UTILITIES ELEMENT

CITY OF TARPON SPRINGS

Prepared by:
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I. PURPOSE AND FORMAT

"The purpose of the Sanitary Sewer, Solid Waste, Stormwater Management, Potable Water and Natural Ground Water Aquifer Recharge Element (hereinafter referred to as the Utilities Element) is to provide for the necessary public facilities and services correlated to future land use projections." Rule 9J-5.011, Florida Administrative Code (F.A.C.)

II. INTRODUCTION

The Utilities Element is mandated through Chapter 163, Part II, Florida Statutes (F.S.), "*Growth Policy; County and Municipal Planning; Land Development Regulation"* and Rule 9J-5, Florida Administrative Code (F.A.C.), *"Minimum Criteria for Review of Local Government Comprehensive Plans and Plan Amendments, Evaluation and Appraisal Reports, Land Development Regulations and Determinations of Compliance".* This element is based upon data from the City of Tarpon Springs Public Services Department, Engineering Division, Planning & Zoning Division and studies performed for the City by various consultants.

The Utilities Element assesses the current status and performance of the City of Tarpon Springs infrastructure systems. The analysis includes a description of the current conditions, level of service and projected demand on these services and facilities based upon the City population projections and Planning Area population projections that are presented in Table 1.

Table 1 - Permanent Population

Projection Method & Area	2005	2010	2015	2020	2025
City Population[1]	24465	26108	27361	28306	29012
City Population[2]	23660	25876	28107	30359	32603
Greater Tarpon Springs Planning Area[3]	28131	30033	31487	32582	33401

1. Municipal Population Projections, Pinellas County Planning Department
2. Municipal Population, Florida Housing Data Clearinghouse, Shimberg Housing Needs Assessment
3. Annexation Planning Area (Greater Tarpon Springs Planning Area) Population Projections, Pinellas County Planning Department

III. DATA AND ANALYSIS

A. Sanitary Sewer

1. Existing Conditions

The City of Tarpon Springs original sewer system was constructed in 1914. The system served downtown, the Sponge Docks, and associated residential areas east of Spring Bayou, Whitcomb Bayou and Tarpon Bayou. There was no treatment of effluent, but rather direct discharge into the Anclote River and bayous. A more extensive sewage treatment plant and collection system was constructed in 1950 and was upgraded to a "secondary" treatment level utilizing the "contact stabilization" process in 1975. This upgraded sewage treatment plant was designed for a capacity of 1.0 million gallon per day (MGD) and was subsequently modified to achieve a capacity of 1.25 MGD. Over the next several years the treatment process was changed from "contact stabilization" to "complete mix-activated sludge" which increased the capacity to 2.5 MGD. In 1984, the City began construction of

a 4.0 MGD Type I Advanced Wastewater Treatment Facility. The facility began operation in 1986 and used the Bardenpho Biological Nutrient Removal (BNR) process. Bardenpho BNR treatment is a five-stage complete mix sludge process designed to provide efficient and economical removal of biochemical oxygen demand (BOD), nitrogen, phosphorus and total suspended solids (TSS) by alternating stages of anoxic and aerobic conditions. Currently, the wastewater treatment facility is operating above advanced wastewater treatment (AWT) standards and in 2004 won a State of Florida Department of Environmental Protection (DEP) award for Excellence in Operations and Maintenance, and a State of Florida DEP award for Excellence in its Industrial Pretreatment Program. A comparison of the AWT standards with the City's effluent quality is shown in Table 2.

Table 2 - 2006 Wastewater Treatment Standards

AWT Standards	Tarpon Springs Effluent
Maximum BOD < or = 5.0 PPM*	BOD = 2.0 PPM*
Maximum Nitrogen < or = 3.0 PPM*	Nitrogen = 1.7 PPM*
Maximum Phosphorus < or = 1.0 PPM*	Phosphorus = 0.2 PPM*
Maximum TSS < or = 5.0 PPM*	TSS = 1.0 PPM*

PPM = Parts Per Million
*** Figures are on an annual average basis**
Source: City of Tarpon Springs Public Services Department

The current average daily flow of the wastewater treatment facility is 1.88 MGD or 47% of capacity (3 month rolling average from May 2007 - July 2007). Map 1 identifies the location of the wastewater treatment facility and the fifty-nine (59) lift stations within the wastewater service area. The service area includes lands within the Tarpon Springs municipal boundaries as well as portions of unincorporated Pinellas County (See Map 2). The unincorporated service area generates a sewage demand of approximately 190,524 gpd or 10.1% of total flow. The land uses served are a combination of residential, commercial and industrial.

The City continues to expand its effluent reuse/disposal system with the goal of maximizing its discharge to reuse. Approximately 0.70 MGD of effluent is discharged through an outfall into the Anclote River and 1.18 MGD is treated and reused through the reclaimed water system. Sludge from the wastewater treatment facility is currently dewatered on-site, treated to meet off-site regulations and land applied through a contract with Appalachian Material Services. The City of Tarpon Springs reclaimed water system (See Map 3) is designed to distribute highly treated effluent as an irrigation source for landscaping, lawns, parks, greenways and the municipal golf course. The reclaimed water system consists of a 2.0 MG above ground storage tank and pumping station with a distribution system and a remote control telemetry system that monitors and regulates flow at the 825,000 gallon municipal golf course storage pond. In addition, the City is currently in the design approval phase of a project to construct a second 2.0 MG reuse storage tank. The City's reclaimed water customer base is a mix of residential and commercial customers.

Seasonal variations in reclaimed water supply are a normal part of reclaimed water system operations. Seasonal changes in weather control the amount of surplus reclaimed water available for residential use. During the rainier months, more surplus reclaimed water is available as customers do not need as much supplemental irrigation. In contrast, during the drier months of the year the demand for reclaimed water for irrigation is at its highest and the available surplus is low. As a result, customers can expect the possibility of periods of

low reclaimed water supply during extended periods of drought. During these periods, the City manages system demands to ensure that customers have access to available reclaimed water and that supply is restored as soon as possible.

2. Environmental Impacts

Although City regulations require that all new development connect to the sewer system if available; there are several primary areas where sewer system service is not available and the site must utilize a septic tank and drainfield (See Map 1). In addition to these primary areas, there are smaller isolated pockets of homes that are on septic and are not identified on Map 1. The City estimates that there are approximately 1,267 households within the sewer service area that utilize septic systems. The unsewered areas include; the Lake Tarpon Area, the Sea Breeze Drive Area, the South Florida Avenue Area, the Gulf Road/Whitcomb Boulevard Area, the Bayshore Drive Area, the Lake Tarpon - Tookes Area, the North Walton Avenue Area and the Klosterman Road Area. In the year 2000, the City retained Parsons Engineering Science, Inc. to prepare a feasibility analysis of extending centralized sewer service into the unsewered areas. The goal of the report was to provide conceptual engineering and recommendations for a Capital Improvements Program (CIP) to extend centralized sewer to alleviate potential health and environmental concerns in the unsewered areas. A number of evaluation methods were used by the consultant to establish the priority rankings for each area including soil conditions, surface water impacts (proximity to water bodies), density of septic tanks, presence of wells and age of septic tanks. The "*Feasibility Study for Extended Sewer Service within the Service Area of Tarpon Springs"* prioritized the eight unsewered areas as follows:

Table 4 - Unsewered Priority Areas

Priority	Area
High	Lake Tarpon
	Sea Breeze Drive
	South Florida Avenue
Medium	Gulf/Whitcomb
	Bayshore Drive
	Lake Tarpon - Tookes
	North Walton Avenue
Low	Klosterman Road

Source: Feasibility Study for Extended Sewer Service within the Service Area of Tarpon Springs - Parsons Engineering Science, Inc. (2000)

Chapter 64E-6, FAC, *"Standards for Onsite Sewage Treatment and Disposal Systems"* classifies soils suitability as either "slightly limited soils materials", "moderately limited soils materials" and "severely limited soils materials". Coarse sand not associated with an estimated wet season high water table within 48 inches below the absorption surface, sand fine sand, loamy coarse sand, coarse sandy loam, loamy sand and sandy loam are considered "slightly limited soils materials". Very fine sand, loamy find sand, loamy very fine sand, silt loam, silt, loam, fine sandy loam, very fine sandy loam, sandy clay loam, clay loam, silty clay loam, sandy clay and silty clay soil are considered to be "moderately limited soils materials". Clay, bedrock, oolitic limestone, fractured rock, hardpan, organic soil, gravel and coarse sand, when coarse sand is associated with an

estimated wet season high water table within 48 inches of the absorption surface are considered "severely limited soil materials". As shown on Map 4, the majority of the soil within the planning area is fine sand or loamy fine sand and is considered "slightly limited soils materials" for onsite septic systems.

In the year 2002, the City began an effort to expand the sewer system in the Lake Tarpon area. In an effort to manage the sewer expansion more efficiently, it was decided that the most cost effective strategy was to break the project into three phases. The Lake Tarpon sewer project was divided into Phases 1A, 1B and 1C. Phase 1A was funded with a $400,000 grant from the Florida Department of Environmental Protection (FDEP) and $112,275 in City funding for a total cost of $512,275. Phase 1A was completed in the fall of 2003 and included the construction of a master lift station and force main, which was upsized to handle the anticipated expansion of the sewer system in this area. The completion of Phase 1A enabled 60 households to abandon their septic systems and connect to the new sewer system. Phase 1B is in the preliminary design phase and should provide sewer service for approximately 140 households with gravity sewer lines using the master lift station constructed during Phase 1A. Phase 1B is being funded by a combination of grant funds from the Environmental Protection Agency (EPA) and City funds for a total construction cost of approximately $900,000. Design documents are presently being prepared by a consultant in order to meet federal guidelines for the dispensation of funds for the construction of new sewer systems. Once final plans and specifications are prepared, and EPA approval obtained, the project will be put out to bid. After contractor selection, construction should begin shortly thereafter. Phase 1C may also be partially funded by the EPA once the scope for the project is defined.

In the past two years, the City has worked with the Leisure Lakes Mobile Home Park, the Linger Longer R.V. Mobile Home Park and the Tarpon Springs Work Release Facility to abandon their small package plants and connect to the City sewer system. The three (3) remaining small package plants in use within the City's service area are as follows:

Table 5 - Package Wastewater Treatment Plants

Location	Capacity
Tarpon Glen Mobile Home Park	0.025 MGD
Tarponaire Mobile Home Park	0.0125 MGD
Holiday Inn Express	0.02 MGD
Total	0.0575 MGD

Source: Florida Department of Environmental Protection (FDEP)

The combined capacity of the package wastewater treatment plants is 0.0575 MGD. At this time, there are no plans to bring these package plants online with the City's sewer system, although it is recommended that these package plants be phased into the City's system over the planning period.

The Tarpon Springs wastewater treatment facility is currently operating at an average of 1.88 MGD or 47% of its 4.0 MGD capacity. The population served by the facility is estimated at 25,975 persons, based on 7,068 active sewer accounts (service area population is based on the number of active sewer accounts plus an assumed 5% seasonal/transitional, and 3.5 persons per connection, a FDEP standard). This results in a current level of service of 72 gallons per capita per day (gpcd). The FDEP and Pinellas County have historically estimated per capita wastewater generation in the region to be

100 gpcd. Pinellas County's adopted level of service standard for the North Pinellas County Facility service area is 70 gpcd. Thus, Tarpon Springs' per capita wastewater generation is lower than the regional average and only slightly higher than the standard for the North Pinellas County Facility.

3. Projected Needs

The current excess capacity at the City's wastewater treatment facility is based on the current level of use. This results in an excess capacity of 2.12 MGD. This would be adequate to serve an additional 25,853 persons at the 82 gpcd. The population of the service/planning area is projected to reach 31,487 persons by the year 2015. This would result in 2.58 MGD (64% of 4.0 MGD) of wastewater at the current level of service of 82 gpcd. The population of the service/planning area is projected to reach 32,582 persons by the year 2020. This would result in 2.67 MGD (66% of 4.0 MGD). The population of the service/planning area is projected to reach 33,401 persons by the year 2025. This would result in 2.73 MGD (68% of 4.0 MGD). This analysis most likely overestimates wastewater generation by assuming that development will continue at the same rate of growth to the year 2025. Actual growth and development will probably occur at a slower rate and actual wastewater generated in the future may well be lower. Thus, the capacity analysis presented here must be updated periodically for accuracy.

To continue the effort to maintain an efficient and functional system, the City must continue to periodically inspect the condition of all sewer lines. Special attention should be given to the clay lines that have exceeded their design life and an aggressive replacement program should be created to replace for those lines that are in danger of failing.

The City will have adequate capacity through the year 2025 however; this analysis is based upon two very important assumptions. One, that the current level of service (82 gpcd) will remain the same, and two, that the City will adopt a more aggressive hookup and sewer expansion effort to connect a majority of the existing population by the year 2025. It will be a daunting challenge to extend the City sewer system to the unsewered areas over the planning period. While developer funded sewer improvements and extensions may account for some of the sewer service expansion, the City must place a high priority on securing the necessary funding to systematically expand the system. The financial resources can be secured through grants, local impact fees, special taxing districts, etc. Special consideration should be taken to ensure that local recurring revenue streams are programmed into a capital improvements plan to expand the sewer system in a practical and efficient manner.

4. Regulations

The City has adopted comprehensive regulations for the provision of its sewer services. All structures are to connect to the sewer system if it is available to the site. If service is not available, the property owner must obtain a permit to construct a private septic system for use until sewer service is available to the site. Fats, oils and grease interceptors are required for uses that meet certain prerequisites. The discharge of storm water, surface water, groundwater, roof runoff, subsurface drainage, or unpolluted industrial process water into the sewer system is also prohibited. The City also has an Industrial Pre-Treatment Program in order to regulate the discharge of these objectionable wastes that exceed the established local limits.

B. Solid Waste

1. Existing Conditions

Solid waste disposal is regulated by the Florida Department of Environmental Protection (FDEP) and the Environmental Protection Agency (EPA). FDEP and EPA issue permits for the operation of resource recovery plants and FDEP permits landfill activities. FDEP regulates solid waste management facilities under Chapter 62-701, F.A.C. and in 1975, the Florida Legislature passed the Pinellas County Solid Waste Disposal and Resource Recovery Act which designated the Pinellas County Board of County Commissioners as the responsible party for solid waste disposal in Pinellas County. However, the 24 municipalities within Pinellas County are responsible for the collection of solid waste within their jurisdiction. The City of Tarpon Springs regulates solid waste collection under Chapter 8 of the Code of Ordinances.

Pinellas County has an ordinance that requires all refuse generated in the county to go through their solid waste management system unless the county has issued a permit for another means of disposal. The service area for the solid waste management system is the entire county. The 750 acre resource recovery plant site is located at 3001 114th Avenue North. The solid waste management system includes: the Refuse-to-Energy system, a sanitary landfill, a tire processing facility, an information library/resource center, used oil collection, enforcement of waste disposal regulations, waste reduction and recycling programs and the permanent Household Chemical Collection Center (HC3) and Swap Shop. The Swap Shop is a free-to-the-public assortment of still-usable household products, retrieved from items brought into the HC3 for free disposal.

There is also a 13-member Solid Waste Technical Management Committee, appointed by the Board of County Commissioners and municipalities, which evaluates problems associated with solid waste disposal, exchanges information, and makes recommendations to the Commission.

In 1988, the Florida Legislature passed the Solid Waste Management Act which mandated that by 1994 each county must reduce the solid waste it generates by 30%. To fulfill this goal, Pinellas County formed a RecyclaMat Partnership, bringing together County government, community organizations, schools, businesses, city governments, and citizens to reduce solid waste in the county. Pinellas County has exceeded its waste reduction goals every year since 1992. Successful, ongoing recycling programs include:

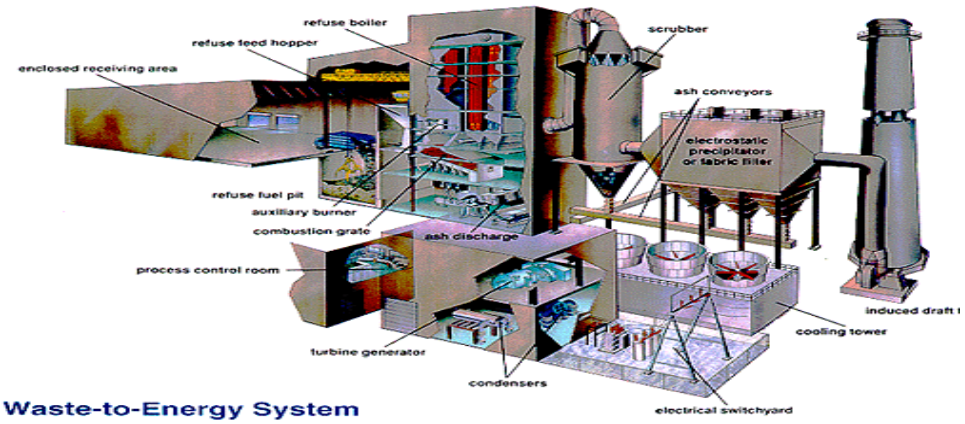
- Recycling drop-off centers throughout the county for newspaper, glass, aluminum, and plastic
- A yard waste recycling program which turns grass clippings, palm fronds, branches, and tree trimmings into a high quality mulch available to residents without charge at over 20 county locations
- An office paper recycling program for area governments, schools, and businesses
- Workshops for businesses and teachers (the 4R curriculum-Reduce, Reuse, Recycle & Recover)
- The Artificial Reef Program, using concrete and other clean construction debris, to create artificial reefs in the Gulf of Mexico
- Brochures, pamphlets, and displays on reducing consumption and buying recycled products

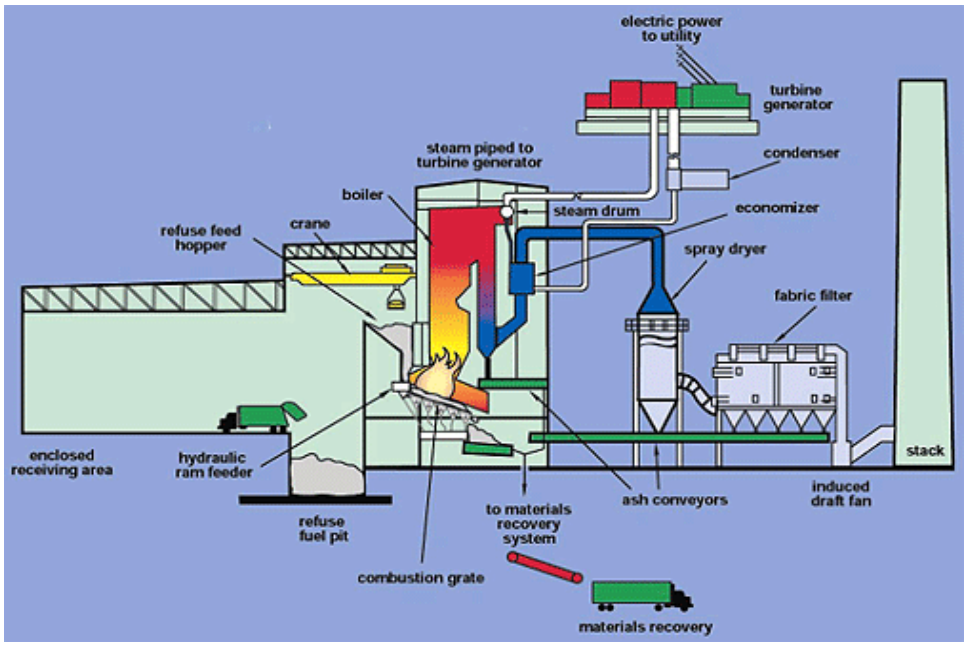
- A speakers bureau providing specialists on all aspects of solid waste management for presentations to citizen groups and organizations

Approximately 977,287 tons of solid waste is incinerated at the Waste-to-Energy (WTE) facility per year and the optimum efficiency for this facility is to operate at 100% of capacity 85% of the time. The current total demand is 1,214,082 tons per year with 884,022 tons disposed of through the solid waste disposal system and 330,060 tons disposed of at the landfill. Since the plant has additional capacity, other burnable refuse, including construction debris and yard trimmings, are also sent to the facility. Any burnable non-Class 1 refuse above capacity or nonburnable debris is disposed of in the landfill cover. The present WTE facility has minimal impacts on adjacent natural resources. A bentonite slurry wall connected to impervious clay strata creates a zero zone of discharge. The runoff collected by the clay wall is used for the facility's cooling system. There is no migration of groundwater from the site, vertically or horizontally. The county conducts an extensive surface and groundwater monitoring program on-site. The construction, design and monitoring of the facility complies with all EPA and FDEP regulations. Air quality around the site meets acceptable federal and state levels. Monitoring is conducted according to EPA - Prevention of Significant Deterioration permitting requirements. Downwind and downwash impacts are monitored continuously at two site locations for sulfur dioxide and Total Suspended Particulates (TSP).

The WTE Facility has the capacity to burn 3,150 tons of garbage per day. The process can produce up to 75 megawatts (MW) per hour of electricity. It sells about 62 MW to Progress Energy for distribution within the community, and the remainder powers the plant itself. This electricity powers approximately 45,000 homes and businesses every day (See Figure 1). The WTE plant uses state-of-the-art air pollution control technology, which continuously monitors WTE emissions, ensuring the plant's emissions fall within the United States Environmental Protection Agency's (EPA) standards. There is also a 70,000 square foot building next to the WTE that contains the Materials Recovery System (MRS) used to recover metals in the garbage. The MRS contractor separates combusted metals from the WTE plant ash, shreds the metals, and sorts them using mechanical equipment such as magnets and eddy currents. The recovered metals are sold to steel mills and smelters for recycling.

Figure 1 - Pinellas County Waste-To-Energy Plant





The City of Tarpon Springs previously operated a Class III municipal landfill located at the southern end of Levis Avenue (See Map 6). The landfill was limited to the disposal of trash, yard clippings and the spreading of sludge from the wastewater treatment facility. Due to escalating financial and environmental concerns, the landfill was closed in 1990 under FDEP closure permit #016-01-YT.

2. Projected Needs

Solid waste collection in the City of Tarpon Springs is provided by Waste Management of Pinellas County under a franchise agreement which will expire September 30, 2012. Waste Management disposes of the solid waste at the WTE and also provides curbside recycling services. In 2006, the City of Tarpon Springs generated 10,510 tons of solid waste. The City's solid waste generation is primarily from residential land uses, although commercial and industrial land uses also generate small amounts of solid waste. Assuming a generation rate of .37 tons per person per year, the permanent population would produce the yearly tonnage shown below:

Table 6 - Solid Waste Generation

Year	Number of Persons	Tons of Solid Waste
2005	28,131	10,510
2010	30,033	11,220
2015	31,487	11,650
2020	32,582	12,055
2025	33,401	12,358

Source: Waste Management of Pinellas County

The 2006 Pinellas County Concurrency Test Statement stated that the solid waste and resource recovery system is operating at an acceptable level of service. Pinellas County has an adopted level of service standard of 1.30 tons per person per year. The projected demand for 2007 is 1,217,478 tons per year (1,214,082 tons per year plus 3,396 tons - associated with the Service Area population growth). The projected level of

service demand for the solid waste and resource recovery system is 1.08 tons per person per year.

3. Regulations

FDEP and EPA regulate solid waste disposal. Both agencies issue permits for the operation of resource recovery facilities and FDEP issues permits for landfills. In 1975, the Florida Legislature passed the Pinellas County Solid Waste Disposal and Resource Recovery Act. This Act designated the Pinellas County Board of County Commissioners as the responsible party for solid waste disposal in Pinellas County. Municipalities, however, are responsible for the collection of solid waste within their jurisdictions.

In 2006, the City of Tarpon Springs entered into a 6-year agreement contract with Waste Management of Pinellas County to collect the following recyclable materials: newspaper, glass, aluminum and plastics. This collection service is provided to residential and commercial customers.

C. Stormwater Management

1. Existing Conditions

The City of Tarpon Springs is located in a topographical region known as coastal lowlands with elevations ranging from 0 - 55 feet NGVD. However, a vast majority of the City is located within the 10 - 20 feet NGVD range. There are several drainage features within the City of Tarpon Springs. The major drainage basins within the planning area are the Anclote River, the Lake Tarpon, the Klosterman Bayou Run, the Salt Lake and the Hollin Creek. Furthermore, the topography in the western most areas of the City creates conditions that produce direct stormwater runoff into the Gulf of Mexico (See Map 5).

In addition to the five drainage basins, there are several wetlands and smaller surface water bodies that receive stormwater runoff. Kreamer Bayou, Tarpon Bayou, Whitcomb Bayou and Spring Bayou are tributaries to the Anclote River and receive a preponderance of stormwater runoff from the older areas of the City that were constructed prior to stormwater retention regulations. The stormwater runs into the Anclote River which then drains to the Gulf of Mexico. Lake Tarpon is located along the City's eastern boundary and collects stormwater from this area of the City. The surface area of Lake Tarpon is approximately four square miles and is the largest freshwater lake in Pinellas County. Lake Tarpon was previously connected through the Floridan aquifer to Spring Bayou. In 1969, the Southwest Florida Water Management District (SWFWMD) constructed an earthen dike around the sink preventing any flow between the lake and the sink. Salt Lake is approximately 169 acres and receives stormwater from the northeastern part of the City and outfalls into the Anclote River through various canals.

Many areas in Tarpon Springs, especially newer developments, are served by on-site stormwater management systems. The majority of these drainage retention facilities are site specific and privately owned and maintained. For residential subdivisions, the City and SWFWMD require the formation of a homeowner's association to assure maintenance responsibility. City owned and maintained retention facilities are located as follows:

- Youngs Deluxe Subdivision (3 retention/detention ponds)
- Gulf Beach Park Subdivision (2 retention/detention pond)
- NW Corner of Lemon Street and Disston Avenue (1 detention pond)
- Oak Leaf Village Subdivision (5 retention/detention ponds)
- Live Oak Street (4 detention pond)
- Safford Avenue (1 detention pond)
- Walton Avenue (1 retention pond)
- Meres Boulevard (1 detention pond)
- NW corner of Grosse Avenue and Spruce Street (1 detention pond)
- Golden Gateway Homes Subdivision (2 retention ponds)
- Alt Hwy 19 and Curlew Place (1 retention pond)
- Tarpon Springs Community Center (1 retention pond)
- North Anclote Nature Park (1 retention pond)
- Tarpon Springs Public Library (1 retention pond)
- Safford Avenue Municipal Parking Lot (1 retention pond)
- Melon Street (1 retention pond)
- Tarpon Springs Public Safety Building (1 retention pond)

The privately owned and maintained stormwater management facilities are site specific, and serve predominantly residential with some commercial and industrial uses. Other areas discharge directly into surface water bodies. The areas served by underground storm sewers are older developed portions of the City and are primarily commercial in nature. Drainage from underground storm sewers, as well as surface water runoff, discharge into the Gulf of Mexico, the Anclote River and Lake Tarpon (See Map 5). The effect of direct discharge into surface water bodies leads to increased sedimentation and pollution from hydrocarbons, oils, street litter, yard refuse, pesticides, fertilizers and atmospheric pollutants accumulated in rainfall.

In 1990, the City of Tarpon Springs contracted with Dames & Moore to create a Master Drainage Plan. The objectives of the plan were as follows:

- To develop an inventory of the existing stormwater drainage facilities, the watershed drainage basins, and other related hydrologic parameters;
- To evaluate existing and proposed stormwater drainage systems and identify problem areas and deficiencies;
- To establish a desired level of service criteria for the various components of the stormwater drainage system;
- To develop and apply a stormwater management computer model capable of simulating storm runoff and pollutant loadings under existing land use conditions within the City of Tarpon Springs watershed areas;
- To evaluate alternative management plans to meet the service level desired based on major deficiencies identified through data collection and modeling;
- To generate a Master Drainage Plan with established improvement priorities and engineering and construction cost estimates;
- To develop a ten-year Capital Improvement Plan based on system requirements identified in the Master Drainage Plan;
- To identify and develop potential sources of funding for stormwater improvements, including Stormwater Utility; and
- To implement proposed recommended improvements, including detailed design, plans and specifications, and services during bidding and construction.

The Master Drainage Plan was divided into the following five phases:

- Phase IA - Stormwater Management Needs Assessment
- Phase IB - Preliminary Stormwater Utility Consultation
- Phase II - Detailed Modeling and Master Plan Document
- Phase III - Comprehensive Stormwater Utility Implementation
- Phase IV - Detailed Design and Implementation

Phase IA dealt primarily with developing an inventory of the existing stormwater drainage facilities, watershed drainage basins, and other related hydrologic parameters; as well as evaluating existing and proposed stormwater drainage systems and the identification of problem areas and deficiencies. Thirty-eight (38) flood prone areas were identified, evaluated and ranked based upon several factors such as severity of flooding, frequency of flooding, duration and location (See Table 7).

Table 7 - Flood Prone Area Prioritization

DESCRIPTION	SEVERITY	FREQUENCY	DURATION	LOCATION	SCORE	RANK
	Ranking Criteria					
Tarpon Avenue & Safford Avenue	5	4	4	5	18	**1**
Walton Avenue between Tarpon Avenue and Lemon Street	4	4	4	5	17	**2**
Disston Avenue & Center Street	5	4	4	4	17	**3**
U.S. Alternate 19 & Spruce Street	5	3	3	5	16	**4**
Tarpon Avenue 100' east of Grosse Avenue	3	4	4	5	16	**5**
Pine Street & Grosse Avenue	5	3	3	5	16	**6**
Pent Street 200' east of Grosse Avenue	5	4	3	4	16	**7**
Hibiscus Street & Park Street	5	4	4	3	16	**8**
Grosse Avenue between Pine Street & Orange Street	5	3	4	4	16	**9**
Cypress Street 200' east of Grosse Avenue	5	4	3	4	16	**10**
Pine Street between Grosse Avenue & Levis Avenue	4	3	3	5	15	**11**
Levis Avenue between Lime Street & Oakwood Street	3	4	4	4	15	**12**
U.S. Alternate 19 & Curlew Place	5	3	3	3	14	**13**
Pine Street & Safford Avenue	3	4	4	3	14	**14**
Palm Avenue between Tarpon Drive & Glades Avenue	5	3	3	3	14	**15**
Palm Avenue between Tarpon Drive & Gulf Road	5	3	3	3	14	**16**
Highland Avenue & Vista Place	5	3	3	3	14	**17**
U.S. Alternate 19 & Boyer Street	3	3	3	4	13	**18**
Lakeview Drive at Plaza Place	5	3	3	2	13	**19**
Jasmine Avenue & Lime Street	5	3	2	3	13	**20**
Coburn Drive 100' west of Florida Avenue	3	3	3	4	13	**21**
Peninsula Avenue & Oleander Drive	4	2	2	3	11	**22**
Intersection of Athens Street & Dodecanese Boulevard	5	2	2	2	11	**23**
Crossbow Lane between Carlton Road & Cavemill Way	3	2	3	3	11	**24**
Lots west of Florida Avenue and east of Wayfarer Drive	1	3	2	4	10	**25**
Island Drive near Hill Street	3	2	3	2	10	**26**

Disston Avenue between Spruce Street & Live Oak Street	2	3	2	3	10	**27**
Boston Street between Disston Avenue & Walton Avenue	1	3	3	3	10	**28**
Spruce Street between Levis Avenue & Grosse Avenue	1	3	2	3	9	**29**
Spruce Street between Disston Avenue & Walton Avenue	1	2	3	3	9	**30**
Pent Street between Disston Avenue & Walton Avenue	1	2	3	3	9	**31**
Northwest corner of U.S. 19 & Live Oak Street	2	2	3	2	9	**32**
Disston Avenue south of Harrison Street	2	3	2	2	9	**33**
Cypress Place Apartments on the east side of Huey Avenue	2	3	2	2	9	**34**
Cypress Street between Disston Avenue & Walton Avenue	2	3	2	2	9	**35**
Jasmine Avenue 100' south of Oakwood Street	3	2	2	1	8	**36**
Pinellas Trail approximately 200' south of Meres Boulevard	1	2	2	1	6	**37**
Gulfview Woods Subdivision between Green Leaf Way & Count Court	1	2	2	1	6	**38**

Source: Dames & Moore Master Drainage Study - Phase I (1992)

Phase IB focused on a preliminary investigation of funding sources for the capital and operations and maintenance of the system. The scope of Phase II dealt with stormwater modeling, level of service and design criteria, alternatives development and analysis, selection of a capital improvement program, a cost analysis and an operations and maintenance plan. Phase II included a more detailed, quantitative analysis of the flood prone areas within the City. These areas were then discussed with the Board of Commissioners who then prioritized the top twenty (20) flood problem areas based upon effectiveness, cost and permittability (See Table 8).

Table 8 - Top 20 Flood Problem Area Prioritization

City Priority	Description
1	U.S. Alternate 19 & Spruce Street
2	U.S. Alternate 19 & Curlew Place
3	Pine Street & Grosse Avenue
4	Tarpon Avenue 100' east of Grosse Avenue
5	Grosse Avenue between Pine Street & Orange Street
6	Cypress Street 200' east of Grosse Avenue
7	Pent Street 200' east of Grosse Avenue
8	Highland Avenue & Vista Place
9	Disston Avenue & Center Street
10	Walton Avenue between Tarpon Avenue & Lemon Street
11	Gulfview Wood Subdivision between Greenleaf Way & Count Court
12	Spruce Street between Disston Avenue & Walton Avenue
13	Boston Street between Disston Avenue & Walton Avenue
14	Pent Street between Disston Avenue & Walton Avenue

15	**Hibiscus Street & Park Street**
16	**Pine Street between Grosse Avenue & Levis Avenue**
17	**Levis Avenue between Lime Street & Oakwood Street**
18	**Palm Avenue between Tarpon Drive & Glades Avenue**
19	**Palm Avenue between Tarpon Drive & Gulf Road**
20	**Lime Street at Safford Avenue**

Source: Dames & Moore Master Drainage Study - Phase II (1993)

Phase II of the Master Drainage Plan also included a capital improvement program that addressed the top twenty (20) flood prone areas through ten (10) stormwater projects. At the time, the total cost to complete all ten stormwater projects was $4,282,194.00 (1993 dollars).

Phases III and IV were supposed to cover funding sources including a stormwater utility fee, detailed plans and specification and construction phase services. However, due to funding constraints, only Phases IA, IB and II were completed.

In 1999, the City established a Stormwater Enterprise Fund to support the cost of providing stormwater services on a continuing basis. However, the funds collected under this system only covered a small portion of the operation and maintenance costs and initial National Pollution Discharge Elimination System (NPDES) permit activities. Subsequently in 2002, the City contracted with Parsons Engineering Science, Inc. to perform a Stormwater Utility Impervious Rate Study with the purpose of creating a dependable revenue stream to meet the City's stormwater management responsibilities.

2. Projected Needs

Proper management of stormwater is essential in a city with the low elevation of Tarpon Springs. The primary causes of flooding are a combination of high water tables, the prevalence of low-lying areas, inadequate storm system capacities, damaged storm systems and high tailwater conditions (i.e. peak flood water stages caused by tidal and/or flood waters in the Anclote River and its tributaries which cause a backup in the drainage system). The City can continue to address the storm system deficiencies through its capital improvements program and ongoing maintenance activities. However, the topological characteristics of the City and the proximity to several bodies of water are two factors which limit stormwater conveyance, storage and treatment.

The City has completed some drainage projects but still has several planned for funding. The City must continue to follow its systematic strategy for the funding and construction of new drainage facilities as well as continue to maintain existing facilities.

The current priority list for stormwater projects is shown in Table 9.

Table 9 - Stormwater Priority Projects

Project Ranking	Project Name	Nature of Problem
1	Disston Avenue & Tarpon Avenue	Runoff from street flooding causes damage to private property
2	Bath Street	Infiltration into conveyance system
3	At the Levis Avenue Alleyway	Needs Outfall Connection
4	Cypress Street & Grosse Avenue	Needs Detention Pond

5	Disston Avenue & Center Street	Needs Detention Pond
6	Levis Avenue north of Pine Street	Needs Detention Pond
7	Walton Avenue & Lemon Street	Needs Detention Pond
8	Bayou Water Quality	Install Treatment Structures

Source: City of Tarpon Springs Engineering Division

The capital improvements element will discuss the strategy whose funding source will be the monies that have been collected through the Stormwater Utility. The City should also investigate the feasibility of designating certain areas as aquifer recharge zones for protection and take steps to purchase land to serve as detention ponds.

3. Regulations

The Southwest Water Management District (SWFWMD) permits new stormwater management systems as well as the modification of existing stormwater management systems. The review criteria specifies that post-development peak discharge rates for new development not exceed pre-development peak discharge rates for the 25-year, 24-hour event. In closed watersheds (i.e., those that do not have a surface outfall up to and including the 100-year, 24-hour event) post-development discharge volumes must not exceed pre-development discharge volumes for the 100-year, 24-hour event. In addition to regulating discharge, SWFWMD also restricts floodplain encroachment. SWFWMD regulations require compensating storage be provided for fill placed within the 100-year floodplain. Rules also stipulate that activities affecting floodplains and floodways will not cause adverse impacts (i.e., increase flooding).

Typically, the United States Army Corp of Engineers (USACOE) regulates dredge and fill within what is defined as navigable waterways. The USACOE has jurisdiction over certain wetlands and regulates the construction of dams and levees within the waters of the United States.

The Florida Department of Environmental Protection (FDEP) regulates dredging and placing fill in wetlands for some projects under its dredge and fill permitting authority. Although these rules do not specifically relate to water quantities, they do have an indirect influence on streamflow rates and flood levels, because restrictions are placed on dredging and filling in the floodplain. The permitting authority has been delegated to SWFWMD by FDEP for commercial, residential and burrows pit projects in accordance with an Operating Agreement with FDEP.

The 1994 revision of the Lake Tarpon Surface Water Improvement & Management (SWIM) Plan noted that there were still problems including recreational user conflicts, increases in biomass of certain noxious aquatic plants, possible groundwater loading of nitrates from as yet undetermined sources and pollutant loading from areas developed prior to implementation of stormwater treatment regulations.

The City of Tarpon Springs regulates drainage through Article IX of the Comprehensive Zoning and Land Development Code (LDC). The LDC requires all new development provide for on-site stormwater retention and treatment. The use of retention ponds, swales, vault systems, etc. are some of the mechanisms that achieve this purpose. An engineering analysis on the quantity, direction of flow and percolation rates for the 25-year frequency storm, 24-hour duration is required. Further, the LDC includes a stormwater retrofit requirement whereby development/redevelopment projects that meet

certain thresholds are required to upgrade the entire stormwater system to the current regulations.

D. Potable Water

1. Existing Conditions

Pinellas County is approximately 39 miles long and varies from 5.5 miles to 17 miles in width. It is bordered on the west by the Gulf of Mexico and on the east and south by Tampa Bay. These geographic features have limited the county's ability to adequately provide for its water needs without tapping resources outside its boundaries.

In 1961, the Florida Legislature created the Southwest Florida Water Management District (SWFWMD) to regulate flood control and other areas of water management. Under Chapter 373, Florida Statutes, the Water Management Districts in conjunction with the Florida Department of Environmental Protection (FDEP) and the Regional Water Supply Authorities were authorized to perform the following activities: 1) the development of the Florida Water Plan; 2) the establishment of a permitting system for consumptive uses of water; 3) regulation of wells; 4) management and storage of surface water; 5) the adoption of minimum flows and levels; and 6) funding and general administrative and operating procedures for the District.

The SWFWMD is divided into nine watershed basins. Basin board members are appointed by the Governor and confirmed by the Florida Senate. The basin boards have a number of responsibilities including; the identification of water-related problems, budgeting of funds to resolve water-related problems, and levy the necessary ad valorem taxes, up to one-half of a mil to support the budget. The basin board operating within Pinellas County is the Pinellas-Anclote River Basin Board.

In 1974, the West Coast Regional Water Supply Authority (WCRWSA) was created by interlocal agreement to serve the water needs of Hillsborough, Pasco and Pinellas counties and the municipalities of St. Petersburg and Tampa. The WCRWSA was the first authority to be created and realize the benefits of a cooperative approach to water supply management. The WCRWSA was responsible for developing, storing and supplying water for county or municipal purposes in such a manner as to give priority to reducing adverse environmental effects of excessive or improper withdrawals from concentrated areas.

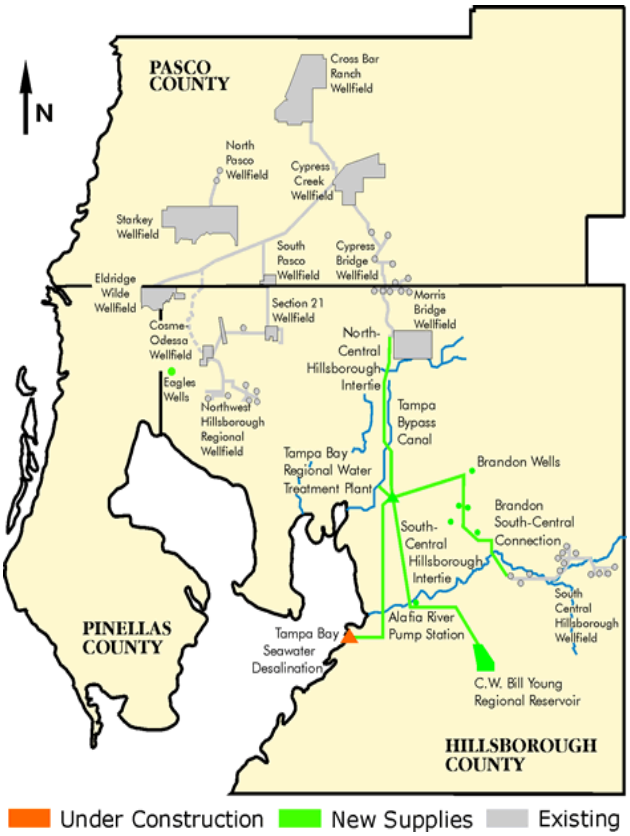
In response to environmental concerns over the impacts of groundwater pumping, and the need to ensure an adequate potable water supply for the future growth and development of the region, the WCRWSA was reorganized in 1998 as a regional water utility and became known as Tampa Bay Water. Tampa Bay Water is the water supplier for the region and is responsible for meeting the potable water supply needs of the member governments based upon their consumption rates.

The City of Tarpon Springs is a wholesale water customer of Tampa Bay Water through Pinellas County Utilities. Pinellas County provides approximately 80% of the City's water needs with the remainder generated from wells that are owned and operated by the City. The locations of the seven municipal wells are shown on Map 6. Well #1 is located on Grosse Avenue just north of Lemon Street. Well #2 is located on Tarpon Avenue just west of Camelia Avenue and Well #3 is located on Highland Avenue just north of

Wegman Drive. Wells #5A, #5B, #5C and #5D are located along the Disston Avenue corridor and vary in their ability to produce potable water. Wells #1, #2 and #3 have active Consumptive Use Permits (CUP) issued by the SWFWMD and expire in 2015. Wells #1, #2 and #3 produced an average of .73 million gallons per day (MGD) in 2006 and the total potable water distributed in that same year within the City's service area was 3.6 MGD. The municipal well production varies due to a number of factors including downtime for maintenance, saltwater intrusion during the dry months and the pressure level present in the county waterline. The well on Highland Avenue is more susceptible to dry weather conditions and on occasion production must be reduced and sometimes shutoff to maintain water quality. Mechanical problems can also occasionally cause the wells to shut down temporarily. Since the wells pump directly into the water system, the pressure supplied by Pinellas County Utilities also affects the amount of water pumped into the system by the wells. Well #5A is currently permitted as "irrigation" with a permitted capacity of 0.012 MGD. Wells #5B and #5D have water quality that meet all drinking water standards and are permitted through SWFWMD in a "standby" status with an average daily permitted withdrawal of 0.252 MGD. A water quality analysis on Well #5C indicated the presence of iron concentrations of 1.5mg/L, which is above the regulatory limit for iron. Wells #5A and #5C will be reviewed for potential improvements and additional treatment so that they may serve as additional sources in the future.

Pinellas County Utilities receives potable water from sources managed by the regional water supplier, Tampa Bay Water (TBW). The regional water supply is a blend composed of groundwater, treated surface water and desalinated seawater. Eleven different wellfields pumping water from the Floridan Aquifer are the primary sources for the regional groundwater supply. The Alafia River, Hillsborough River, C. W. Bill Young Regional Reservoir and the Tampa Bypass Canal are the primary sources for the regional treated surface water supply. Hillsborough Bay is the primary source of seawater for the regional desalinated supply (See Figure 2). From blends of these water sources, the water is then transferred to pumping stations for further processing before being pumped to homes and businesses through more than 1,884 miles of pipe in the Pinellas County Utilities distribution system. The blended water undergoes water quality enhancements that are comprised of five steps. First, the water goes through a hydrogen sulfide removal process. Hydrogen sulfide is a natural element that has a displeasing taste and odor. A polyphosphate inhibitor is then added to control corrosion in the distribution system and home plumbing. Fluoride is also added to improve community dental health. Next, a chemical disinfectant, chloramine, is added to the water to guard against bacteria. Lastly, the pH (acidalkali) is adjusted and stabilized using sodium hydroxide.

Figure 2 - Potable Water Sources



Source: Tampa Bay Water

2. Projected Needs

The City of Tarpon Springs distributed an average of 3.6 MGD in 2006. The population of the water service/planning area is estimated at 28,131. Therefore, the level of service provided is currently 127 gpcd. This level of service is slightly higher than the adopted level of service standard for Pinellas County of 125 gpcd. Based on the adopted level of service standard for Pinellas County of 125 gpcd, population growth in the service area is estimated to increase the demand for water to 3.9 MGD by the year 2015 and 4.1 MGD by the year 2025. This is a conservative estimate which assumes 100% connection to potable water and the actual demand will most likely occur at a slower rate. If the City continues to provide 20% of its water needs, the City must produce 780,000 gpcd by the year 2015 and 820,000 MGD by the year 2025. The remainder would have to be purchased from Pinellas County Utilities or secured from an alternative water source.

The Pinellas County Water Demand Planning Area (WDPA) includes the retail and wholesale customers of Pinellas County which include; Belleair Beach, Belleair Bluffs, Belleair Shores, Clearwater, Indian Rocks Beach, Indian Shores, Kenneth City, Largo, Madeira Beach, North Redington Beach, Oldsmar, Pinellas Park, Redington Beach, Redington Shores, Safety Harbor, Seminole, St. Petersburg, St. Pete Beach, Treasure

Island and Tarpon Springs. The estimated future needs for the Pinellas County WDPA is shown in Figure 3.

Figure 3 - Water Supply Needs for Pinellas County Water Demand Planning Area

Source: Pinellas County Utilities (figures are based on a Level of Service of 125 gpcd)

As Tampa Bay Water moves forward in its reduction of fresh groundwater dependency which is mandated by SWFWMD, new alternative water supplies are being developed and facilities constructed. These costs are currently passed along to the local governments and utilities that rely on this supply.

It should be noted that the Pinellas County Utilities projections could stand to increase beyond these projections should a new blending/treatment facility, Keller WTP improvements, or other large scale improvements be fast-tracked as a result of recent County water quality concerns. In addition, ongoing issues with the Tampa Bay Water desalination plant and other new water supply projects to be constructed may well increase the costs of purchased water in the years to come.

In a proactive effort to gain water supply independence, the City of Tarpon Springs has begun a feasibility analysis to determine if an adequate water supply can be extracted from the local aquifer. A preliminary investigation is being performed to assess the feasibility of developing additional groundwater from the area along Disston Avenue. Furthermore, in 2006, the citizens of Tarpon Springs approved a referendum for the financing of a Reverse Osmosis (RO) water plant, the purchase of land/easements and the ability to execute the necessary construction contracts. The RO plant will utilize brackish groundwater as the source of a sustainable water supply for the City. The approach for this project will be a phased one with the most economical groundwater sources developed first, followed by sequentially more brackish sources. The approach includes:

Table 9 - Summary of Alternative Water Supply Plan

Water Supply Source	Phase	Average Daily Capacity (MGD)	Cumulative Average Daily Capacity (MGD)	Estimated Implementation Date
Current Freshwater Wells 1-3	I	0.73	0.73	Tarpon, Highland & Grosse Avenue Wells Completed
Disston Avenue Freshwater Wells 5B, 5D	I	0.43	1.16	Completed permitting/ construction ongoing
Additional Disston Avenue Freshwater Well 5A	I	0.21	1.37	Pending completion of 5B & 5D
Slightly Brackish Wells/RO Plant	II	5.00	6.37	3-5 years after Phase I
Additional Brackish Wells/ RO Plant Expansion	III	3.00	9.37	TBD

Source: City of Tarpon Springs Alternative Water Supply Plan (2005)
Note: Actual sustained pumping rates of freshwater wells may be less than projected taking into account any required reduced pumping for wellfield management measures during the dry season.

Phase I, when complete, will provide 1.37 MGD of drinking water. Factoring in seasonal variations in fresh groundwater production, approximately 25% of the City's demand can be met with Phase I. An additional 5.0 MGD of supply would provide the additional water needed to meet the City's current and future demand. Phase II involves the development of a slightly brackish water supply with membrane treatment. A 5.0 MGD facility is recommended for consideration as a means to supply the City's current and future needs. Upon successful completion of Phase II, a Phase III expansion for an additional 3.0 MGD should be considered for additional supply capacity.

E. Natural Groundwater Aquifer Recharge

Recharge potential to aquifer systems in the Tarpon Springs area is primarily controlled by existing ground water levels, topography, and the composition of surficial sediments overlying the principal aquifers present in the watershed basins. Localized rainfall infiltration rates into sediments, comprising the surficial aquifer, are characterized in county soil surveys and is critical to identifying high recharge areas of the Floridan aquifer, the principal aquifer underlying most of the watershed.
Areas of high natural recharge to the Floridan aquifer are generally found in well-drained, upland regions of the watershed. Recharge in these areas is often enhanced by the presence of sinkholes, which provide a direct connection between surface water or the surficial aquifer and the underlying Floridan aquifer. The high recharge capabilities of sinkholes or buried karst features also present an increased threat of ground water contamination from surface water pollutants. Variability in recharge rates occurs where the presence of clay sediments in the overlying surficial deposits forms a confining unit that retards vertical movement of water, and in regions where the potentiometric surface of the Floridan aquifer is near land surface, reduces the potential for ground water recharge. Variable increases in recharge may also occur where ground water withdrawals have artificially lowered water levels in the Floridan aquifer, causing an induced recharge of water from surface water bodies and the surficial aquifer. Regions of the watershed where Floridan aquifer water levels are above land surface are zones of ground water discharge, which are commonly found along coastal margins of Tampa Bay and the Gulf of Mexico. The presence of springs in rivers and coastal areas also represents

significant zones of ground water discharge, which can act as point source inputs of contaminants, especially nutrients, to the receiving surface water body.

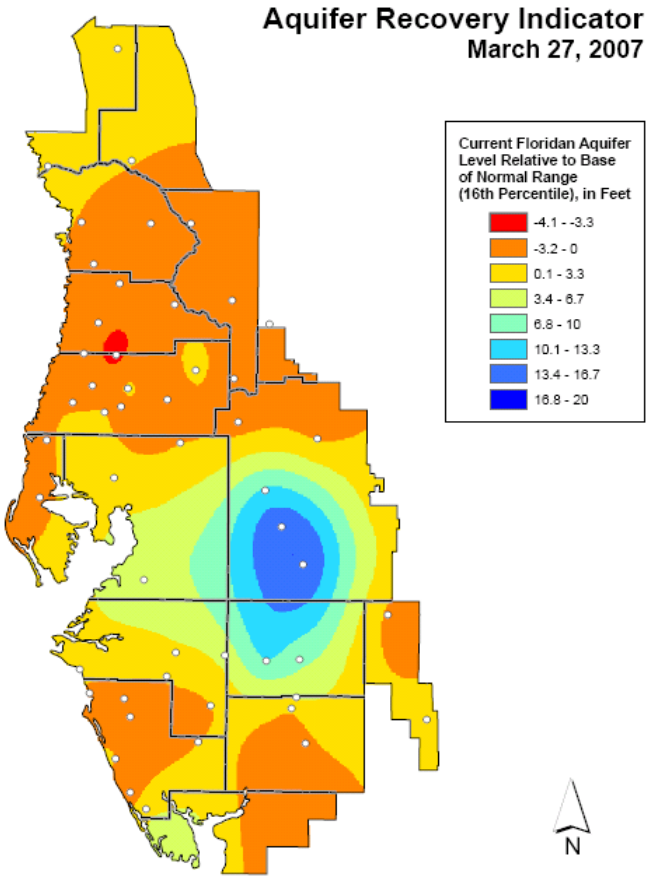
The SWFWMD utilizes the Aquifer Resource Index (ARI). The ARI was created to provide information to the media, residents, local governments and other interested parties about current ground-water conditions and how they compare to historical records. The underlying purpose of this index is to provide the public with a gauge of ground-water levels in their area, so they can develop an understanding of the severity and cycles of drought and recovery. The three regional areas used in the index are referred to as the northern counties, central counties and southern counties, and are not based on hydrologic or hydrogeologic boundaries.

In the northern counties (Citrus, Hernando, Lake, Levy, Marion and Sumter Counties), the Floridan aquifer is at or near land surface, allowing rainfall to easily recharge (replenish) the aquifer system. In the central counties (Hillsborough, Pasco, Pinellas and Polk Counties), the Floridan aquifer can be unconfined or confined (overlain by thick clays). Where the Floridan aquifer is confined, recharge to the aquifer from rainfall is low. In the southern counties (Charlotte, DeSoto, Hardee, Highlands, Manatee and Sarasota Counties), the Floridan aquifer is confined.

The ARI is derived by comparing current ground-water levels with historical levels for 51 monitor wells located throughout each of the three geographic areas of the District. Monitor wells with an adequate and reliable period-of-record to calculate weekly percentiles were selected for the network. For each well, the 16th and 84th percentiles (“low normal” and “high normal," respectively) were calculated for each week of the year for the period-of-record. The 16th and 84th percentiles were chosen to represent the low-normal and high-normal values, respectively, because they correspond to the statistical equivalent of one standard deviation above and below the mean. The normal range is defined as a set of values falling between the 16th and 84th percentiles. The normal range for the northern counties is zero to four feet, zero to six feet for the central counties and zero to eight feet for the southern counties.
To determine the ARI for a geographic area, each well is compared to its respective low-normal value weekly, and the difference is calculated. The weekly differences are reduced to a monthly value for all of the monitor wells within an area, and the resulting ARI value represents how far water levels in the aquifer have to rise or fall to reach their respective low-normal value.

As of March 27, 2007, the ARI was below the bottom of the normal range in the northern counties, while it was within the normal range in the central and southern counties of the District.

Figure 4 - SWFWMD Aquifer Recovery Indicator



Monitoring station #751was installed in the northern section of Pinellas County in November 1965 to gauge the recharge rates in the area. The historical data has shown that Pinellas County is generally an area of no recharge or very low known recharge. The primary reason for this determination is that the coastal areas experience saltwater intrusion in the upper part of the Floridan Aquifer.

IV. GOALS, OBJECTIVES AND POLICIES

A. Introduction

Pursuant to Chapter 163.3177(6)(c), FS, and Rule 9J-5.011(2), FAC, the following represents the Sanitary Sewer, Solid Waste, Stormwater Management, Potable Water and Natural Ground Water Aquifer Recharge Goals, Objectives and Policies of the City of Tarpon Springs.

B. Non-Applicable Items

All the goals, objectives and policies are applicable to the City of Tarpon Springs.

C. Local Goals, Objectives and Policies

D. **GOAL 1**

THE CITY SHALL PROVIDE EFFICIENT SANITARY SEWER SERVICE TO MEET THE EXISTING AND FUTURE NEEDS OF THE SERVICE AREA POPULATION AND SHALL NOT ADVERSELY AFFECT THE NATURAL ENVIRONMENT.

Objective 1.1

To provide the level of service necessary for proper wastewater treatment and disposal in order to ensure the protection of its citizens and the environment.

Policy 1.1.1

The City shall ensure that wastewater flows for existing and permitted development cannot exceed the wastewater treatment facilities permitted design capacity.

Policy 1.1.2

The City shall only issue new development permits concurrent with adequate wastewater treatment facility capacity.

Policy 1.1.3

The City shall ensure that treated effluent and sludge meets all pertinent federal, state and local standards and regulations for treatment and disposal.

Policy 1.1.4

The City shall ensure that peak design flow capacity does not exceed 2.0 times the average daily flow for the WWTP.

Policy 1.1.5

The City's adopted level of service standard for sanitary sewer is 82 gpcd.

Measure

Adopted level of service standard and number of approved development projects.

Objective 1.2

To ensure that the wastewater treatment facility is protected from natural disasters.

Policy 1.2.1

The City shall ensure that all federal, state and local regulations pertaining to the siting, construction, operation and expansion of the wastewater treatment facility are followed.

Policy 1.2.2

The City shall consider siting future wastewater treatment facilities outside of the Coastal High Hazard Area.

Measure

The location of new wastewater treatment facilities.

Objective 1.3

To ensure that development permits are issued only when adequate capacity is available to serve the development.

Policy 1.3.1

The City shall continue to correct existing sewer line and manhole infiltration by the replacement or slip-lining of deficient sewer lines.

Policy 1.3.2

The City shall require developer participation to fund sewer system expansion when it is deemed necessary by the Public Services Department.

Policy 1.3.3

The City shall provide cost estimates for eliminating septic tanks and hook up to the sewer system.

Policy 1.3.4

The City shall require development projects that are located in the unincorporated areas which require additional sewer service, must annex into the City limits or sign an affidavit to annex once they become eligible.

Measure

The number of linear feet of new sewer lines that are constructed or sewer lines that are replaced or slip-lined.

Objective 1.4

To operate the wastewater treatment facility at optimum efficiency.

Policy 1.4.1

The City shall continue to provide preventive maintenance for the sewer infrastructure and collection system.

Policy 1.4.2

The City shall continue to operate its wastewater treatment facility at or above the Advanced Wastewater Treatment (AWT) standard.

Policy 1.4.3

The City shall immediately correct system disruptions which are a threat to public health, safety and welfare.

Policy 1.4.4

The City shall continue to discourage the use of septic systems for all land uses.

Measure

Response times to service disruptions.
Evaluation of the City's maintenance program.
The number of new septic tank systems.

Objective 1.5

To coordinate the extension of the sewer system to meet future needs.

Policy 1.5.1

The City shall systematically set aside funds each fiscal year to expand sewer service into the unsewered areas as identified in the following priority list;

Priority	Area
High	Lake Tarpon
	Sea Breeze Drive
	South Florida Avenue
Medium	Gulf/Whitcomb
	Bayshore Drive
	Lake Tarpon - Tookes
	North Walton Avenue
Low	Klosterman Road

Policy 1.5.2

The City shall provide technical information to the Tarpon Glen MHP, the Tarponaire MHP and the Holiday Inn Express should they decide to abandon their small package plants and connect them to the City sewer system.

Policy 1.5.3

The City shall encourage infill development to more efficiently deliver sewer service.

Measure

The number of households that have sewer available to their property.

Objective 1.6

To provide reclaimed water to the residents of the City in an efficient and financially feasible manner.

Policy 1.6.1

Reuse of treated wastewater shall be the preferred method of effluent disposal over surface water discharge.

Policy 1.6.2

The City shall continue to expand its reclaimed water system in accordance with the 2004 Reclaimed Water Storage Feasibility Study Report.

Policy 1.6.3

The City shall require the extension of reclaimed water service lines to serve new development if it is feasible as determined by the Public Services Department.

Measure

The linear feet of new reclaimed water lines.

E. **GOAL 2**

COLLECT AND DISPENSE OF SOLID WASTE IN THE MOST EFFICIENT, FINANCIALLY FEASIBLE AND ENVIRONMENTALLY SAFE MANNER, AND RECOVER RESOURCES WHICH HAVE THE POTENTIAL FOR REUSE.

Objective 2.1

To continue to maintain adequate Levels of Service for existing and future populations.

Policy 2.1.1

The adopted Level of Service standard for solid waste is 1.3 tons per person per year. This standard is established for the City of Tarpon Springs and shall be used in determining the availability of facility capacity and the demand created by new development.

Measure

Tons of solid waste generated per year.

Objective 2.2

To continue to develop collection and transport strategies which minimize costs and use optimally located waste transfer facilities.

Policy 2.2.1

Collection services shall not be extended to properties outside the City limits, unless sufficient capacity exists to serve the areas committed to City services, as well as the area proposed for service.

Policy 2.2.2

Collection services shall only be extended to properties outside the City limits except by interlocal or other type agreement with the customer.

Policy 2.2.3

The City shall provide collection service to every residential, commercial and industrial location within the City limits.

Measure

The geographic area where solid waste is collected by the City's contractor.

Objective 2.3

Continue to provide sound fiscal management for solid waste collection, transport, disposal and recycling.

Policy 2.3.1

The City shall charge fees to subscribers to adequately cover system operating costs, repayments of capital costs and allow for repair and replacement of existing facilities.

Policy 2.3.2

The City shall utilize a sound statistical methodology for quantifying the impact on the solid waste stream of recycling programs.

Policy 2.3.3

The City shall ensure that charges to each subscriber reflect the average costs incurred to service that subscriber.

Measure

The cost of providing solid waste services.

Objective 2.4

To continue to conserve natural resources used in the collection, disposal and resource recovery systems.

Policy 2.4.1

The City shall utilize recycling and disposal techniques to conserve resources and minimize adverse environmental impact by recycling aluminum and steel cans, newspaper, glass, plastics, cardboard, office paper, other metals and yard waste.

Policy 2.4.2

The City shall contract for solid waste collection, recycling disposal and recovery services that will, to the greatest degree possible, reduce the waste stream, conserve energy and minimize impact on natural resources.

Policy 2.4.3

The City shall continue to reduce the solid waste stream through the recycling of aluminum, glass, newspaper plastic, steel, cardboard, office paper, other metals and yard waste.

Measure

The amount of solid waste that is being recycled.

Objective 2.5

To continue to coordinate and cooperate with other governments to solve extraterritorial solid waste disposal problems.

Policy 2.5.1

The City shall continue to participate in the Pinellas County Solid Waste Disposal Recycling and Resource Recovery Programs.

Policy 2.5.2

The City shall continue to participate on the Pinellas County Technical Management Committee.

Policy 2.5.3

The City shall coordinate with other municipalities and cooperate in recycling and resource recovery programs to reduce the solid waste stream and dispose of solid waste in an efficient and environmentally sound manner.

Measure

The City's level of participation with other municipalities to address solid waste issues.

F. **GOAL 3**

PROVIDE THE MOST COST EFFECTIVE AND EFFICIENT PROVISION OF STORMWATER MANAGEMENT INCLUDING THE IMPROVEMENT AND ENHANCEMENT OF STORMWATER QUALITY DISCHARGING INTO LOCAL RECEIVING WATERS, AND PROVIDE MAXIMUM PRACTICAL PROTECTION TO PERSONS, PROPERTY AND THE NATURAL ENVIRONMENT.

Objective 3.1

To maintain adequate levels of service for existing and future populations.

Policy 3.1.1

The adopted Level of Service standard for stormwater management retention facilities is the attenuation of the 25-year frequency storm, 24-hour duration. This standard for the City of Tarpon Springs shall be used in determining the availability of facility capacity and the demand created by new development and shall be applied to all new development, redevelopment and for all City stormwater facilities.

Policy 3.1.2

The City shall ensure that drainage calculations, signed and sealed by a registered Professional Engineer, are submitted during the site plan review process.

Measure

Continued requirement for stormwater management facilities to meet the City's adopted level of service standard.

Objective 3.2

To assist in the development of drainage basin management plans which should seek to identify, evaluate and implement the most cost effective and cost efficient programs for stormwater management, including stormwater quantity and quality. These plans should also address any projects included in the Lake Tarpon Surface Water Improvement & Management Plan (SWIM) for the implementation of all stormwater management, as well as recommended funding sources.

Policy 3.2.1

The City shall coordinate, when feasible, with Pinellas County, SWFWMD and FDEP to implement the recommendations in the Lake Tarpon SWIM Plan.

Policy 3.2.2

The City shall continue to provide a stormwater management system throughout the City that will afford the most economically feasible protection to residents and property.

Policy 3.2.3

The City shall ensure that stormwater management improvements meet all applicable goals, guidelines and regulations established to provide flood protection and pollution abatement.

Policy 3.2.4

The City shall participate in interlocal agreements to study and evaluate stormwater quality and stormwater runoff management issues.

Policy 3.2.5

The City shall require stormwater facilities comply with Southwest Florida Water Management District (SWFWMD) policies and regulations.

Policy 3.2.6

The City shall continue to require new development retain stormwater on site and control quantity, quality and rate of flow being released into the receiving drainage systems.

Measure

The City's level of participation with other municipalities to address stormwater issues.

Objective 3.3

To lower high water profiles during storm events, as necessary, to reduce house flooding occurrences and to lessen the resulting adverse effects on public health, the natural environment, public and private property.

Policy 3.3.1

The City shall continue to provide a program of regular maintenance to the stormwater management system to ensure maximum efficiency and performance.

Policy 3.3.2

The City shall ensure that stormwater facility maintenance include measures to remove trash, sedimentation and other debris which impede flow and incorporate structural and non-structural measures to reduce or eliminate the discharge of oil, grease, heavy metals and other suspended particles into the stormwater management systems.

Policy 3.3.3

The City shall utilize natural and man-made wetlands as a means to provide stormwater management wherever possible and shall be maintained for hydrologic purposes.

Policy 3.3.4

The City shall continue to provide multiple use facilities, such as recreation and open space uses, when appropriate.

Policy 3.3.5

The City shall ensure that development and redevelopment activities are compliant with all stormwater management design standards and criteria.

Policy 3.3.6

The City shall prohibit development where it is determined that such development will have an adverse impact on stormwater storage areas, increase flood prone areas, significantly increase rates of runoff, or cause

other unfavorable drainage conditions.

Policy 3.3.7

The City shall continue to actively participate in the National Flood Insurance Program and cooperate with the Federal Emergency Management Agency for the purpose of recognizing flood prone areas, and establishing abatement programs that endeavor toward a reduction in damages and losses due to flooding.

Policy 3.3.8

The City shall continue to require wetland and shoreline buffers from all jurisdictional wetlands, Lake Tarpon, Anclote River, Gulf of Mexico and bayous.

Policy 3.3.9

The City shall protect, when feasible, publicly owned jurisdictional wetlands and other prime recharge areas from development.

Policy 3.3.10

The City shall encourage the protection of privately owned jurisdictional wetlands and other prime recharge areas.

Measure

Maintenance of stormwater management facilities, participation in the NFIP and enforcement of wetland and shoreline buffers.

Objective 3.4

To protect and enhance the quality of the public and private stormwater management systems.

Policy 3.4.1

The City shall require sodding and appropriate landscaping as components of the drainage system for natural filtration.

Policy 3.4.2

The City shall monitor stormwater management outfalls and receiving water bodies to identify the quality of stormwater runoff and the impact on receiving bodies.

Policy 3.4.3

The City shall maximize water recharge potential in designing stormwater management improvements by utilizing natural wetland areas for stormwater storage.

Policy 3.4.4

The City shall coordinate stormwater management improvements with other local governments to assist in solving stormwater management problems of a regional nature.

Policy 3.4.5

The City shall continue to identify failing stormwater systems and prioritize them for improvement and enhancement consistent with the following priority list:

Project Ranking	Project Name	Nature of Problem
1	Disston Avenue & Tarpon Avenue	Runoff from street flooding causes damage to private property
2	Bath Street	Infiltration into conveyance system
3	At the Levis Avenue Alleyway	Needs Outfall Connection
4	Cypress Street & Grosse Avenue	Needs Detention Pond
5	Disston Avenue & Center Street	Needs Detention Pond
6	Levis Avenue north of Pine Street	Needs Detention Pond
7	Walton Avenue & Lemon Street	Needs Detention Pond
8	Bayou Water Quality	Install Treatment Structures

Policy 3.4.6

The City shall ensure that water resource projects are consistent with the policies of the Conservation Element.

Policy 3.4.7

The City shall continue to upgrade and retrofit City-owned drainage system facilities and include stormwater treatment for water quality in accordance with local regulations.

Policy 3.4.8

The City shall fund the operation and maintenance of the stormwater management systems through revenues from City's general fund and/or stormwater utility fund.

Measure

The number of completed stormwater priority list projects.

G. G. **GOAL 4**

PROVIDE, DEVELOP AND MAINTAIN A PERMANENT POTABLE WATER SUPPLY SYSTEM TO MEET ANTICIPATED DEMAND WHILE PROVIDING MAXIMUM PRACTICAL PROTECTION TO THE ENVIRONMENT AT A COST CONSISTENT WITH THE PUBLIC'S ABILITY AND WILLINGNESS TO PAY.

Objective 4.1

To maintain adequate Levels of Service for existing and future populations.

Policy 4.1.1

The adopted Level of Service standard for potable water is 110 gpcd at a pressure of 50-60 psi. This standard shall be used in determining the availability of facility capacity and demand created by new development.

Measure

The City's adopted level of service standard.

Objective 4.2

To provide adequate quantities and qualities of water service to all customers in the Tarpon Springs service area. The current service level is based upon 8,335 customer accounts.

Policy 4.2.1

The City shall ensure that land development regulations, building codes and City ordinances adequately address water system provisions by performing a thorough evaluation of City codes and by coordinating proposed provisions with the Southwest Florida Water Management District and Tampa Bay Water.

Policy 4.2.2

The City shall ensure that when new subdivisions are being developed, it shall be the responsibility of the developer to provide internal water systems which are constructed to City specifications.

Policy 4.2.3

The City shall continue to construct water system improvements which will provide adequate quantity, pressure and duration of fire flows while meeting system user needs.

Policy 4.2.4

The City shall continue to develop a system and construct improvements which will conserve energy, water and other valuable resources.

Policy 4.2.5

The City shall continue to participate and assist Tampa Bay Water, SWFWMD and FDEP in developing innovative techniques to augment existing water supplies to provide for future needs.

Policy 4.2.6

The City shall continue to identify, acquire and develop sources of water supply consistent with the 2005 Alternative Water Supply Plan.

Policy 4.2.7

Through the Concurrency Management System, the City shall ensure that the future land use plan is based upon the availability of adequate water supplies and public facilities and services. Data and analysis is required for all Future Land Use Map amendments which demonstrate that adequate water supplies and associated public facilities will be available to meet projected growth demands.

Measure

Potable water service that is provided to the service area population.

Objective 4.3

To continue to maintain the water system in a safe, sound and efficient manner.

Policy 4.3.1

The City shall continue to monitor water quality and the operation of the water distribution system with the intent of repairing and replacing deficient portions of the system within the framework of the capitalized budgeting process.

Policy 4.3.2

The City shall continue to provide adequate spacing of fire hydrants to provide optimum hose lays and fire flow.

Policy 4.3.3

The City shall require at the time of application for connection to the public potable water system, that minimum fire flows and hydrant spacing be consistent with fire district standards.

Measure

The number of new connections to the water system.

Objective 4.4

To continue to provide sound fiscal management for the operation and maintenance of potable water service in the City's service area

Policy 4.4.1

The City shall charge user fees to cover system operating costs, repayments of capital costs and allow for repair and replacement of existing facilities. The City shall also continue to evaluate new rate structures as necessary.

Policy 4.4.2

The City shall prioritize and schedule major improvements through the capital improvement program.

Policy 4.4.3

The City shall set aside funds for repair and replacement of the water system and those funds shall not be diverted to other uses.

Policy 4.4.4

The City shall continue to seek financial support for the creation of a municipal water system through grant programs administered by appropriate regional, State and Federal agencies.

Policy 4.4.5

The City shall explore modifying the building code to include the requirement for water conserving fixtures in newly constructed or remodeled buildings.

Policy 4.4.6

The City shall develop and modify rate structures and policies which encourage conservation of potable water.

Policy 4.4.7

The City shall provide public education materials to inform citizens of the need and opportunities for conserving potable water.

Policy 4.4.8

The City shall require development projects that are located in the unincorporated areas which require additional water service, must annex into the City limits or sign an affidavit to annex once they become eligible.

Measure

Cost of providing potable water service to the service area population.

Objective 4.5

To coordinate with other government agencies to solve problems of an extraterritorial nature.

Policy 4.5.1

The City shall continue to participate in regional and County-wide studies.

Policy 4.5.2

The City shall continue to cooperate with the Southwest Florida Water Management District and Tampa Bay Water in developing environmental and hydrologic data that will identify safe and reliable potable water yields in existing and future well-fields.

Policy 4.5.3

The City shall continue to pursue a coordinated approach to inter-jurisdictional problems, by providing support of both staff and officials to

participate in conservation efforts with Pinellas County and the Tampa Bay Regional Planning Council.

Policy 4.5.4

The City shall continue to protect all natural recharge areas having functional hydrological characteristics.

Policy 4.5.5

The City shall recognize the importance of groundwater aquifer recharge in the hydrological process and the need for natural groundwater recharge as an integral component of the City's urban environment.

Policy 4.5.6

The City shall include incentives in the Comprehensive Zoning and Land Development Code for the protection of natural groundwater aquifer recharge areas.

Policy 4.5.7

The City shall coordinate with SWFWMD, Tampa Bay Water and Pinellas County Utilities with the intent of sharing and updating information related to ongoing water supply needs.

Policy 4.5.8

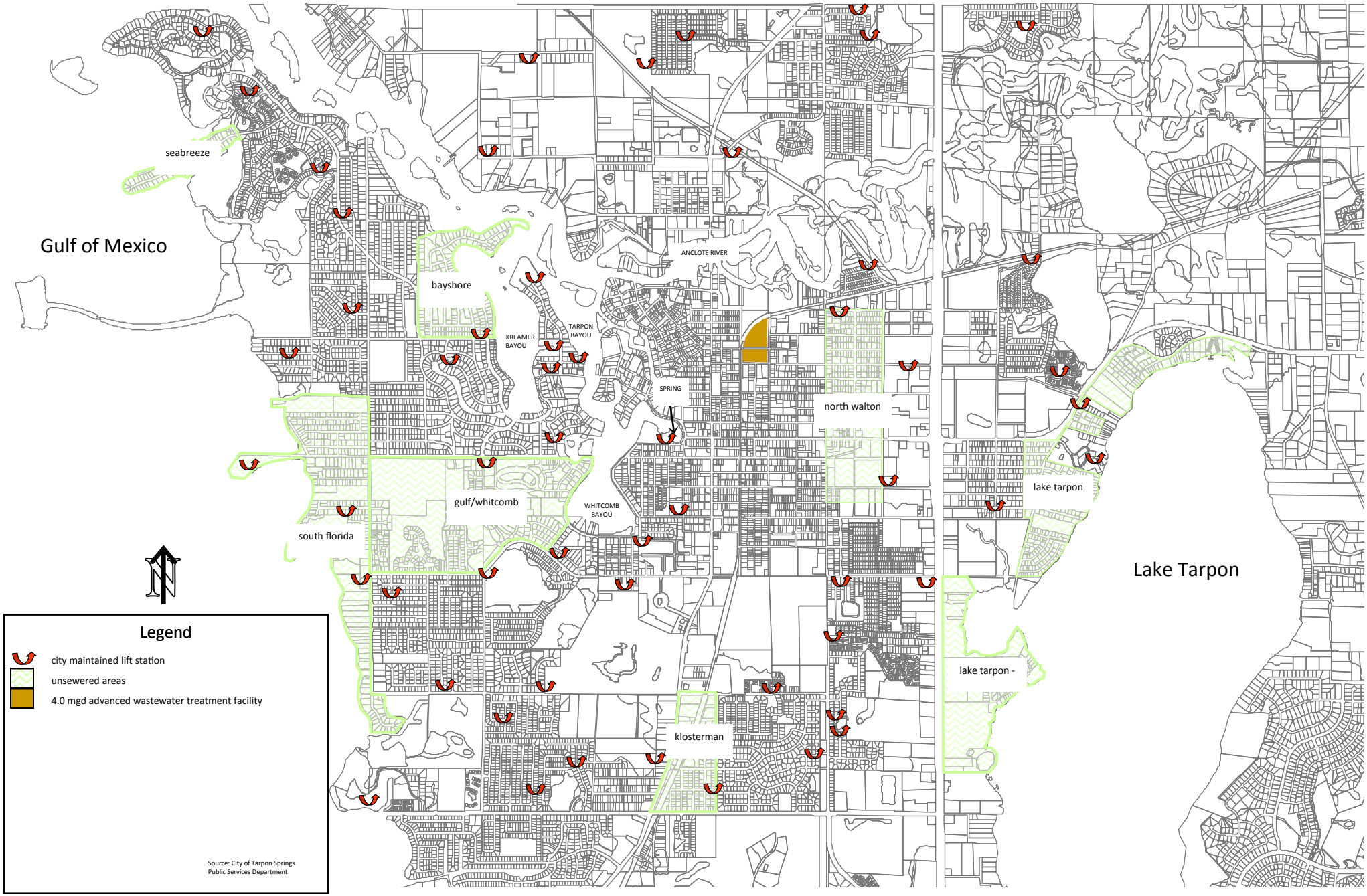
The City shall continue to coordinate with SWFWMD, Tampa Bay Water and Pinellas County Utilities on the construction and operation of the City's Reverse Osmosis Water Plant, the establishment of level-of-service standards, resource allocations, changes in service areas and annexations.

Measure

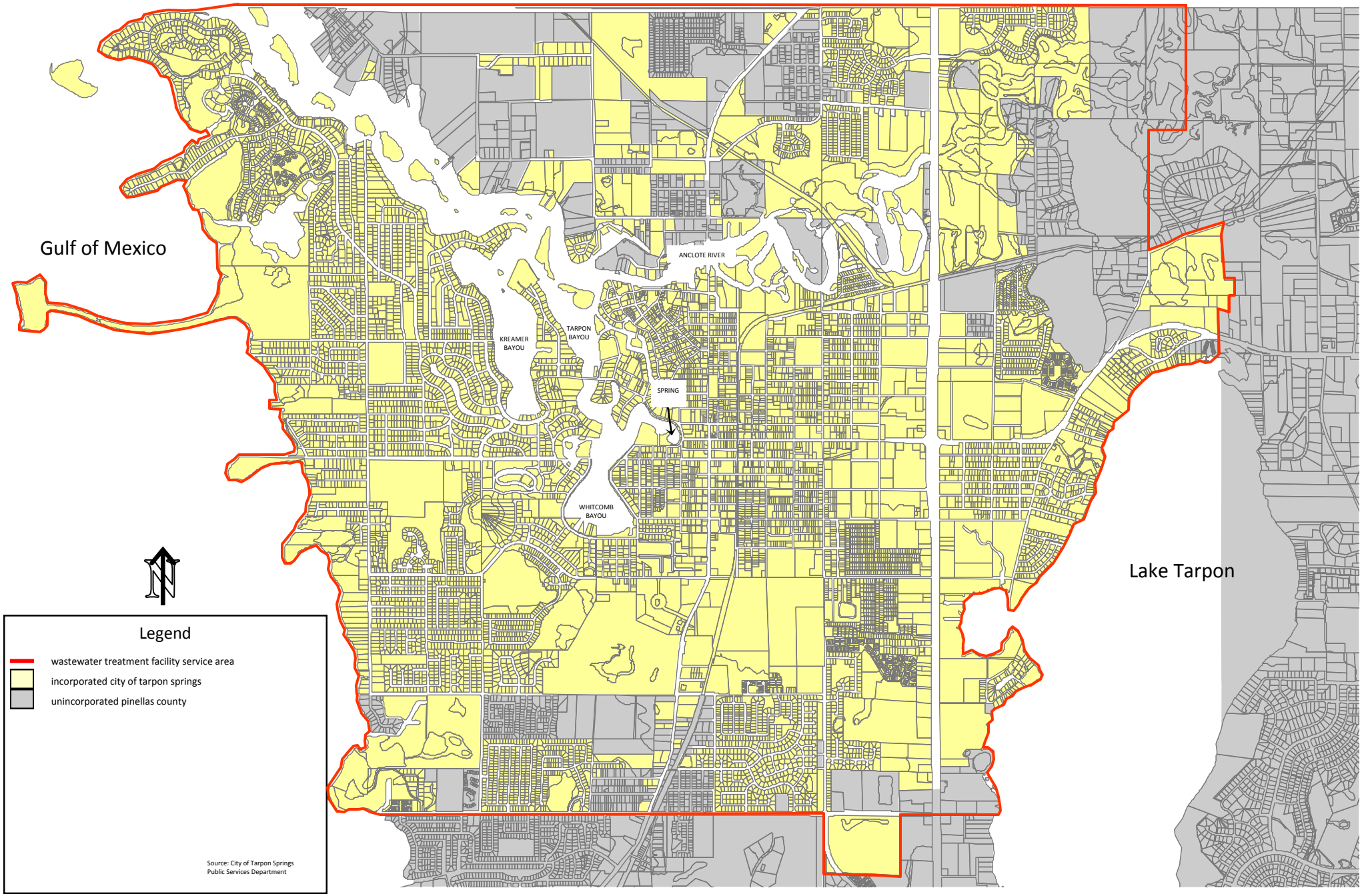
The City's level of participation with other municipalities to address natural groundwater aquifer recharge issues.

UTILITIES MAP SERIES

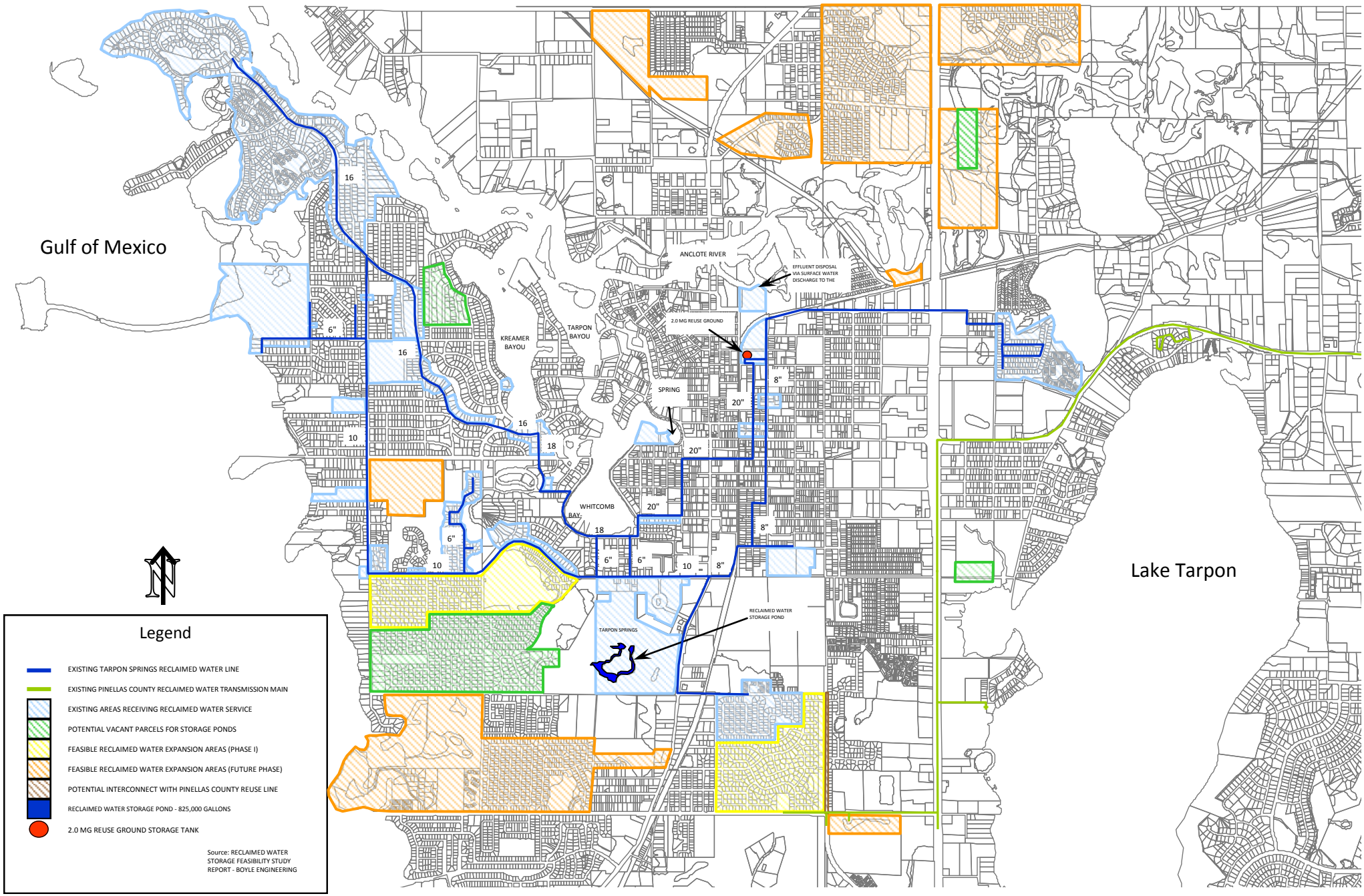
Map 1 - Wastewater Treatment Facility, Lift Stations and Unsewered Areas



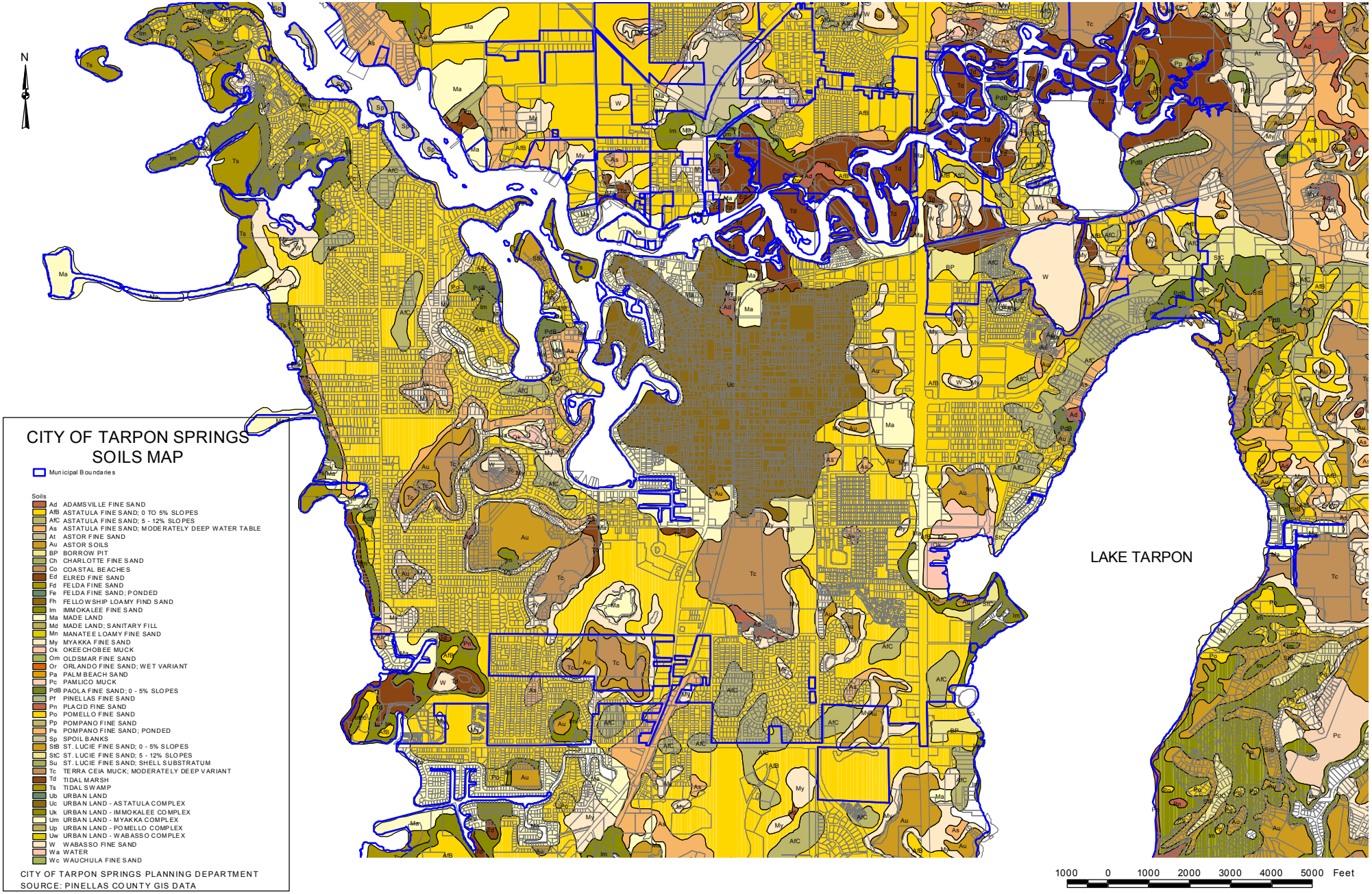
Map 2 - Wastewater Treatment Facility Service Area



Map 3 - City of Tarpon Springs Reclaimed Water System



Map 4 - Soils Suitability for On-Site Septic Systems



CITY OF TARPON SPRINGS SOILS MAP

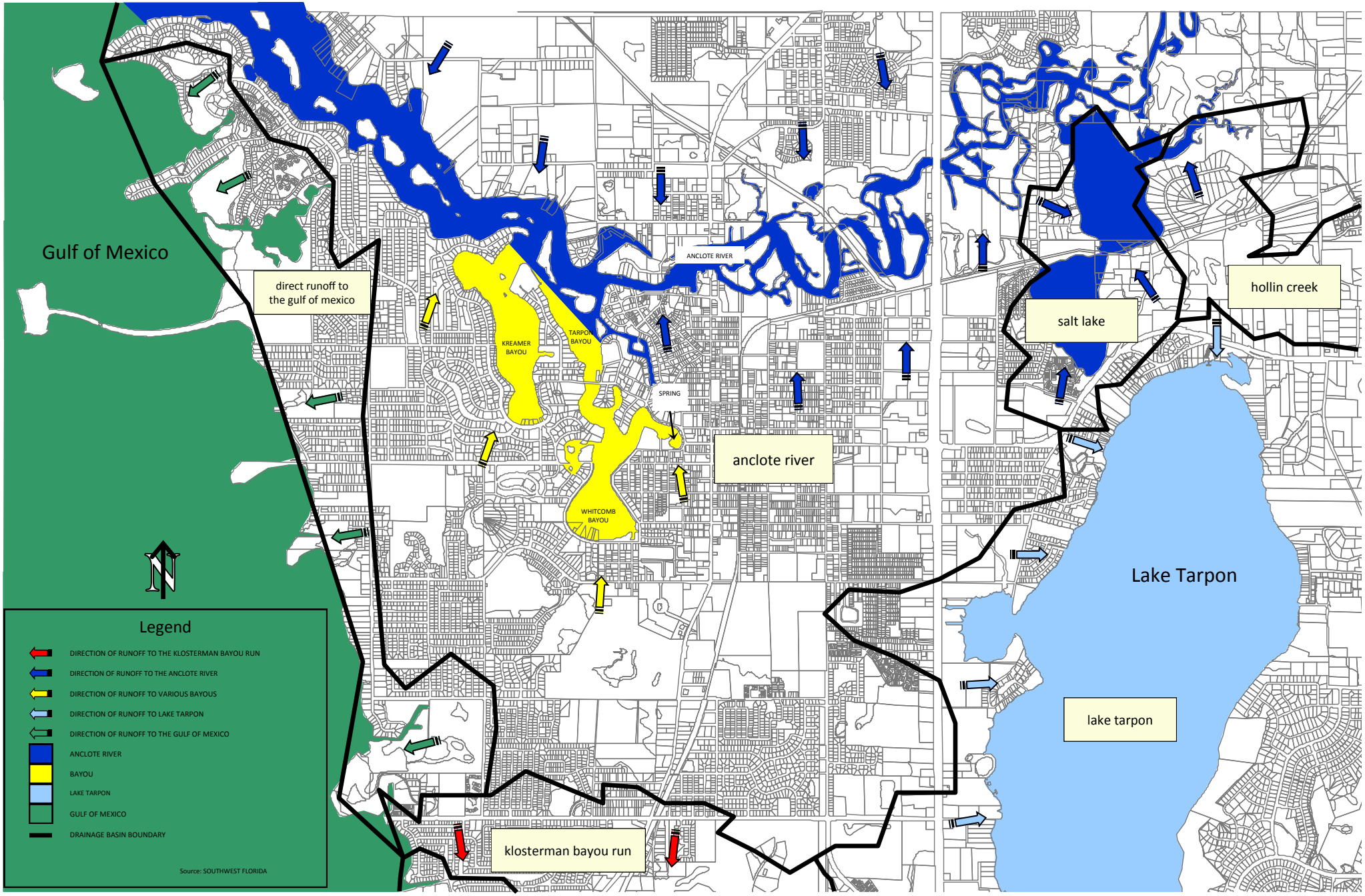
Municipal Boundaries

Soils

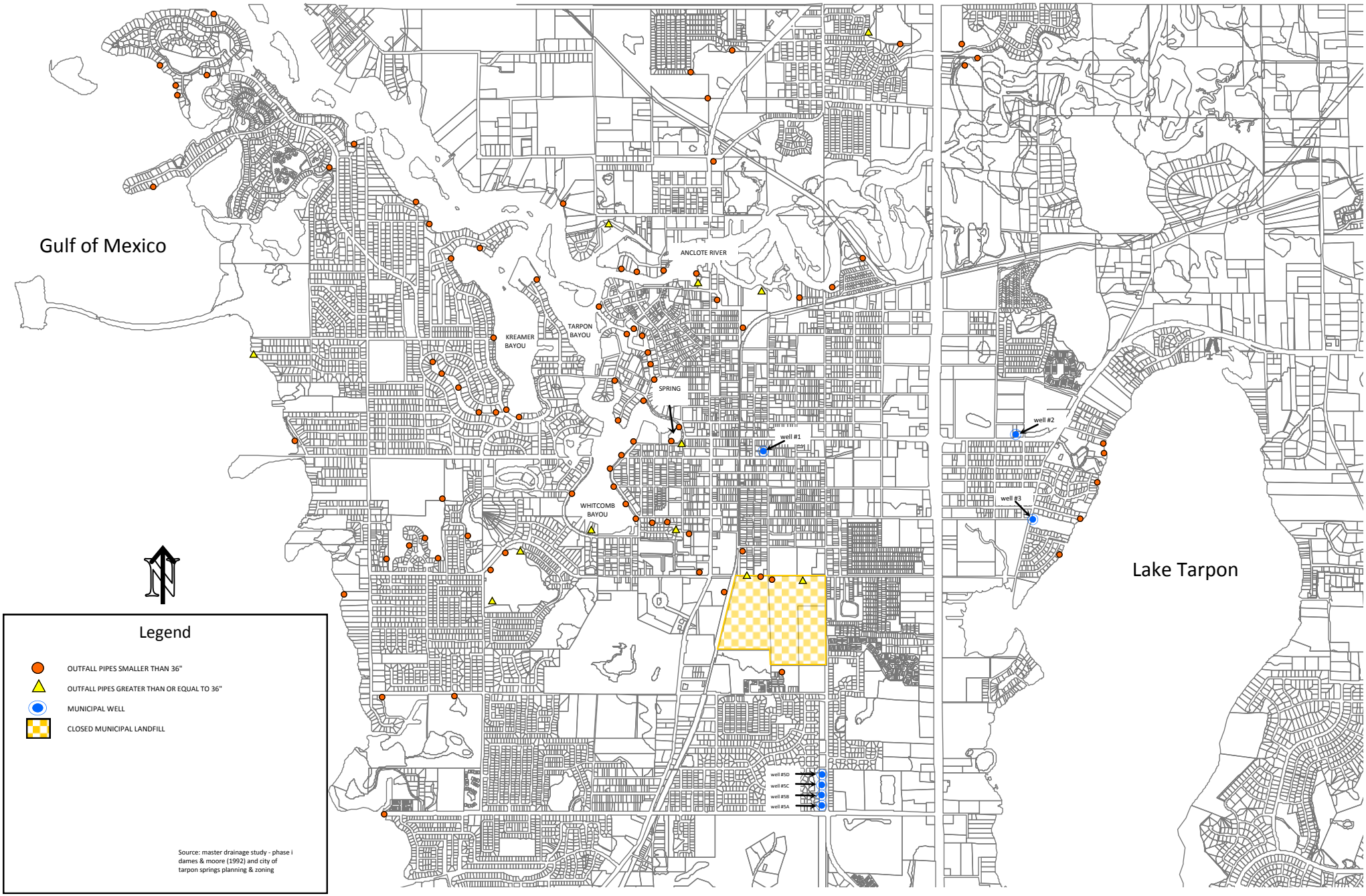
- Ad ADAMSVILLE FINE SAND
- AfB ASTATULA FINE SAND; 0 TO 5% SLOPES
- AfC ASTATULA FINE SAND; 5 - 12% SLOPES
- As ASTATULA FINE SAND; MODERATELY DEEP WATER TABLE
- At ASTOR FINE SAND
- Au ASTOR SOILS
- BP BORROW PIT
- Ch CHARLOTTE FINE SAND
- Co COASTAL BEACHES
- Ed ELRED FINE SAND
- Fd FELDA FINE SAND
- Fe FELDA FINE SAND; PONDED
- Fh FELLOWSHIP LOAMY FIND SAND
- Im IMMOKALEE FINE SAND
- Ma MADE LAND
- Md MADE LAND; SANITARY FILL
- Mn MANATEE LOAMY FINE SAND
- My MYAKKA FINE SAND
- Ok OKEECHOBEE MUCK
- Om OLDSMAR FINE SAND
- Or ORLANDO FINE SAND; WET VARIANT
- Pa PALM BEACH SAND
- Pc PAMLICO MUCK
- PdB PAOLA FINE SAND; 0 - 5% SLOPES
- Pf PINELLAS FINE SAND
- Pn PLACID FINE SAND
- Po POMELLO FINE SAND
- Pp POMPANO FINE SAND
- Ps POMPANO FINE SAND; PONDED
- Sp SPOIL BANKS
- StB ST. LUCIE FINE SAND; 0 - 5% SLOPES
- StC ST. LUCIE FINE SAND; 5 - 12% SLOPES
- Su ST. LUCIE FINE SAND; SHELL SUBSTRATUM
- Tc TERRA CEIA MUCK; MODERATELY DEEP VARIANT
- Td TIDAL MARSH
- Ts TIDAL SWAMP
- Ub URBAN LAND
- Uc URBAN LAND - ASTATULA COMPLEX
- Uk URBAN LAND - IMMOKALEE COMPLEX
- Um URBAN LAND - MYAKKA COMPLEX
- Up URBAN LAND - POMELLO COMPLEX
- Uw URBAN LAND - WABASSO COMPLEX
- W WABASSO FINE SAND
- Wa WATER
- Wc WAUCHULA FINE SAND

CITY OF TARPON SPRINGS PLANNING DEPARTMENT
SOURCE: PINELLAS COUNTY GIS DATA

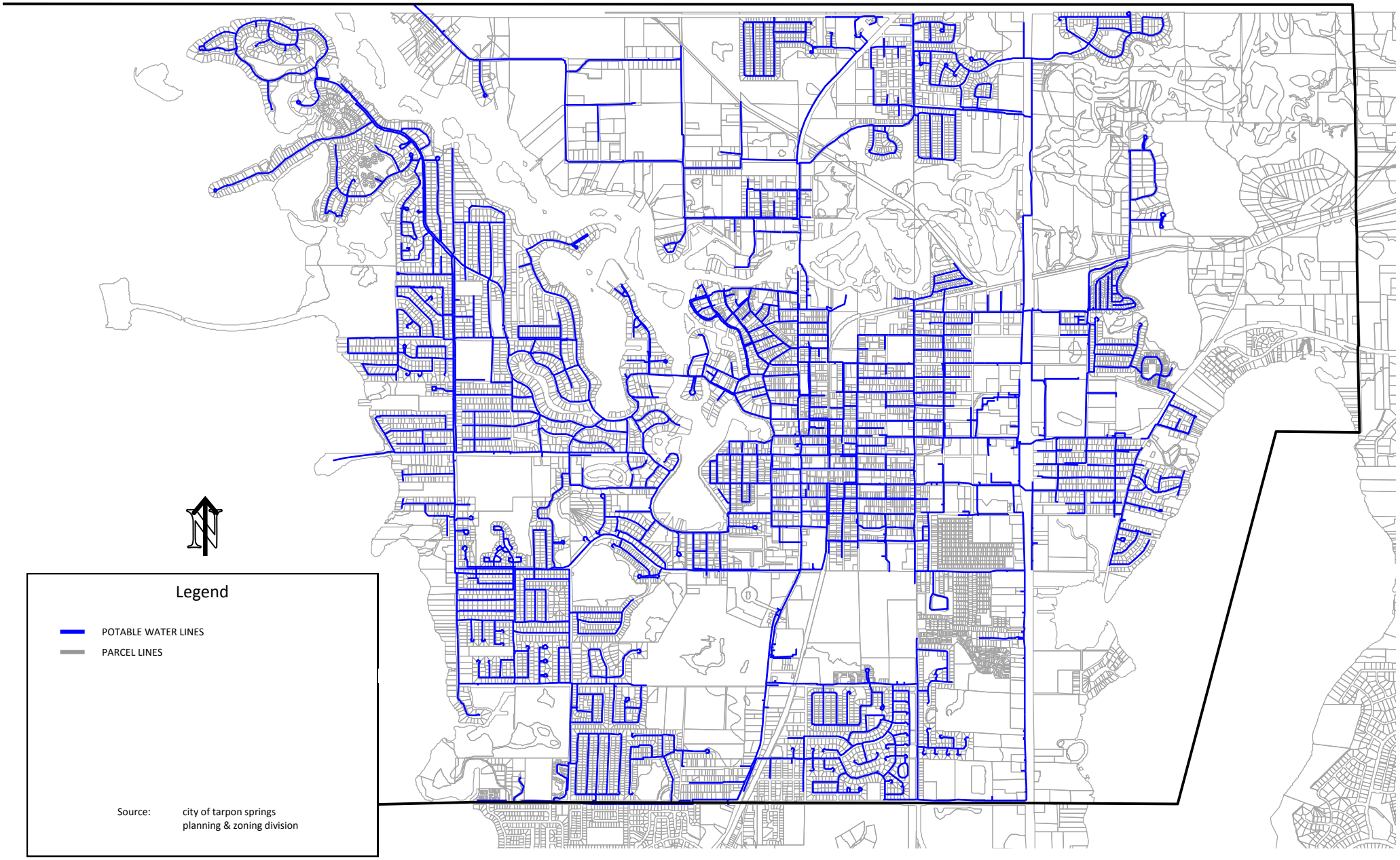
Map 5 - Drainage Basins



Map 6 - Outfalls, Closed Landfill and Municipal Wells



Map 7 - Potable Water Distribution System



APPENDIX A
WATER SUPPLY FACILITIES WORK PLAN

Prepared by:
The City of Tarpon Springs
Planning & Zoning Division

I. PURPOSE AND FORMAT

The purpose of the 10-Year Water Supply Facilities Work Plan is to demonstrate adequate water supply and public facilities to serve the water supply demands of the City of Tarpon Springs as required by Chapters 163.3177(6)(c) and 373.0361, F.S. and Rule 9J-5.011, F.A.C. This plan is included as Appendix A to the Utilities Element.

II. INTRODUCTION

The 10-Year Water Supply Facilities Work Plan assesses the current status and performance of the City of Tarpon Springs water supply system. This plan is based upon the guidance given by the Florida Department of Community Affairs publication; *"A Guide for Local Governments in Preparing Water Supply Comprehensive Plan Amendments and Water Supply Facilities Work Plans".* The plan is consistent with the Southwest Florida Water Management District's 2010 (SWFWMD) Regional Water Supply Plan (RWSP), Tampa Bay Water's Master Water Plan (MWP) and furnishes data on the existing water supply system, future water demand projections, conservation measures, a capital improvements schedule of projects, and a water supply concurrency management system. This sub-element is based upon data from the City of Tarpon Springs Public Services Department, Engineering Division, Planning & Zoning Division, Pinellas County Utilities, Tampa Bay Water and SWFWMD. The projected demand on the water supply is based upon the population projections that are presented in Table 1.

Table 1 - Population Projections

	2010	2015	2020	2025	2030
City of Tarpon Springs					
Municipal Population Served	*25,779*	*25,898*	*26,039*	*26,171*	*26,286*
Total Utility Service Area Population	*28,913*	*29,056*	*29,224*	*29,384*	*29,525*
Pinellas County Utilities					
Municipal Population Served	*136.017*	*139*	*143*	*148*	*155*
Total Utility Service Area Population	*392,354*	*393,748*	*395,477*	*397,145*	*398,684*
Municipal Population	*25,915*	*26,037*	*26,182*	*26,319*	*26,441*

Source: SWFWMD Tampa Bay Planning Region Community Sheet

III. DATA AND ANALYSIS

A. Existing Conditions

The City of Tarpon Springs is located within the jurisdictional boundaries of the Southwest Florida Water Management District (SWFWMD). SWFWMD is a regional governing body whose purpose is to manage and protect the water resources of the Tampa Bay region. SWFWMD is divided into eight watershed basin boards whose function is to identify water-related issues in their area and fund programs to address those problems. The City of Tarpon Springs is located in the Pinellas-Anclote Basin Board as shown to the right.

Tampa Bay Water is the water supplier for a majority of the local governments in the Tampa Bay region. Tampa Bay Water was created in 1998 to act as the regional water utility for the Tampa Bay area. There are six member governments including Hillsborough, Pinellas and Pasco counties and the cities of New Port Richey, St. Petersburg and Tampa. An interlocal agreement and master water supply contract between Tampa Bay Water and its member governments provides for the development of a safe, sustainable, and cost effective water supplies through a cooperative approach. No proportional share of the existing water supply is specifically allocated to any member government. The City of Tarpon Springs is a wholesale water customer of Tampa Bay Water through Pinellas County Utilities. In FY 2012, the City received approximately 81.3% of its water on an annual average basis from Pinellas County Utilities.

The City currently has three wells that produce potable water for consumption by its residents. All City wells operate under an active Water Use Permits issued by SWFWMD that will require renewal in 2015. The Water Use Permit (CUP) number is 20000742.010 and the permit allows 4.20 MGD to be drawn from multiple wells. The average annual production rate in FY 2012 for the Grosse Avenue well was 0.175 MGD. The average annual production rate in FY 2012 for the Tarpon Avenue well was 0.203 MGD. The average annual production rate in FY 2012 for the Highland Avenue well was 0.405 MGD. The total production rate in FY 2012 for the three existing City wells was 0.405 MGD. In addition, during this time period we operated the Disston Avenue Well System for a portion of the year which produced an additional 0.020 MGD for a total in-house average daily production volume of 0.425 MGD. The balance of the permitted capacity will be used to supply the future Alternative Water Supply Facility (reverse osmosis membrane water treatment facility) which is projected to begin operating in early 2015. Since the City of Tarpon Springs is a wholesale customer of Pinellas County Utilities, the City maintains the water distribution system for the entire service area. The extent of the City's potable water distribution system is identified on Map 1. The condition of the City's distribution lines varies from area to area. In the historic downtown, most of the lines are 50 years old or older. The City has taken proactive steps to replace lines in this area as funds become available. In newer areas of the City, the condition of the lines is quite good because of new development that has been required to upgrade existing water lines and/or install new lines.

The City's reclaimed water system consists of a two 2.0 million gallon above ground storage tanks and pumping station at the Wastewater Treatment Plant with a distribution system and a remote control telemetry system that monitors and regulates flow at the City's Cycadia Cemetery pond and 850,000 gallon storage pond at the Tarpon Springs Municipal Golf Course. The City's reclaimed water customer base is a mix of residential and commercial customers. Seasonal variation in reclaimed water supply is a normal part of reclaimed water system operations. Seasonal changes in weather control the amount of surplus reclaimed water available for residential use. During the rainier months, more surplus reclaimed water is available as customers do not need as much supplemental irrigation. In contrast, during the drier months of the year the demand for reclaimed water for irrigation is at its highest and the available surplus is low. As a result, customers can expect the possibility of periods of low reclaimed water supply during extended periods of drought. During these periods, the City manages system demands to ensure that customers have access to available reclaimed water and that supply is restored as soon as possible.

The City of Tarpon Springs currently operates the following potable water conservation programs:

1. Reclaimed Water - The City provides reclaimed water to 1,530 residential customers (901,521 gallons per day on average) and 34 commercial customers (296,619 gallons per day on average). The total reclaimed water usage for FY 2012 was 1,383,456 gallons.
2. Inverted Rate Structure - The City's water rates are structured such that the highest water users pay the highest unit cost for water to encourage conservation.
3. Toilet Rebate Program - The City participates in a toilet rebate program for the replacement of older, high-flow toilets with newer low-flow units. This program is administered through Pinellas County Utilities.
4. Residential/Commercial Leak Detection Kits - City employees distribute leak detection kits to customers with unusual water demands or upon request. The City's website also provides instruction for customer self-inspection and leak detection.
5. Watering Restrictions - The City enforces various levels of watering restrictions.

B. Projected Needs

The City of Tarpon Springs distributed 829,927,000 gallons of potable water in FY 2012. The City's adopted Level of Service standard for potable water is 110 gpcd at a pressure of 50-60 psi. As stated earlier, the City's water supply comes from Pinellas County Utilities and local wells. In order to make up for the loss in water supply as identified in Table 2, the City is in the process of developing its own water supply from brackish groundwater.

Table 2 - Water Supply/Demand Analysis

DEMAND ANALYSIS							
UTILITY NAME	**2010**	**2015**	**2020**	**2025**	**2030**	**WUP (MGD)**	**PER CAPITA WATER USE (2003-2007)**
CITY OF TARPON SPRINGS *(SUPPLIED PARTIALLY THROUGH PINELLAS COUNTY UTILITIES)*							
Municipal Population Served	25,779	25,898	26,039	26,171	26,286	1.38	110
Demand (MGD)	**2.836**	**2.849**	**2.864**	**2.879**	**2.892**		
Total Utility Service Area Pop.	28,913	29,056	29,224	29,384	29,525		
Demand (MGD)	**3.18**	**3.196**	**3.215**	**3.232**	**3.248**		

PINELLAS COUNTY UTILITIES *(SUPPLIED PARTIALLY THROUGH TAMPA BAY WATER)*							
Municipal Population Served	136.017	139	143	148	155	1.343	107
Demand (MGD)	0.015	0.015	0.015	0.016	0.017		
Total Utility Service Area Pop.	392,354	393,748	395,477	397,145	398,684		
Demand (MGD)	41.982	42.131	42.316	42.495	42.659		
MUNICIPAL POPULATION	25,915	26,037	26,182	26,319	26,441		110*
TOTAL DEMAND (MUNICIPAL)	**3.18**	**3.196**	**3.215**	**3.232**	**3.248**		
TOTAL DEMAND (COUNTY)	45.162	45.327	45.531	45.727	45.907		
			**Weighted mean per capita of utilities serving within community jurisdiction*				
SUPPLY ANALYSIS							
EXISTING SOURCES							
	2010	**2015**	**2020**	**2025**	**2030**		
Total Permitted Quantities (MGD)	2.723	4.2	4.2	4.2	4.2		
Contract w/ Pinellas County for Supply	3.41	0	0	0	0		
TOTAL SUPPLY	**6.133**	**4.2**	**4.2**	**4.2**	**4.2**		
Water Supply Authority Quantities (MGD)	267.808	267.808	267.808	267.808	267.808		
	2010	**2015**	**2020**	**2025**	**2030**		
TOTAL WATER SUPPLY SURPLUS OR DEFICIT	**2.953**	**1.004**	**0.985**	**0.968**	**0.952**		
FUTURE SOURCE OPTIONS							

The City has historically received potable water from four City-owned and operated freshwater wells with a production capacity of approximately 1.02 MGD and wholesale finished water purchased from Pinellas County (County) for the remaining potable water supply. In recent years the City has desired to obtain independence in raw water supply, treatment and distribution in order to reduce dependence on outside suppliers (the County and, by extension, Tampa Bay Water) and to control distribution system disinfection practices. Furthermore, the proposed Alternative Water Supply Project will increase the regional water supply capability using an alternative water supply source. In particular, the regional water supplier required the City to convert to the use of chloramines from free chlorine as the distribution system disinfectant. This situation has, in the past, caused total coliform detections in the City distribution system. In response, the City has been forced to increase flushing in the system to adequately maintain chloramine residuals throughout the entire system.

The City staff initiated this move to City-specific supply and treatment independence with a self-authored report most recently updated in May 2005 entitled "Alternative Water Supply Plan (Plan)." This plan included bringing on-line additional freshwater wells along Disston Avenue and constructing a brackish water treatment plant with an average day finished water production capacity of 5.0 MGD and a maximum day finished water production capacity of 6.4 MGD. It should be noted that the Plan referenced average day flow (ADF) capacity as opposed to the more commonly used maximum day flow (MDF) capacity used for potable water production. Subsequent to this effort, the City contracted with RosTek Associates Inc. (RosTek) to provide conceptual sizing and an independent opinion of probable construction cost for a maximum day 6.5 MGD finished water production capacity reverse osmosis (RO) treatment facility. The initial facility sizing was for 5.0 MGD finished water production capacity facility with the ability to expand to the maximum 6.5 MGD finished water production capacity by adding membrane elements to the existing skids and increasing feedwater pumping capacity. This study was delivered to the City in December 2005 and included two options: a low total dissolved solids (TDS) raw water supply option (TDS equal to 3,300 mg/L), and a high TDS raw water supply option (TDS equal to 10,500 mg/L).

In early 2007 the City further pursued their desire to achieve water supply and treatment independence by releasing a Request for Proposals (RFP) to provide Owner's Representative services for the procurement of a 6.5 MGD finished water production capacity RO membrane treatment plant including raw water supply wells, a raw water transmission system, a membrane treatment facility, a finished water storage and transmission system, and a concentrate water transmission system using the Design-Build delivery method. In the summer of 2007, CDM Smith was selected and contracted to provide the requested services. These services also required the completion of a pilot study to confirm treatment process requirements as well as the preparation of a Pilot Plant Study Report and a Preliminary Design Report. CDM Smith conducted a seven month pilot study from November 2007 through June 2008 and completed the Pilot Plant Study and Preliminary Design Reports in July 2009. It should be noted that the Project was delayed by legal challenges by a local resident until March 2012 when the City ultimately prevailed. The City has secured a Cooperative Funding Grant from the Southwest Florida Water Management District (SWFWMD) for up to $20,185,000 and is projected to award the Design-Build contract by the Spring of 2013. The Grant requires completion of construction by December 2014. It should be noted that the City modified the desired maximum day finished water capacity of the Facility during the development of the Preliminary Design Report. The maximum day finished water production capacity of the Facility shall not be less than 6.4 MGD. Based on the City's projected growth and the amount of water the facility will produce, the City will have a healthy surplus of water through the current planning period.

The Tarpon Springs Wastewater Treatment Facility (WWTF) produces, on average, 2.05 MGD of treated effluent and approximately 1.4 MGD of reclaimed water is distributed to numerous customers. The City has 0.65 available for additional customer growth however; the biggest challenge is creating a mechanism to meet seasonal demand when the supply exceeds demand during rainy periods and vice-versa during dry periods. Additional storage and supplemental water sources are typically the solution to these challenges.

In an effort to address develop practical solutions to this problem, the City hired the wastewater engineering consulting firm of Baskerville-Donovan, Inc. to develop a master plan for the reclaimed water system. In 2012, Baskerville-Donovan, Inc. completed *"The City of Tarpon Springs Reclaimed Water Master Plan and Reuse Optimization Study."* The primary focus of the study was to develop a master plan for optimizing and expanding the City's reclaimed water system which in turn will reduce the demand for potable water. In order to achieve the objective of improving the reclaimed water system and positioning the City for potential future improvements, the study concluded that the following projects be evaluated for funding in the near term:

Table 3 - Near Term Capital Improvements

Project Component	Projected Cost (2012 Dollars)
Zone Control Valves with SCADA System	$239,600
Reuse Main from Whitcomb Blvd. & Carolina Ave. to MGC	$384,100
Ground Storage Tank, Pump Station, and Reuse Main at MGC	$3,946,300
Westwinds Reclaimed Water Retrofit	$350,400
Reuse Main for Pinellas County Interconnect	$886,900
Oakleaf Village Reclaimed Water Retrofit	$989,900
Industrial Users North of Anclote River (Reuse main from WWTF)	$1,993,300
Total	**$8,790,500**

Source: "The City of Tarpon Springs Reclaimed Water Master Plan and Reuse Optimization Study - March 2012"

The study also included a list of long term capital improvements that were focused on achieving substantial interconnections with reclaimed water utilities within Pasco County to the north and continuing to add new customers north of the Anclote River. The projects identified in the long term include:

Table 4 - Long Term Capital Improvements

Project Component	Projected Cost (2012 Dollars)
Reuse Main from Industrial Users to US 19	$1,133,800
North Beckett Way Reclaimed Water Retrofits	$353,300
South Beckett Way Reclaimed Water Retrofits	$517,600
Progress Energy Anclote Power Plant	$709,500
Reuse Piping from Pasco County Line to City Center	$953,600
The Meadows and Forest Ridge Reclaimed Water Retrofit	$880,600
Reclaimed Water Retrofit for the Castleworks Area	$1,425,400
Total	**$5,973,900**

Source: "The City of Tarpon Springs Reclaimed Water Master Plan and Reuse Optimization Study - March 2012"

Between the current flows to the Anclote River and expected reductions in use through zoning restrictions and conservation efforts, the City has between 650,000 and 750,000 gpd available for new customers on an annual average basis. The proposed expansion to new customers exceeds this value and such an expansion will be undertaken as reclaimed water is available. If system interconnects with Pinellas County and/or Pasco County can be established and reclaimed water is readily available, the City may be able to add more customers. With the addition of new customers to the reclaimed water system, the City will be able to raise its utilization rate from its current value of 68% up to 96%. The City could reach 100% as additional users were identified; however, the lack of available supply may limit the ability to add so many new customers.

IV. GOALS, OBJECTIVES AND POLICIES

A. Introduction

Pursuant to Chapters 163.3177(6)(c) and 373.0361, F.S. and Rule 9J-5.011, F.A.C., the following represents the 10-Year Water Supply Facilities Work Plan Goals, Objectives and Policies of the City of Tarpon Springs.

B. Non-Applicable Items

All the goals, objectives and policies are applicable to the City of Tarpon Springs.

C. Local Goals, Objectives and Policies

D. **GOAL 1**

THE CITY SHALL ENSURE THAT SUFFICIENT POTABLE WATER IS AVAILABLE THROUGH THE NEXT 10 YEARS TO MEET THE EXISTING AND FUTURE NEEDS OF THE SERVICE AREA POPULATION AND SHALL NOT ADVERSELY AFFECT THE NATURAL ENVIRONMENT.

Objective 1.1

To provide adequate water supplies to the service area population.

Policy 1.1.1

The City shall maintain the adopted Level of Service standard of 100 gpcd at a pressure of 50-60 psi for potable water.

Policy 1.1.2

The City shall continue to move forward with design and construction of the Reverse Osmosis Water Treatment Facility.

Policy 1.1.3

The City shall begin operating the Reverse Osmosis Water Treatment Facility by 2015.

Policy 1.1.4

The City shall incorporate new potable water projects into the 10-Year Water Supply Facilities Work Plan for FY 2014-2017 once the water rate structure evaluation study is completed by Burton & Associates.

Policy 1.1.4

The City shall continue to coordinate water supply planning with Pinellas County Utilities, SWFWMD and Tampa Bay Water.

Policy 1.1.5

The City shall ensure that adequate water supplies and potable water facilities are in place and available to serve new development no later than the issuance of a certificate of occupancy or its functional equivalent by a local government. Prior to approving a building permit or its functional equivalent, the City will consult with Pinellas County Utilities/Tampa Bay Water to determine whether adequate water supplies will be available to serve the development no later than the anticipated date of issuance of a certificate of occupancy or its functional equivalent.

Policy 1.1.6

The City shall amend the Comprehensive Zoning and Land Development Code by the end of 2014 to add water supply concurrency to its existing Concurrency Management System.

Policy 1.1.7

Through the Concurrency Management System, the City shall ensure that the future land use plan is based upon the availability of adequate water supplies and public facilities and services. Data and analysis is required for all Future Land Use Map amendments which demonstrate that

adequate water supplies and associated public facilities will be available to meet projected growth demands.

Objective 1.2

To expand the City's water reuse and conversation programs to reduce potable water demands.

Policy 1.2.1

The City shall continue to systematically expand the reclaimed water distribution system in a logical and financially feasible manner.

Policy 1.2.2

The City shall investigate the expansion of water conservation measures. The measures that will be analyzed for feasibility are 1) rain sensor shut-off device rebates, 2) industrial/commercial spray valve replacement, 3) industrial/commercial surveys, 4) water efficient landscape and irrigation system rebates, 5) large landscaping water use surveys, and 6) water budgeting.

Policy 1.2.3

The City efficiently use reclaimed water resources by setting a goal of 75% utilization/offest.

Figure 1

Appendix A - Exhibit A

Pinellas County ~~Utilities~~ Ten-Year Water Supply Facilities Work Plan

					PCU[1] Total Water Demand (MGD) for the Pinellas County's Water Demand Planning Area (PCWDPA)[1]													
					~~FY08/09~~	~~FY09/10~~	~~FY10/11~~	FY11/12	FY12/13	FY13/14	FY14/15	FY15/16	FY16/17	FY17/18	FY18/19	FY19/20	FY20/21	FY21/22	
CAPITAL PROGRAMS					~~67.00~~	~~67.00~~	~~67.00~~	~~67.00~~ 53.50	~~67.00~~ 54.00	~~67.00~~ 49.50	~~67.00~~ 49.50	~~67.00~~ 50.00	~~67.00~~ 50.50	~~67.00~~ 51.00	~~67.00~~ 51.00	51.00	51.00	51.00	
TYPE	CIP PROJECT TITLE[1]	~~CIP PROJECT NUMBER/ COST CENTER[1]~~	FUNDING SOURCE	LOCATION	TEN-YEAR SCHEDULE OF IMPROVEMENTS (Dollars Shown in Thousands)														Work Plan Total
					~~FY08/09~~	~~FY09/10~~	~~FY10/11~~	FY11/12	FY12/13	FY13/14	FY14/15	FY15/16	FY16/17	FY17/18	FY18/19	FY19/20	FY20/21	FY21/22	
Facility Replacement	Water Distribution Mains	~~543/ 6543005~~	Water Enterprise Fund	Throughout Service Area	~~9,100~~	~~13,200~~	~~2,200~~	2,550 3,200	1,440 2,200	1,283 2,200	3,080 2,200	3,660 2,200	3,150 2,200	2,838 2,200	2,528 2,200	2,528 2,200	2,528	2,528	28,113 43,100
Facility Replacement	Source of Supply and Treatment	~~533/ 6543001~~	Water Enterprise Fund	Throughout Service Area	~~655~~	~~55~~	~~1,555~~	4,302 805	10,556 55	10,717 55	113 55	100 55	73 55	75 55	140 55	140 55	140	140	26,496 3,455
Facility Replacement	Water Transmission Mains	~~534/ 6543002~~	Water Enterprise Fund	Throughout Service Area	~~11,000~~	~~0~~	~~0~~	7,344 0	4,300 0	1,710 0	615 0	200 0	3,077 0	3,135 0	280 0	280 0	280	280	21,501 11,000
Facility Replacement	Distribution Stations	~~544/ 6543006~~	Water Enterprise Fund	Throughout Service Area	~~635~~	~~45~~	~~420~~	92 45	930 515	248 515	0 515	0 515	0 515	0 515	0 515	0 515	0 2,626	0 2,626	1,270 4,750
~~New Facilities~~	~~CIAC[2]~~	~~546/ 6543009~~	~~Water Enterprise Fund~~	~~Throughout Service Area~~	~~3,266~~	~~3,236~~	~~3,236~~	~~3,236~~	~~3,236~~	~~3,236~~	~~3,236~~	~~3,236~~	~~3,236~~	~~3,236~~	~~3,236~~	~~3,236~~			~~35,626~~
~~New Facilities~~	~~Water Blending Facility~~	~~1248/□6590200~~	~~Water Enterprise Fund~~	~~Throughout Service Area~~	~~59,400~~	~~21,400~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~			~~80,800~~
~~Future Need~~	~~Treatment Plants~~	~~1641/ 6652200[3]~~	~~Revenue Bonds~~	~~North & South Pinellas Service Areas~~	~~10,750~~	~~1,500~~	~~625~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~			~~12,875~~
Facility Replacement	South Cross Additions and Improvements (Including Reuse System)	~~555/ 6614900~~	Sewer Enterprise Fund; SWFWMD	South Cross Bayou Wastewater Treatment Facility	~~3,255~~	~~235~~	~~735~~	6,830 1,155	15,914 1,135	11,971 1,135	12,696 1,135	3,607 1,135	2,960 1,135	2,865 1,135	2,960 1,135	2,960 1,135	2,960	2,960	68,683 13,325
Facility Replacement	W.E. Dunn Water Reclamation Facility	~~552/ 6614300~~	Sewer Enterprise Fund; SWFWMD	W.E. Dunn North Pinellas Service Area	~~5,173~~	~~1,923~~	~~433~~	570 603	1,590 603	4,960 603	1,005 603	825 603	695 603	1,750 603	695 603	695 603	695	695	14,175 12,353
Facility Replacement	Sewer Modification and Rehabilitation	~~553~~	Sewer Enterprise Fund	Throughout Service Area				3,350	3,365	3,305	3,396	3,447	3,542	3,427	3,542	3,542	3,542	3,542	38,000
Fiscal Year Total					~~103,234~~	~~41,694~~	~~9,264~~	25,038 9,044	38,095 7,744	34,194 7,744	20,905 7,744	11,839 7,744	13,497 7,744	14,090 7,744	10,145 7,744	10,145 7,744	10,145	10,145	198,238 217,284
O&M PROGRAMS																			
~~Conservation Projects[4]~~	~~Efficient Use of Potable Water~~		~~Water / Wastewater Enterprise~~	~~Throughout Service Area~~	~~832~~	~~747~~	~~653~~	~~424~~	~~270~~	~~270~~	~~270~~	~~270~~	~~270~~	~~270~~	~~270~~	~~270~~			~~3,776~~
Conservation/Education/ Enforcement[5]	Education and Outreach		Water / Wastewater Enterprise	Countywide	~~550~~	~~550~~	~~550~~	150 550	150 550	150 550	150 550	150 550	150 550	150 550	150 550	150 550	150	150	1,500 2640
Fiscal Year Total					~~1,382~~	~~1,297~~	~~1,203~~	150 974	150 820	150 820	150 820	150 820	150 820	150 820	150 820	150 820	150	150	1,500 6,416

[1] PCWDPA includes approximately 111,500 retail water accounts as of September 2012. As of September 2012, Pinellas County provides wholesale service to the cities of Clearwater, Safety Harbor, Pinellas Park, and Tarpon Springs and provides retail service to the cities of Belleair Beach, Belleair Bluffs, Belleair Shore, Indian Rocks Beach, Indian Shores, Kenneth City, Largo, Madeira Beach, North Redington Beach, Redington Beach, St. Pete Beach, Redington Shores, Seminole and Treasure Island.

~~[1] PCU = Pinellas County Utilities; the PCU water service area includes approximately 111,442 retail water accounts as of September 2009. PCU provides wholesale service to the cities of Clearwater, Safety Harbor, Pinellas Park, Tarpon Springs, Oldsmar and Dunedin (Dunedin is only hooked up as a wholesale customer for emergency purposes with the exception of a subdivision serviced by PCU). Of these wholesale customers, the Cities of Tarpon Springs, Clearwater and Oldsmar are considering water supply alternatives which will reduce the demand on PCU. PCU provides retail service to the cities of Belleair Beach, Belleair Bluffs, Belleair Shore, Indian Rocks Beach, Indian Shores, Kenneth City, Largo, Madeira Beach, North Redington Beach, Redington Beach, St. Pete Beach, Redington Shores, Seminole and Treasure Island.~~

~~[2] CIAC = Contributions in Aid of Construction - for example, the implementation of the reclaimed water system benefits the water system in that the system doesn't need to expand to meet the new demand. Therefore, funds are transferred from the water system enterprise to the sewer enterprise to pay for part of the reclaimed system construction.~~

~~[3] The expansion of Pinellas County's reclaimed water distribution system and incentives to citizens to utilize alternative water sources for irrigation are key conservation and potable water demand reduction strategies. Also, Reuse System Expansion includes Aquifer Storage and Recovery in both North and South County.~~

~~[4] Water conservation programs are focused on: a) Ultra-low volume toilet retrofits ($1.36 million estimated), b) Alternate water sources for irrigation ($0.97 million estimated)~~

~~[5] Due to reducing per capita consumption of water, the focus will shift to maintaining public knowledge and sensitivity to water resource issues.~~

~~***NOTES: *These Project Titles and Numbers are a cross reference to and are consistent with the Pinellas County Capital Improvements Program (CIP) Six-Year Work Plan: FY 2010 - FY 2015. All figures are projections based on best available data. The Pinellas County Board of County Commissioners approves budgets and priorities annually.***~~

10/8/2012

Figure 2

TARPON SPRINGS 10-YEAR WATER SUPPLY FACILITIES WORK PLAN (FY 2011 THRU 2021)

PROJECT DESCRIPTION:		FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
AWP Projects												
Phase V Plant Design/Specs/Construction Services Engineering	$	618,000	300,675	-	-	-	-	-	-	-	-	-
Phase VI RO Facility Construction and Land Purchase	$	-	24,419,118	12,209,559	-	-	-	-	-	-	-	-
Additional CIP Costs	$	-	-	-	-	-	-	-	-	-	-	-
Water Supply / Well Systems Projects												
Well Improvements, Hydrant Flushing Automation	$	110,000	72,000	-	-	-	-	-	-	-	-	-
Water Distribution Projects												
Water Pipe/Valve Replacement Program (List Below)	$	-	740,000	775,000	810,000	845,000	-	-	-	-	-	-
Bayshore Pase I Waterline	$	300,000	-	-	-	-	-	-	-	-	-	-
Water Dist Projects from Assessment Plan or Unidentified	$	175,000	175,000	-	-	-	-	-	-	-	-	-
Curlew Place Water Main	$	-	-	250,500	-	-	-	-	-	-	-	-
Avoca Drive Water Main	$	-	-	21,750	-	-	-	-	-	-	-	-
Island Avenue Water Main	$	-	-	84,750	-	-	-	-	-	-	-	-
Shore Drive Waterline	$	-	-	11,220	-	-	-	-	-	-	-	-
Lemon Street Waterline Cleanout	$	-	-	15,000	-	-	-	-	-	-	-	-
Replace Misc Galvanized Waterlines	$	-	-	130,000	-	-	-	-	-	-	-	-
Cul-de-sac Waterline Looping	$	-	-	78,000	-	-	-	-	-	-	-	-
Water Distribution Assessment Planning/Engineering	$	60,000	126,000	131,250	136,500	141,750	-	-	-	-	-	-
Geographic Information System (GIS)	$	50,000	60,000	62,500	-	-	-	-	-	-	-	-
Valve Installation/Replacement												
Citywide Valve Replacements (as needed)	$	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Meter Repair/Backflow												
Meters	$	158,350	325,000	325,000	325,000	260,000	208,000	166,400	133,120	106,496	-	-
Vehicles	$	-	-	112,500	-	-	-	-	-	-	-	-
Reclaimed Water												
Reclaimed Water Distribution Projects - Water Allocation	$	25,000	125,000	-	-	-	-	-	-	-	-	-
Reclaimed Water Distribution Projects - Sewer Allocation	$	25,000	125,000	-	-	-	-	-	-	-	-	-
Unspecified Future Projects - Water (1)	$	-	-	-	-	-	1,385,170	1,528,134	1,542,441	1,596,303	1,682,563	-
Total CIP Budget	**$**	**1,621,350**	**26,567,793**	**14,307,029**	**1,371,500**	**1,346,750**	**1,693,170**	**1,794,534**	**1,775,561**	**1,802,799**	**1,782,563**	**100,000**

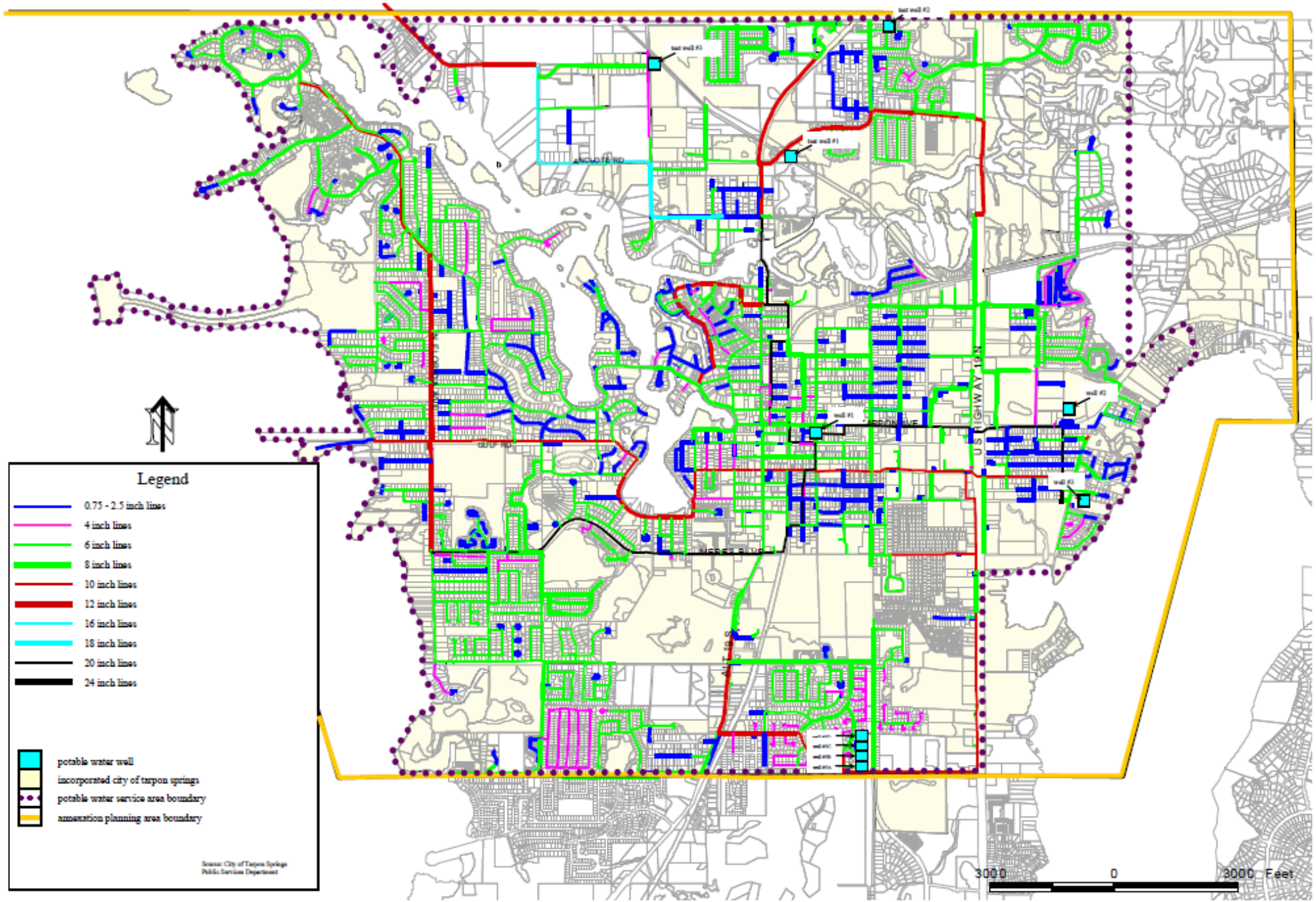
(1) Unspecified future project costs are based upon a rolling average of total water system project costs, excluding AWP Project costs, for the preceding 5-year period

Source: Tarpon Springs, Florida Annual Budget for the Fiscal Year ending September 30, 2013 and *FY 2010 REVENUE SUFFICIENCY ANALYSIS UPDATE* prepared by Burton & Associates

CAPITAL PROJECTS FUNDING SOURCES:		FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Water Impact Fee Fund	$	22,500	116,325	-	-	-	-	-	-	-	-	-
Series 2011A Revenue Bond Proceeds (AWP)	$	618,000	11,319,793	5,509,559	-	-	-	-	-	-	-	-
AWP Grant Proceeds	$	-	13,400,000	6,700,000	-	-	-	-	-	-	-	-
Series 2011 Revenue Bond Proceeds	$	-	3,682,033	4,235,163	1,179,394	11,794	118	1	-	-	-	-
Renewal & Replacement Fund	$	512,257	-	-	1,713,544	646,064	675,570	719,525	767,411	818,215	872,777	-
Revenue Fund	$	1,930,559	-	-	1,919,823	354,880	431,262	351,647	436,395	410,129	560,287	-
Future Long-Term Borrowing Proceeds	$	-	-	-	-	-	3,563,218	-	4,347,266	-	4,548,017	-
Future Interim Financing Proceeds	$	-	-	-	2,505,540	3,517,501	-	5,711,724	-	4,621,230	-	-
Total CIP Project Funding	**$**	**3,083,316**	**28,518,151**	**16,444,722**	**7,318,301**	**4,530,239**	**4,670,168**	**6,782,897**	**5,551,072**	**5,849,574**	**5,981,081**	**0**

Source: *FY 2010 REVENUE SUFFICIENCY ANALYSIS UPDATE* prepared by Burton & Associates

Map 1 - City of Tarpon Springs Potable Water Distribution System



INTERGOVERNMENTAL COORDINATION ELEMENT

GOALS, OBJECTIVES AND POLICIES

GOAL 1

IMPROVE INTERGOVERNMENTAL AND INTERAGENCY COORDINATION TO EFFECTIVELY IMPLEMENT LOCAL GOVERNMENT COMPREHENSIVE PLANS AND RESOLVE INTERLOCAL DEVELOPMENT AND SERVICE DISPUTES IN A FAIR AND EXPEDITIOUS MANNER.

Objective 1.1

To coordinate the implementation of the Tarpon Springs Comprehensive Plan with the Countywide Plan, the Strategic Regional Policy Plan, the plans of adjacent local governments, the school board, the Southwest Florida Water Management District (SWFWMD) Regional Water Supply Plan, Tampa Bay Water's Master Water Plan, Pinellas County's 10-Year Water Supply Plan and special districts.

Policy 1.1.1

The City will ensure that this Comprehensive Plan and any future amendments hereto, are consistent with the Strategic Regional Policy Plan of the TBRPC, Tampa Bay: Future of the Region, the SWFWMD Regional Water Supply Plan, Pinellas County's 10-Year Water Supply Plan and Tampa Bay Water's Master Water Plan.

Policy 1.1.2

Through coordination with the Pinellas Planning Council, the City shall maintain the consistency of its Comprehensive Plan designations and density/intensity standards with the Countywide Future Land Use Plan. The City shall continue its participation of elected official and administrative personnel in the Council and the Planning Advisory Council.

Policy 1.1.3

Utilize the annual map adjustment process of the Pinellas Planning Council to finalize the distribution of jurisdictional wetlands subsequent to the issuance of an Environmental Resources Management Permit.

Policy 1.1.4

Forward all proposed Comprehensive Plan amendments north of the Anclote River to Pasco County in advance of the adoption hearing.

Consider the compatibility of future land uses and public facilities vis-a-vis the land use distribution of the Pasco County Comprehensive Plan.

Policy 1.1.5

Coordinate water resource planning with SWFWMD's Regional Water Supply Plan, Tampa Bay Water's Master Water Plan and Pinellas County's 10-Year Water Supply Plan in particular during the EAR-based amendments to the Potable Water, Coastal Management, and Drainage Elements of this Comprehensive Plan.

Policy 1.1.6

The City will continue to review changes to the St. Petersburg College Campus Master Plan to facilitate its implementation.

Policy 1.1.7

Coordinate transportation planning with FDOT's Florida Transportation Plan Connections: Bringing Florida Together in particular during EAR-based amendments to the Transportation Element of this Comprehensive Plan.

Policy 1.1.8

The city will ensure that this Comprehensive Plan and any future amendments hereto, are consistent with the State Comprehensive Plan, Chapter 187, F.S.

Policy 1.1.9

Forward all proposed Comprehensive Plan amendments to the Pinellas County Local Planning Agency in advance of the adoption hearing. Consider the extra-jurisdictional impact of local planning decisions in such areas as land use, transportation, coastal management, recreation and utilities.

Policy 1.1.10

Coordinate the City's future transportation network with the Pinellas County MPO's 2020 Long Range Transportation Plan.

E. Current and Projected Water Needs

The primary source for potable water use in the City of Tarpon Springs is the Floridian Aquifer. Approximately 81.3% of the City's water needs are purchased from the Pinellas County Water System (PCWS). The remaining potable water consumed is provided by municipal wells.

1. Current Water Needs

The City of Tarpon Springs distributed 829,927,000 gallons of potable water in FY 2012. The primary potable water users are residential and commercial, with a small amount of industrial consumers. There are no agricultural consumers of potable water in the City of Tarpon Springs. The City has 835 commercial accounts of which 3 are identified as “significant users”, Florida Power, Florida Hospital - North Pinellas, and Tarpon Springs High School. Commercial users account for approximately 25.4% of total consumption.

2. Projected Needs

Table 2 - Water Supply/Demand Analysis

DEMAND ANALYSIS							
UTILITY NAME	**2010**	**2015**	**2020**	**2025**	**2030**	**WUP (MGD)**	**PER CAPITA WATER USE (2003-2007)**
CITY OF TARPON SPRINGS *(SUPPLIED PARTIALLY THROUGH PINELLAS COUNTY UTILITIES)*							
Municipal Population Served	25,779	25,898	26,039	26,171	26,286		
Demand (MGD)	**2.836**	**2.849**	**2.864**	**2.879**	**2.892**		
Total Utility Service Area Pop.	28,913	29,056	29,224	29,384	29,525	1.38	110
Demand (MGD)	**3.18**	**3.196**	**3.215**	**3.232**	**3.248**		
PINELLAS COUNTY UTILITIES *(SUPPLIED PARTIALLY THROUGH TAMPA BAY WATER)*							
Municipal Population Served	136.017	139	143	148	155		
Demand (MGD)	0.015	0.015	0.015	0.016	0.017	1.343	107
Total Utility Service Area Pop.	392,354	393,748	395,477	397,145	398,684		
Demand (MGD)	41.982	42.131	42.316	42.495	42.659		
MUNICIPAL POPULATION	25,915	26,037	26,182	26,319	26,441		110*
TOTAL DEMAND (MUNICIPAL)	**3.18**	**3.196**	**3.215**	**3.232**	**3.248**		
TOTAL DEMAND (COUNTY)	45.162	45.327	45.531	45.727	45.907		
			**Weighted mean per capita of utilities serving within community jurisdiction*				
SUPPLY ANALYSIS							
EXISTING SOURCES							
	2010	**2015**	**2020**	**2025**	**2030**		
Total Permitted Quantities (MGD)	2.723	4.2	4.2	4.2	4.2		
Contract w/ Pinellas County for Supply	3.41	0	0	0	0		
TOTAL SUPPLY	**6.133**	**4.2**	**4.2**	**4.2**	**4.2**		
Water Supply Authority Quantities (MGD)	267.808	267.808	267.808	267.808	267.808		
	2010	**2015**	**2020**	**2025**	**2030**		
TOTAL WATER SUPPLY SURPLUS OR DEFICIT	**2.953**	**1.004**	**0.985**	**0.968**	**0.952**		
FUTURE SOURCE OPTIONS							

The City has historically received potable water from four City-owned and operated freshwater wells with a production capacity of approximately 1.02 MGD and wholesale finished water purchased from Pinellas County (County) for the remaining potable water supply. In recent years the City has desired to obtain independence in raw water supply, treatment and distribution in order to reduce dependence on outside suppliers (the County and, by extension, Tampa Bay Water) and to control distribution system disinfection practices. Furthermore, the proposed Alternative Water Supply Project will increase the regional water supply capability using an alternative water supply source. In particular, the regional water supplier required the City to convert to the use of chloramines from free chlorine as the distribution system disinfectant. This situation has, in the past, caused total coliform detections in the City distribution system. In response, the City has been forced to increase flushing in the system to adequately maintain chloramine residuals throughout the entire system.

The City staff initiated this move to City-specific supply and treatment independence with a self-authored report most recently updated in May 2005 entitled "Alternative Water Supply Plan (Plan)." This plan included bringing on-line additional freshwater wells along Disston Avenue and constructing a brackish water treatment plant with an average day finished water production capacity of 5.0 MGD and a maximum day finished water production capacity of 6.4 MGD. It should be noted that the Plan referenced average day flow (ADF) capacity as opposed to the more commonly used maximum day flow (MDF) capacity used for potable water production. Subsequent to this effort, the City contracted with RosTek Associates Inc. (RosTek) to provide conceptual sizing and an independent opinion of probable construction cost for a maximum day 6.5 MGD finished water production capacity reverse osmosis (RO) treatment facility. The initial facility sizing was for 5.0 MGD finished water production capacity facility with the ability to expand to the maximum 6.5 MGD finished water production capacity by adding membrane elements to the existing skids and increasing feedwater pumping capacity. This study was delivered to the City in December 2005 and included two options: a low total dissolved solids (TDS) raw water supply option (TDS equal to 3,300 mg/L), and a high TDS raw water supply option (TDS equal to 10,500 mg/L).

In early 2007, the City further pursued their desire to achieve water supply and treatment independence by releasing a Request for Proposals (RFP) to provide Owner's Representative services for the procurement of a 6.5 MGD finished water production capacity RO membrane treatment plant including raw water supply wells, a raw water transmission system, a membrane treatment facility, a finished water storage and transmission system, and a concentrate water transmission system using the Design-Build delivery method. In the summer of 2007, CDM Smith was selected and contracted to provide the requested services. These services also required the completion of a pilot study to confirm treatment process requirements as well as the preparation of a Pilot Plant Study Report and a Preliminary Design Report. CDM Smith conducted a seven month pilot study from November 2007 through June 2008 and completed the Pilot Plant Study and Preliminary Design Reports in July 2009. It should be noted that the Project was delayed by legal challenges by a local resident until March 2012 when the City ultimately prevailed. The City has secured a Cooperative Funding Grant from the Southwest Florida Water Management District (SWFWMD) for up to $20,185,000 and is projected to award the Design-Build contract by the Spring of 2013. The

Grant requires completion of construction by December 2014. It should be noted that the City modified the desired maximum day finished water capacity of the Facility during the development of the Preliminary Design Report. The maximum day finished water production capacity of the Facility shall not be less than 6.4 MGD. Based on the City's projected growth and the amount of water the facility will produce, the City will have a healthy surplus of water through the current planning period.

3. Water Conservation

The City of Tarpon Springs will continue to rely upon Pinellas County to provide a majority of its water needs until completion of the City's RO plant. This water will in turn continue to come from the Floridian Aquifer. However, there are a few things that the City can do to reduce consumption rates through water conservation:

* Utilize sewage effluent re-use for irrigation purposes
* Adopt a water conservation program
* Require water conserving plumbing fixtures in the City Building Code
* Add capacity to the City's reclaimed water system

F. Special Coastal Planning Efforts

Several regional efforts have been undertaken which merit discussion in this section. City of Tarpon Springs coastal management and conservation efforts should attempt to coordinate with these regional plans and efforts.

1. Tampa Bay Regional Planning Council

The Agency on Bay Management, an advisory subcommittee of the Tampa Bay Regional Planning Council, is concerned with the coordination of all management and conservation efforts in Tampa Bay and the adjacent Gulf and bay waters. A significant document, which gave impetus to the formation of this committee, is "The Future of Tampa Bay," issued in 1985 (TBRPC). This document identified, in order of priority, 42 issued of major importance to the maintenance, management and restoration of the Tampa Bay estuary and adjacent waters and tributaries. The City should continue its involvement in the activities of the Agency in order to coordinate City planning efforts with the efforts of other municipalities in the region as well as with Agency efforts.

2. Southwest Florida Water Management District

The SWFWMD Strategic Plan 2007-2016 identified seven strategic priorities of which the following have specific impact upon the City of Tarpon Springs:

1. Meet present and future water needs.
2. Establish minimum flows and level for priority water bodies
3. Manage the districts watersheds (Figure 23) comprehensively
4. Manage water and related natural resources through regulation

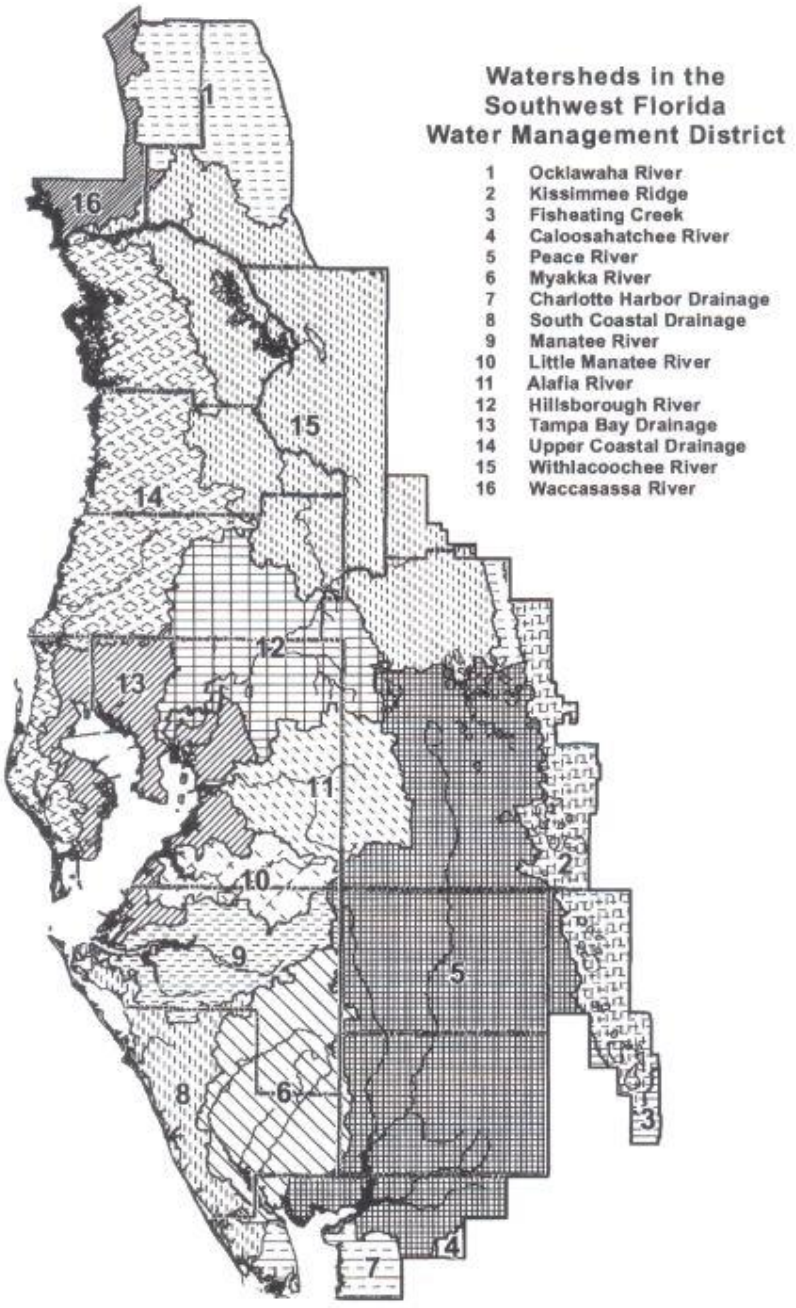
As the City moves forward with the establishment of its own Reverse Osmosis water treatment plant close coordination will be required with SWFWMD for

permitting and overall impact upon the water needs of the area. The Anclote River and Lake Tarpon are both considered priority water bodies for establishing and maintaining minimum flows. The City of Tarpon Springs should actively participate in the Tampa Bay / Anclote Watershed Management Plan update and be an integral part of its implementation.

3. Florida Department of Environmental Protection

The Florida Department of Environmental Protection is responsible for the management of the Tampa Bay Aquatic Preserves which includes the Pinellas County Aquatic preserve established July 1, 1976 and established as an Outstanding Florida Water Body on March 1, 1979. The natural and spoil islands that are state-owned within the preserve are also managed as part of the preserve. The Pinellas preserve covers 336,265 acres of land and includes several endangered, threatened or species of special concern. The City of Tarpon Springs should engage in any specific planning efforts or management plans related to the Pinellas County Aquatic Preserve.

FIGURE 23


Watersheds in the
Southwest Florida
Water Management District
1 Ocklawaha River
2 Kissimmee Ridge
3 Fisheating Creek
4 Caloosahatchee River
5 Peace River
6 Myakka River
7 Charlotte Harbor Drainage
8 South Coastal Drainage
9 Manatee River
10 Little Manatee River
11 Alafia River
12 Hillsborough River
13 Tampa Bay Drainage
14 Upper Coastal Drainage
15 Withlacoochee River
16 Waccasassa River

G. **GOAL 4**

PROVIDE, DEVELOP AND MAINTAIN A PERMANENT POTABLE WATER SUPPLY SYSTEM TO MEET ANTICIPATED DEMAND WHILE PROVIDING MAXIMUM PRACTICAL PROTECTION TO THE ENVIRONMENT AT A COST CONSISTENT WITH THE PUBLIC'S ABILITY AND WILLINGNESS TO PAY.

Objective 4.1

To maintain adequate Levels of Service for existing and future populations.

Policy 4.1.1

The adopted Level of Service standard for potable water is 110 gpcd at a pressure of 50-60 psi. This standard shall be used in determining the availability of facility capacity and demand created by new development.

Measure

The City's adopted level of service standard.

Objective 4.2

To provide adequate quantities and qualities of water service to all customers in the Tarpon Springs service area. The current service level is based upon 8,335 customer accounts.

Policy 4.2.1

The City shall ensure that land development regulations, building codes and City ordinances adequately address water system provisions by performing a thorough evaluation of City codes and by coordinating proposed provisions with the Southwest Florida Water Management District and Tampa Bay Water.

Policy 4.2.2

The City shall ensure that when new subdivisions are being developed, it shall be the responsibility of the developer to provide internal water systems which are constructed to City specifications.

Policy 4.2.3

The City shall continue to construct water system improvements which will provide adequate quantity, pressure and duration of fire flows while meeting system user needs.

Policy 4.2.4

The City shall continue to develop a system and construct improvements which will conserve energy, water and other valuable resources.

Policy 4.2.5

The City shall continue to participate and assist Tampa Bay Water, SWFWMD and FDEP in developing innovative techniques to augment existing water supplies to provide for future needs.

Policy 4.2.6

The City shall continue to identify, acquire and develop sources of water supply consistent with the 2005 Alternative Water Supply Plan.

Policy 4.2.7

Through the Concurrency Management System, the City shall ensure that the future land use plan is based upon the availability of adequate water supplies and public facilities and services. Data and analysis is required for all Future Land Use Map amendments which demonstrate that adequate water supplies and associated public facilities will be available to meet projected growth demands.

Measure

Potable water service that is provided to the service area population.

Objective 4.3

To continue to maintain the water system in a safe, sound and efficient manner.

Policy 4.3.1

The City shall continue to monitor water quality and the operation of the water distribution system with the intent of repairing and replacing deficient portions of the system within the framework of the capitalized budgeting process.

Policy 4.3.2

The City shall continue to provide adequate spacing of fire hydrants to provide optimum hose lays and fire flow.

Policy 4.3.3

The City shall require at the time of application for connection to the public potable water system, that minimum fire flows and hydrant spacing be consistent with fire district standards.

Measure

The number of new connections to the water system.

Objective 4.4

To continue to provide sound fiscal management for the operation and maintenance of potable water service in the City's service area

Policy 4.4.1

The City shall charge user fees to cover system operating costs, repayments of capital costs and allow for repair and replacement of existing facilities. The City shall also continue to evaluate new rate structures as necessary.

Policy 4.4.2

The City shall prioritize and schedule major improvements through the capital improvement program.

Policy 4.4.3

The City shall set aside funds for repair and replacement of the water system and those funds shall not be diverted to other uses.

Policy 4.4.4

The City shall continue to seek financial support for the creation of a municipal water system through grant programs administered by appropriate regional, State and Federal agencies.

Policy 4.4.5

The City shall explore modifying the building code to include the requirement for water conserving fixtures in newly constructed or remodeled buildings.

Policy 4.4.6

The City shall develop and modify rate structures and policies which encourage conservation of potable water.

Policy 4.4.7

The City shall provide public education materials to inform citizens of the need and opportunities for conserving potable water.

Policy 4.4.8

The City shall require development projects that are located in the unincorporated areas which require additional water service, must annex into the City limits or sign an affidavit to annex once they become eligible.

Measure

Cost of providing potable water service to the service area population.

Objective 4.5

To coordinate with other government agencies to solve problems of an extraterritorial nature.

Policy 4.5.1

The City shall continue to participate in regional and County-wide studies.

Policy 4.5.2

The City shall continue to cooperate with the Southwest Florida Water Management District and Tampa Bay Water in developing environmental and hydrologic data that will identify safe and reliable potable water yields in existing and future well-fields.

Policy 4.5.3

The City shall continue to pursue a coordinated approach to inter-jurisdictional problems, by providing support of both staff and officials to participate in conservation efforts with Pinellas County and the Tampa Bay Regional Planning Council.

Policy 4.5.4

The City shall continue to protect all natural recharge areas having functional hydrological characteristics.

Policy 4.5.5

The City shall recognize the importance of groundwater aquifer recharge in the hydrological process and the need for natural groundwater recharge as an integral component of the City’s urban environment.

Policy 4.5.6

The City shall include incentives in the Comprehensive Zoning and Land Development Code for the protection of natural groundwater aquifer recharge areas.

Policy 4.5.7

The City shall coordinate with SWFWMD, Tampa Bay Water and Pinellas County Utilities with the intent of sharing and updating information related to ongoing water supply needs.

Policy 4.5.8

The City shall continue to coordinate with SWFWMD, Tampa Bay Water and Pinellas County Utilities on the construction and operation of the City's Reverse Osmosis Water Plant, the establishment of level-of-service standards, resource allocations, changes in service areas and annexations.

Measure

The City's level of participation with other municipalities to address natural groundwater aquifer recharge issues.