.

FIGURE 6 - TOTAL POTABLE WATER DEMAND





The 23 mgd potable water savings since 1989 is estimated to be the combined effect of outdoor water restrictions, reclaimed water reuse, and other conservation measures. Other conservation measures include low-volume toilet rebate program, rain sensor installation, low flow fixture retrofitting, etc.

POTABLE WATER QUALITY

The potable water system currently meets all water quality requirements of the US Environmental Protection Agency Safe Drinking Water Act, PL 93-253, including primary and secondary drinking water standards that address maximum contaminant levels. The system recently demonstrated that lead and copper levels were below the action level established in the Lead and Copper Rule for corrosion control. In an effort to comprehensively identify facilities and operational strategies to meet the increasingly more stringent water quality standards, the County developed a computerized, dynamic water quality modeling program to predict water quality for various system configurations and operating conditions. The County has installed test facilities within the system as a part of a program to develop an optimal corrosion control strategy. As a result of this testing, polyorthophosphate corrosion inhibitor is now added, and the two systems are in compliance with the Lead and Copper Rule. The County also fluoridates the water in both service areas.

LEVEL OF SERVICE FOR POTABLE WATER

Florida growth management legislation requires that the LOS must be based on quantifiable, objective measures of service that indicate the capacity per unit of demand for each public facility. The so-called "concurrency" mandate requires that the public facilities necessary to provide the adopted LOS standard be available at, or before, the time of development impact.

In order to provide the LOS, the potable water system must have the permitted water supply capacity and the distribution system treatment, storage, pumping, and transmission capacity to deliver potable water that meets public health and safety standards. Even though the LOS is based on annual average demand, the capacity of the potable water facilities must be sufficient to meet all demand conditions throughout the year, including the peaks created by seasonal and daily use patterns. Public safety requires that potable water be available in sufficient quantities and at sufficient pressures to provide residential and commercial fire protection.

In addition, potable water must be delivered in such a way as to ensure protection of public health. Public health standards are set by the Federal Safe Drinking Water Act (SDWA), with the responsibility for establishing water quality standards assigned to the United States Environmental Protection

Agency. The State of Florida adopted the federal standards in the Florida Safe Drinking Water Act and assigned the responsibility of administration and implementation of the Act to the Florida Department of Environmental Protection. The evaluation and monitoring of public water systems are the responsibilities of the local County Health Departments, which are a part of the Florida Department of Health and Rehabilitative Services.

The water supply is provided by Tampa Bay Water, which has the sole and exclusive right to develop new supply for Hillsborough County. The development and use of water supply is regulated by the SWFWMD through the permitting process to protect the resource and the environment from adverse impacts. Supply quantities are permitted for annual average, peak month, and maximum day usage.

The Concurrency Management System for Hillsborough County is administered by the Project Review and Processing Section of the Planning and Growth Management Department. Certificates of Capacity are issued for new development upon the finding that sufficient capacity, from water supply through potable water treatment, storage, and distribution to the point of delivery, is available. Through Governance, Tampa Bay Water must provide water supply to meet Hillsborough County needs. Available capacity is compared to existing use and future committed use. Distribution system capacity is determined through hydraulic performance analyses by Water Resource Services Planning staff. The results of the potable water system capacity determinations are published in quarterly concurrency reports.

The LOS for potable water in the Hillsborough County Comprehensive Plan is based on an adjusted gross residential usage expressed as gallons per capita per day (GPCD) on an annual average basis. The method of calculating per capita demand is the SWFWMD "adjusted gross" gallons per capita per day that was formulated in permit rulemaking in the Water Use Caution Areas. The SWFWMD per capita is calculated by dividing total use, both residential and non-residential, by a functional population that is comprised of both permanent and seasonally served population. Treatment losses and "significant" non-residential uses greater than 25,000 gallons per day are removed from total use to avoid skewing the per capita in communities with high commercial and industrial demand.

The test for concurrency is that potable water capacity must be demonstrated to be available for new development. This is done by determining the limiting system capacity, converting the capacity to the adjusted gross per capita measure, and ensuring that the capacity LOS exceeds the adopted LOS.

The LOS recommended for the Comprehensive Plan Update is 116 GPCD. This LOS is based on historical usage and the County's commitment to manage the water resource. A Plan goal is to maintain the actual demand at or below 110 GPCD through an aggressive water conservation program to more efficiently use the limited resource. This standard exceeds the goal in SWFWMD Water Use Caution Areas where permittees are to bring per capita use down to 130 GPCD, or less.

The limiting capacity for LOS concurrency determinations is, at present, the firm pumping capacity at the water treatment plants and the repump facilities. For the Northwest Service Area, the firm pumping capacity is 78 million gallons per day (MGD). Assuming historical peaking factors, this is equivalent to 24 mgd on an annual average day basis. In the South-Central Service Area, 109 MGD of firm pumping capacity is available, or an equivalent 35 mgd average day.

The total countywide annual average day capacity of 59 MGD translates into an adjusted gross per capita LOS measure of 124 GPCD (see Table 1). By service area, the existing capacity LOS is 131 GPCD in the Northwest and 120 GPCD in the South-Central. Thus, the available capacity exceeds the recommended LOS of 116 GPCD. Sufficient system capacity is maintained in the future as shown in Table 2 of Section III, Future Needs and Alternatives.

The existing demand per capita, based on a 12-month average of actual usage through September 2005, is 98 GPCD countywide, 101 GPCD in the Northwest and 96 GPCD in the South-Central (see Table 2). These actual demand per capitas fall below the goal maximum of 110 GPCD LOS for year 2005, demonstrating a high efficiency use of the potable water resource.

TABLE 1 POTABLE WATER SYSTEM CONCURRENCY CAPACITY TEST

HILLSBOROUGH COUNTY POTABLE WATER SYSTEM ADOPTED LEVEL OF SERVICE

Service Area	Firm Capacity (mgd)	Significant Uses (mgd)	System Capacity (mgd)	Served Functional Population	**Capacity LOS (gpcd)**	Capacity LOS Standard (gpcd)	WY2005 System Demand (mgd)	**Demand LOS (gpcd)**	Demand LOS Standard (gpcd)
Northwest	23.9	0.329	24.2	184,598	**131**	>=116	19.1	**101**	<=110
South-Central	33.5	0.744	34.2	285,241	**120**	>=116	28.0	**96**	<=110
Total	**57.4**	**1.073**	**58.5**	**469,839**	**124**	**>=116**	**47.1**	**98**	**<=110**

Notes:
1. System capacities are adjusted to reflect significant uses for the SWFWMD adjusted gross per capita methodology.
2. System demands are as of September 30, 2005, water year annual averages.

III. FUTURE NEEDS AND ALTERNATIVES

The background report for the original 1989 Hillsborough County Comprehensive Plan consists of the data, analysis, and specific needs of the wastewater system. It is useful as a basis for addressing the future needs of unincorporated Hillsborough County. The projected future needs are generally discussed in this section for the purpose of laying the foundation upon which the goals, objectives, and policies of this Element are based.

The assumptions used in developing future needs and alternatives for the Potable Water Element are the same as those listed in Chapter II: Inventory and Analysis.

The population projections used in this update are considerably lower than those projected for the Comprehensive Plan adopted in 1989. The increase in potable water demand based on the new population projections still represents significant increases in both service areas (see Table 2)

PROJECTED WATER DEMAND METHODOLOGY

Potable water demands are projected based on projected served population and demand per capita within the USA. The total population in each County service area is estimated by aggregating Traffic Analysis Zone (TAZ) population projections provided by The Planning Commission. The TAZ projections are disaggregations of the University of Florida Bureau of Economic and Business Research medium range projections for Hillsborough County. The served population for the current base year is estimated from Water Resource Services billing system residential unit counts and persons per household factors from The Planning Commission. Gross demand per capita is calculated based on the billed consumption, treatment plant water production, and estimated served population. Future served population is calculated by adding future population growth within the USA to the base-year served population estimate for each planning year. For conservative capacity planning purposes, future gross per capita is assumed to remain constant. Future demand is then projected by applying the gross per capita to projected future served population within the USA service areas (see Table 2).

TABLE 2 POTABLE WATER SUPPLY NEEDS

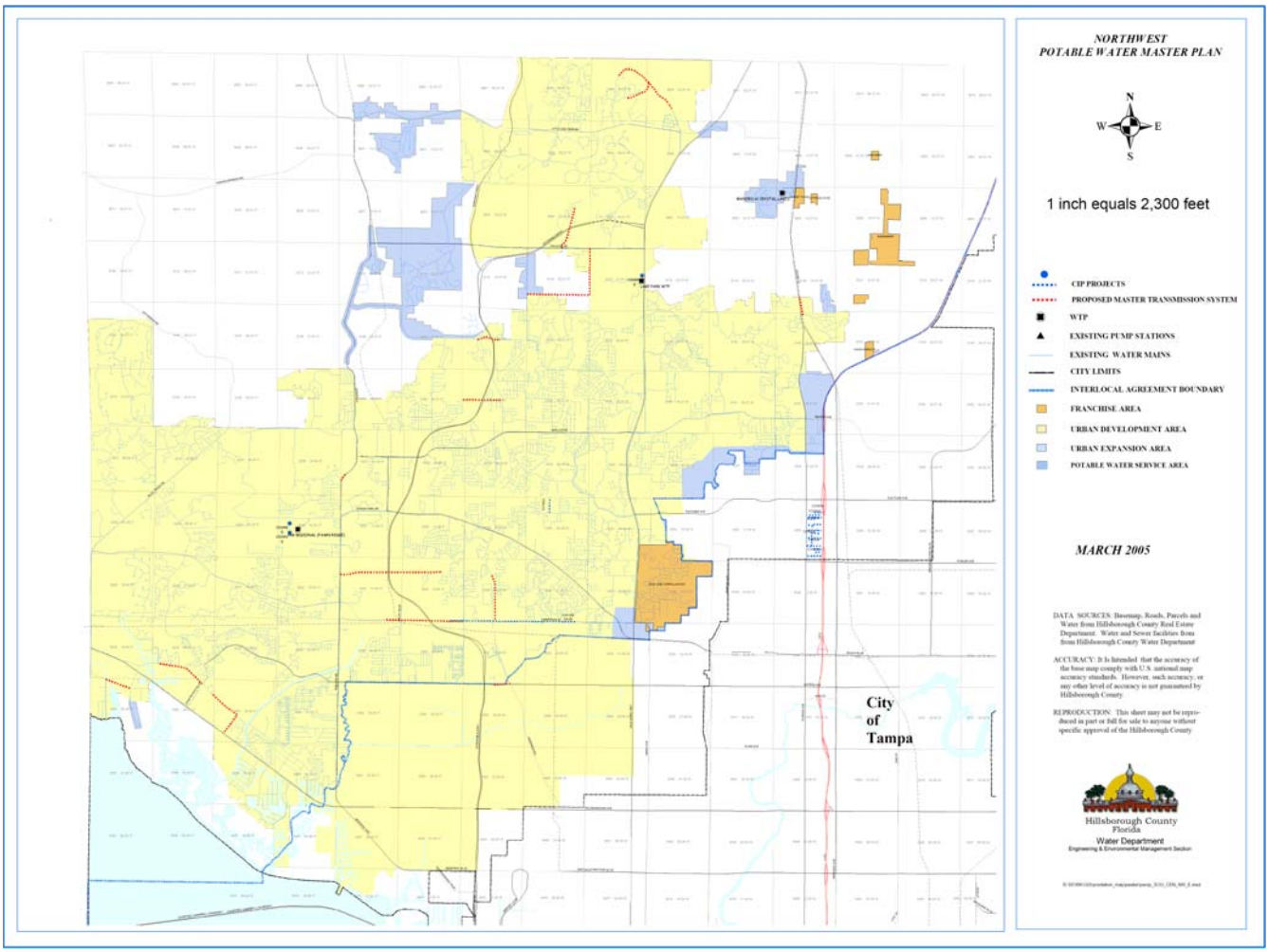
Service Area	Water Year	Annual Average Served Population	Gross Per Capita Demand (gpcd)	Actual/ Projected Demand AADF (mgd)	Delivery System Capacity (mgd)	Available Capacity (mgd)
Northwest	1989	94,937	153	14.6	8.8	-5.8
	1990	97,382	138	13.5	8.8	-4.7
	1995	115,030	116	13.3	19.5	6.2
	2000	146,677	112	16.4	23.9	7.5
	2005	182,169	105	19.1	23.9	4.8
	2010	194,604	105	20.4	23.9	3.5
	2015	207,040	105	21.7	23.9	2.2
	2020	219,511	105	23.0	29.0	6.0
	2025	231,982	105	24.3	29.0	5.7
South-Central	1989	126,299	160	20.3	24.1	3.8
	1990	131,801	145	19.1	24.1	5.0
	1995	156,350	115	18.0	24.1	6.1
	2000	192,274	122	23.4	24.1	0.7
	2005	271,658	103	28.0	33.5	5.5
	2010	306,468	105	32.0	42.7	10.7
	2015	341,278	105	35.7	42.7	7.0
	2020	376,039	105	39.3	42.7	3.4
	2025	410,800	105	42.9	48.0	5.1
Total County	1989	221,236	157	34.8	32.9	-1.9
	1990	229,182	142	32.6	32.9	0.3
	1995	271,380	115	31.3	43.6	12.3
	2000	338,951	117	39.7	48.0	8.3
	2005	453,827	104	47.1	57.4	10.3
	2010	501,073	105	52.4	66.6	14.2
	2015	548,318	105	57.3	66.6	9.3
	2020	595,550	105	62.3	71.7	9.4
	2025	642,782	105	67.2	77.0	9.8

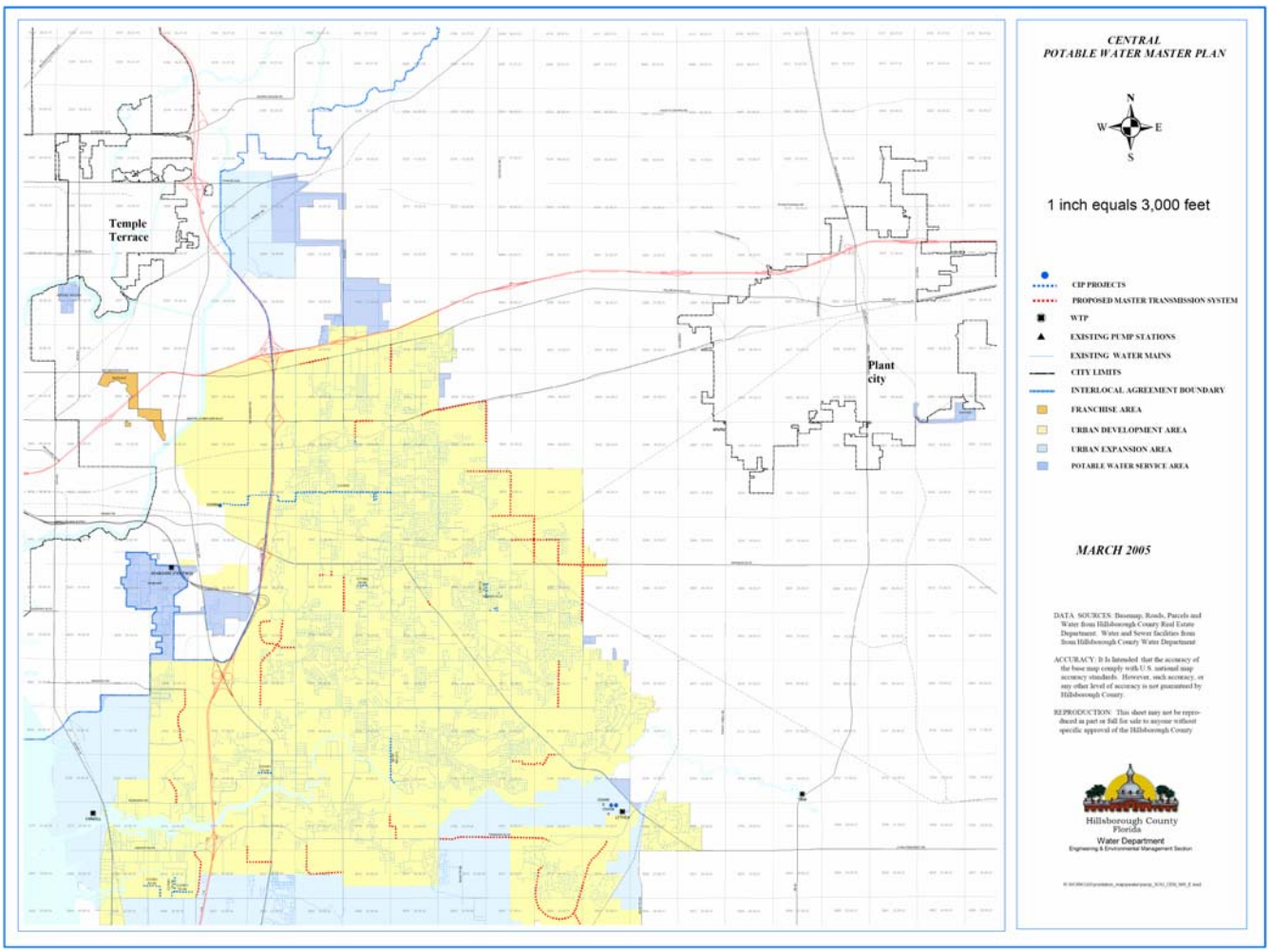
NOTES:
1. Served population represents annual average permanent population served by the Hillsborough County potable water system.
2. Gross per capita is used to calculate total demand and is higher than adjusted gross per capita.
3. Delivery system capacities prior to year 2000 are based on regional supply capacity limitations. After formation of Tampa Bay Water Governance, capacity

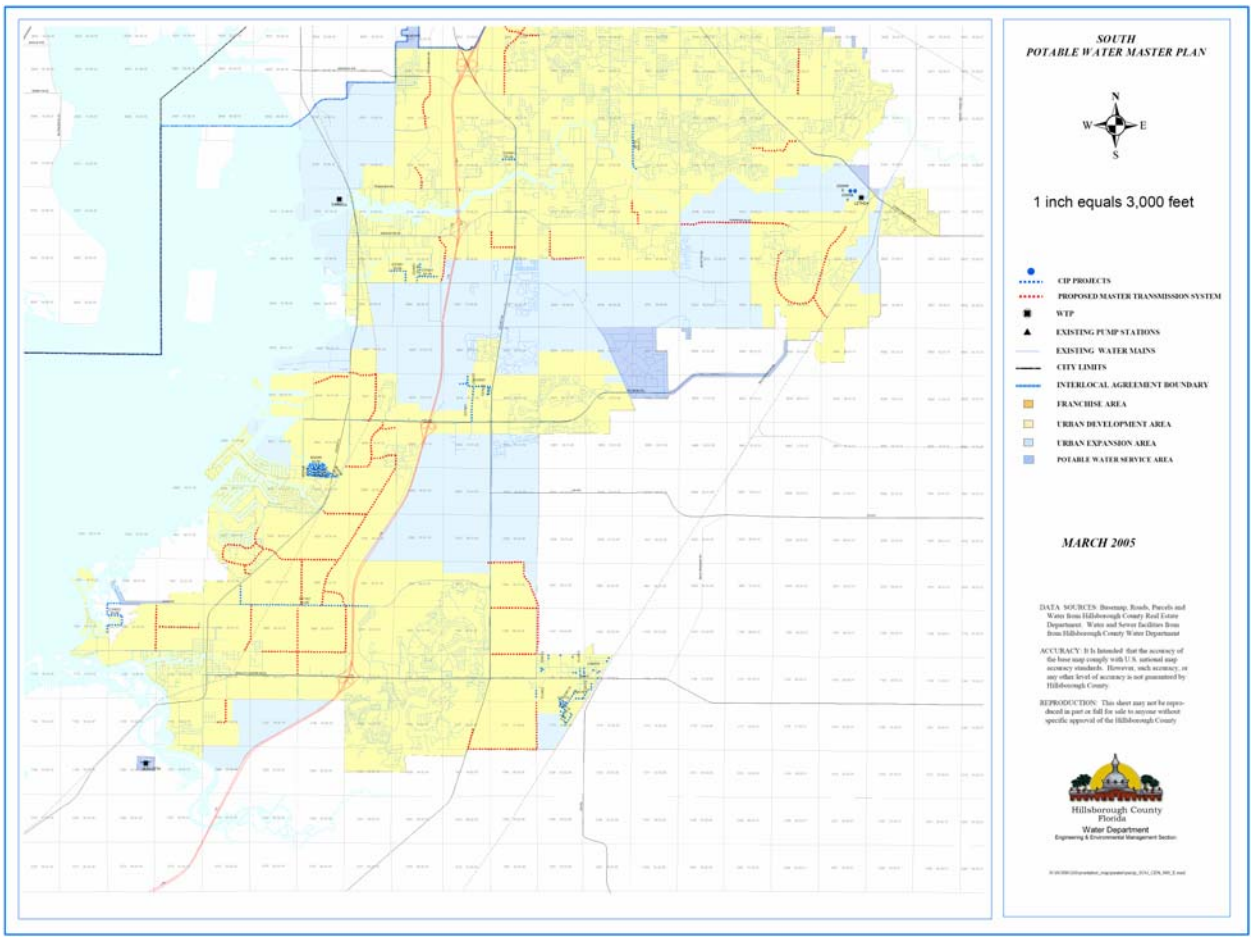
is based on treatment, storage and firm pumping capacity in the distribution system.
SOURCE: Hillsborough County Water Resource Services, Engineering and Environmental Management Section, Planning Team, January 2006.

In the Northwest, demand is projected to increase from 19.1 mgd in 2005 to 20.4 mgd by 2010 and 24.3 mgd by 2025 (see Table 2). Potable water demand in the South-Central Service Area is projected to increase from the 28.0 mgd produced in 2005 to 32.0 mgd by 2010 and 42.9 mgd by 2025. Based on the Regional Water Supply Contract, Tampa Bay Water must provide water supply to meet the County's needs. Tampa Bay Water has added 85 mgd of alternative water supply in response to regulatory actions regarding permits to wellfields in the northwest area and rulemaking for the so-called minimum flows and levels. Groundwater withdrawals from existing wellfields have been reduced to alleviate the environmental stress to lakes and wetlands. Tampa Bay Water and SWFWMD negotiated a Partnership Plan as a part of the recovery plan in which SWFWMD is providing significant funding (up to $183M) for alternative supply sources and regional transmission facilities. As a result of the change in TBW governance, funding of new projects is decided by simple majority versus the unanimous vote of board membership as previously required, and, consequently, implementation of the Master Water Plan has been facilitated. Potable water system capacity is limited by the permitted capacity of the storage, treatment and pumping facilities. Both service areas will have sufficient supply through 2025.

The County has developed strong, integrated potable water systems in the Northwest and South-Central Service Areas. Additional storage, treatment, pumping and transmission capacity to meet future growth needs will be developed in the Capital Improvement Program as required. The County will continue to participate in the development of water resource management practices and new water supplies through the technical advisory committees for the Tampa Bay Water/SWFWMD Resource Development Plan. The County will also continue to enhance its Water Conservation and Reclaimed Water Programs to assist in alleviating the stress on the environment of the region.


NORTHWEST
POTABLE WATER MASTER PLAN
N
W
E
S
1 inch equals 2,300 feet
CIP PROJECTS
PROPOSED MASTER TRANSMISSION SYSTEM
WTP
EXISTING PUMP STATIONS
EXISTING WATER MAINS
CITY LIMITS
INTERLOCAL AGREEMENT BOUNDARY
FRANCHISE AREA
URBAN DEVELOPMENT AREA
URBAN EXPANSION AREA
POTABLE WATER SERVICE AREA
MARCH 2005
DATA SOURCES: Basemap, Roads, Parcels and Water from Hillsborough County Real Estate Department. Water and Sewer facilities from from Hillsborough County Water Department
ACCURACY: It Is Intended that the accuracy of the base map comply with U.S. national map accuracy standards. However, such accuracy, or any other level of accuracy is not guaranteed by Hillsborough County.
REPRODUCTION: This sheet may not be reproduced in part or full for sale to anyone without specific approval of the Hillsborough County
City
of
Tampa
Hillsborough County
Florida
Water Department
Engineering & Environmental Management Section


CENTRAL
POTABLE WATER MASTER PLAN
N
W
E
S
1 inch equals 3,000 feet
Temple Terrace
Plant city
CIP PROJECTS
PROPOSED MASTER TRANSMISSION SYSTEM
WTP
EXISTING PUMP STATIONS
EXISTING WATER MAINS
CITY LIMITS
INTERLOCAL AGREEMENT BOUNDARY
FRANCHISE AREA
URBAN DEVELOPMENT AREA
URBAN EXPANSION AREA
POTABLE WATER SERVICE AREA
MARCH 2005
DATA SOURCES: Basemap, Roads, Parcels and Water from Hillsborough County Real Estate Department. Water and Sewer facilities from from Hillsborough County Water Department
ACCURACY: It Is Intended that the accuracy of the base map comply with U.S. national map accuracy standards. However, such accuracy, or any other level of accuracy is not guaranteed by Hillsborough County.
REPRODUCTION: This sheet may not be reproduced in part or full for sale to anyone without specific approval of the Hillsborough County
Hillsborough County
Florida
Water Department
Engineering & Environmental Management Section


SOUTH
POTABLE WATER MASTER PLAN
N
W
E
S
1 inch equals 3,000 feet
CIP PROJECTS
PROPOSED MASTER TRANSMISSION SYSTEM
WTP
EXISTING PUMP STATIONS
EXISTING WATER MAINS
CITY LIMITS
INTERLOCAL AGREEMENT BOUNDARY
FRANCHISE AREA
URBAN DEVELOPMENT AREA
URBAN EXPANSION AREA
POTABLE WATER SERVICE AREA
MARCH 2005
DATA SOURCES: Basemap, Roads, Parcels and Water from Hillsborough County Real Estate Department. Water and Sewer facilities from from Hillsborough County Water Department
ACCURACY: It Is Intended that the accuracy of the base map comply with U.S. national map accuracy standards. However, such accuracy, or any other level of accuracy is not guaranteed by Hillsborough County.
REPRODUCTION: This sheet may not be reproduced in part or full for sale to anyone without specific approval of the Hillsborough County
Hillsborough County
Florida
Water Department
Engineering & Environmental Management Section

IV. GOALS, OBJECTIVES AND POLICIES

The Goals, Objectives and Policies for the Potable Water Element were developed through the Background Report analysis, following a review of state statutes and plans, Southwest Florida Water Management District (SWFWMD) Needs and Sources Plan, the Tampa Bay Water Resource Development Plan, the Regional Planning Council's policies, Water Supply Facilities Plan, and Hillsborough County Potable Water Long-Range Master Plan. This was done so that the Goals, Objectives and Policies would be consistent with the various agencies' goals, plans and guidelines. Further refinement was made as a result of input from the Hillsborough County Citizen's Advisory Committee, Hillsborough County Planning Commissioners, the potable water systems consultant and professional planning staffs of the County and the Planning Commission.

All Goals, Objectives and Policies of this chapter shall be the responsibility of the County to carry out unless specifically stated otherwise.

GOAL: Assure the availability of an adequate supply of potable water to meet total demand in unincorporated Hillsborough County Service Areas.

ISSUE: In the mid-1980s, the rapid growth in Hillsborough County had outstripped the County's ability to provide water service to all new development within its urbanized service area. This led to the proliferation of individual well systems and the resultant lack of overall control and flexibility in dealing with localized problems. The County completed a major capital improvements program to provide water facilities capable of serving existing and future demands. In order to avoid the same problems in the future, the procedures used to assess and provide for the needs of the community have been strengthened.

OBJECTIVE 1: Maintain a water supply facilities planning program necessary to correct current deficiencies and meet projected potable water demands by maintaining and implementing the 10 Year Water Supply Facilities Work Plan.

Policy 1.1:
Program for water facilities capable of providing adopted level of service (LOS) a minimum of five years in advance of system requirements through the yearly evaluation of disaggregated Hillsborough County City-County Planning Commission population projections as a part of the Water Resource Services Potable Water Master Plan.

Policy 1.2:
Continue the yearly evaluation of the potable water system using the County's computerized hydraulic model. Utilize the model to monitor the projected water demand of current users and new development proposals in relation to the County water supply from Tampa Bay Water. Assure that the impact of additional development does not exceed the water supply that Tampa Bay Water can deliver.

Policy 1.3:
Hillsborough County recognizes that water is a regional resource requiring the formulation and implementation of regional water resource management strategies and the proper role of County government is primarily the planning and implementation of water supply distribution facilities and the conservation and reuse of water resources. (Chapter 373.0831 F.S.)

Policy 1.4:
Continue to implement a preventative maintenance program through asset management.

Policy 1.5:
Evaluate the Capital Improvement Program on a yearly basis as a part of the annual update of the Potable Water Master Plan, secure funding, and construct the identified projects taking into account the Water Supply Facilities Work Plan, Tampa Bay Water's supply and infrastructure improvement plans, and the Southwest Florida Water Management District's Regional Water Supply Plan.

Policy 1.6:
Priorities for project implementation shall be as established in Policy 1.E of the Capital Improvements Element.

Policy 1.7:
The LOS to be maintained by all facilities shall be as stated in the Capital Improvements Element.

ISSUE: The County has removed the dispersed well system from service, however, a number of locations within the urbanized area of Hillsborough County depend completely on isolated wells for their water supply. Should those wells become contaminated or experience a major failure, the individuals and businesses served by that well would be severely impacted.

Tampa Bay Water is in the process of regionalizing the water system for their area of responsibility. A major component of this effort is the expansion of the regional supply system by Tampa Bay Water that includes a "loop" of

redundant transmission facilities to ensure delivery of supply under emergency conditions and allow the rotation of wellfield withdrawals. This will add flexibility to the system and allow for the movement of water from the best source to the most need in spite of adverse local conditions. The County is required under the Interlocal Agreement to offer to TBW for purchase production facilities that it acquires. As part of this effort and to insure good control of supply and protection of the environment, raw water sources should be consolidated and managed by Tampa Bay Water.

OBJECTIVE 2: Existing and currently programmed facilities will be utilized before service area extension is undertaken.

Policy 2.1:
The timing and staging of utilities is addressed by the Urban Service Area policies in the Future Land Use Element.

OBJECTIVE 3: Complete the regionalization of water supply.

Policy 3.1:
Monitor the water supply deliverability from Tampa Bay Water. Support appropriate initiatives for a regional expansion of water supply that are consistent with the Hillsborough County Comprehensive Plan, the Comprehensive Conservation and Management Plan (CCMP) for Tampa Bay and sound resource conservation and environmental protection policies that provide adequate and dependable quantities of water without resulting in adverse environmental effects, pursuant to Chapter 373.1963 F.S..

Policy 3.2:
Where operationally and technically feasible, remove isolated County operated wells from the raw water supply and connect those served by the wells to the County potable water system.

Policy 3.3:
Construct County capital improvements which will provide adequate intra-system pumping, storage and transmission of potable water, through the five-year capital improvements program.

Policy 3.4:
Where operationally and financially sound, convert as many individual wells and individual private water systems as practical to the County potable water system to improve reliability.

Policy 3.5:
Support the joint planning efforts of Tampa Bay Water and the Southwest Florida Water Management District on their Water Supply Plans and implement pertinent recommendations of the Plan within one year of its adoption.

Policy 3.6:
Any area in the unincorporated County which by interlocal agreement is part of the area for which a city has the responsibility for providing water service, but, in which the city does not provide that service to retail customers, shall be periodically reviewed by County staff for recommendation to the BOCC regarding the most cost-effective and efficient provision of water service.

ISSUE: Although new alternative water supply sources have been developed and continue to be planned, the majority of water used within the County comes from the Floridan Aquifer. As the population of the County and the state has grown, the demand for that water has continuously increased and in some areas has reached a level where replenishment of the supply can not keep pace with demand. In southern coastal Hillsborough County, the potentiometric surface of the water in the aquifer has been historically drawn down to the point where infiltration of undesirable substances (i.e. saltwater intrusion) into the Floridian Aquifer is occurring. In parts of northwest Hillsborough County adverse environmental impacts have occur. The Southwest Florida Water Management District has identified these affected area as the Northern Tampa Bay Water Use Caution Area and the Southern Water Use Caution Are, respectively, and promulgated specific rules to address actions necessary for long term recovery of the water resources. *(Cross-reference the Conservation and Aquifer Recharge Element GOPs, Policies 6.8, 6.2, 6.3, 6.7, 6.9, 6.11 and Coastal Management Element as required).*

Efforts to ensure that high quality water is neither wasted nor used for purposes that do not need that quality of water must be continued. Alternative sources of intermediate quality water must investigated and used where appropriate. At the same time the County must ensure that its citizens are aware of the need to conserve our water resources.

OBJECTIVE 4: Maintain the "adjusted gross" per capita demand as defined by the SWFWMD below 110 gallons per capita per day (gpcd), and continue to implement the County water conservation program to further reduce per capita demand.

Policy 4.1:
Continue to implement the Reclaimed Water Reuse Program for unincorporated Hillsborough County in an effort to maximize the conservation of potable water.

Policy 4.2:
Continue to enforce and improve building codes that ensure the efficient use of potable water, including funding of low-volume plumbing fixtures for retrofitting of inefficient equipment installed under older building codes.

Policy 4.3:
Provide public education programs encouraging the conservation of potable water and the reuse of reclaimed water, and continue to evaluate the effectiveness and efficiency of proposed conservation projects for inclusion in the County's overall program.

Policy 4.4:
Continue to implement and evaluate the effectiveness of the water conservation inclined user fee rates which are designed to encourage conservation of and discourage non-essential uses of potable water.

Policy 4.5:
Explore the increased use of stormwater or other appropriate water source to protect and expand the potable water supply whether by pursuing increased retention within wellfield protection areas or by Aquifer Storage and Recovery or aquifer recharge.

ISSUE: The adopted LOS for potable water includes hydraulic performance and water quality standards that address public health and safety. The potable water system must deliver the per capita LOS for existing and future development while maintaining a minimum distribution pressure of 20 pounds per square inch (psi) for all demand conditions, including fireflow protection and other system emergencies. These public safety considerations tend to result in higher capacity and redundancy in storage, treatment and distribution facilities. At the same time, public health concerns require that potable water systems meet the water quality standards of the United States Environmental Protection Agency Safe Drinking Water Act (SDWA). The SDWA establishes primary and secondary standards for maximum contaminant levels, monitoring and reporting. Recently, new, more stringent Rules have been promulgated, including the Lead and Copper Rule for corrosion control, the Disinfectants-Disinfection By-Products Rule, and the Information Collection Rule. The formation and levels of contaminants are generally increased by increased retention time within the distribution system. Retention time increases as system capacities and redundancy are increased to satisfy public safety requirements associated with emergencies and fireflow protection. Thus, potable water system design must consider the compromise between public health and safety.

OBJECTIVE 5: The potable water system will meet, or exceed, all water quality standards of the United States Environmental Protection Agency Safe Drinking Water Act while meeting public safety requirements.

Policy 5.1:
Develop and implement potable water quality management strategies that meet the regulatory standards of the United States Environmental Protection Agency Safe Drinking Water Act without compromising public safety LOS requirements. Of particular concern are corrosion control as identified in the Lead and Copper Rule, lower maximum contaminant levels per the Disinfectants- Disinfection By-Products Rule, and data collection and reporting as required by the Information Collection Rule.

Policy 5.2:
Continue to implement the Strategic Fire Protection Program in conjunction with the Hillsborough County Fire Marshall. This program assesses and prioritizes the need for fire hydrant retrofitting in the potable water system.

V. PLAN IMPLEMENTATION AND MONITORING

Implementing a plan means to carry the plan to action. Implementation occurs when the programs, activities, incentives and regulations stated in the goals, objectives, and policies are established and carried out. The goals, objectives, and policies in the Potable Water Element suggest a number of programs, and activities, and regulations to be developed for the purpose of addressing the potable water problems and needs for the users of the Hillsborough County Potable Water Systems.

The County is responsible for the implementation of the programs and activities listed in the goals, objectives, and policies. Further clarification of the responsible department or agency is provided in a majority of the goals, objectives, and policies. Where no specific responsibility is assigned, the Office of the County Administrator will ensure that the County is addressing implementation of the program or activity listed in the goals, objectives, or policy.

A monitoring and evaluation process is being developed in-house to be followed in the preparation of the required five-year evaluation and appraisal reports that will be consistent for all Elements of the Comprehensive Plan. The monitoring and evaluation procedure will address:

a. Citizen participation in the process;

b. Updating appropriate baseline data and measurable objectives to be accomplished in the first five-year period of the plan, and for the long-term period;

c. Accomplishments in the first five-year period, describing the degree to which the goals, objectives and policies have been successfully reached;

d. Obstacles or problems which resulted in under-achievement of goals, objectives or policies;

e. New or modified goals, objectives or policies needed to correct discovered problems; and

f. A means of ensuring continuous monitoring and evaluation of the Plan during the five-year period.

The resultant monitoring and evaluation process will serve as a reporting mechanism to keep the County apprised on a regular basis as to how the Plan is being implemented and updated.

V. PLAN IMPLEMENTATION AND MONITORING

Implementing a plan means to carry the plan to action. Implementation occurs when the programs, activities, incentives and regulations stated in the goals, objectives, and policies are established and carried out. The goals, objectives, and policies in the Potable Water Element suggest a number of programs, and activities, and regulations to be developed for the purpose of addressing the potable water problems and needs for the users of the Hillsborough County Potable Water Systems.

The County is responsible for the implementation of the programs and activities listed in the goals, objectives, and policies. Further clarification of the responsible department or agency is provided in a majority of the goals, objectives, and policies. Where no specific responsibility is assigned, the Office of the County Administrator will ensure that the County is addressing implementation of the program or activity listed in the goals, objectives, or policy.

A monitoring and evaluation process is being developed in-house to be followed in the preparation of the required five-year evaluation and appraisal reports that will be consistent for all Elements of the Comprehensive Plan. The monitoring and evaluation procedure will address:

a. Citizen participation in the process;

b. Updating appropriate baseline data and measurable objectives to be accomplished in the first five-year period of the plan, and for the long-term period;

c. Accomplishments in the first five-year period, describing the degree to which the goals, objectives and policies have been successfully reached;

d. Obstacles or problems which resulted in under-achievement of goals, objectives or policies;

e. New or modified goals, objectives or policies needed to correct discovered problems; and

f. A means of ensuring continuous monitoring and evaluation of the Plan during the five-year period.

The resultant monitoring and evaluation process will serve as a reporting mechanism to keep the County apprised on a regular basis as to how the Plan is being implemented and updated.

VI. DEFINITIONS

COMMUNITY WATER SYSTEM - a public water system which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.

CONE OF INFLUENCE - an area around one or more major waterwells, the boundary of which is determined by the government agency having specific statutory authority to make such a determination based on groundwater travel or drawdown depth.

CONSERVATION USES - activities within land areas designated for the purpose of conserving or protecting natural resources or environmental quality and includes areas designated for such purposes as flood control, protection of quality or quantity of groundwater or surface water, floodplain management, fisheries management, or protection of vegetative communities or wildlife habitats.

GPCD - Gallons Per Capita Per Day.

MG - Million Gallons

MGD - Millions of Gallons Per Day

NON-COMMUNITY WATER SYSTEM - a public water system for provision to the public of piped water for human consumption, which serves at least 25 individuals at least 60 days out of the year, but which is not a community water system; except that a water system for a wilderness educational camp is a non-community water system.

NWHRWF - Northwest Hillsborough Regional Wellfield

POTABLE WATER - water satisfactory for drinking, culinary, and domestic purposes.

POTABLE WATER FACILITIES - a system of structures designed to collect, treat, or distribute potable water, and includes water wells, treatment plants, reservoirs, and distribution mains.

PSI - Pounds per Square Inch, a measure of pressure

SCHRWF - South Central Hillsborough Regional Wellfield.

TAMPA BAY WATER - The six member government regional water authority created in 1998 to replace the West Coast Regional Water Supply Authority. This is authorized under, and Tampa Bay Water is held responsible to, Chapter 373.1963 Florida Statutes.

WATER RECHARGE AREAS - land or water areas through which groundwater is replenished.

WATER WELLS - wells excavated, drilled, dug, or driven for the supply of industrial, agricultural or potable water for general public consumption.

WATER USE PERMIT (WUP) - A water use permit must be obtained from the Governing Board of the Southwest Florida Water Management District before withdrawal of water shall be commenced for quantities set forth in Rule 40D-2.031.