

EXHIBIT A



City of Hollywood
Facilities Plan Update Amendment – 2018
Wastewater Utility Improvement Projects
Exhibit A

April 2018

City Project No. 16-1321

Professional Engineer Certification

I hereby certify under penalty of law that this report of the City of Hollywood Facilities Plan Update Amendment - 2018, has been prepared under my direct supervision and in accordance with Florida Rules and Regulations. As a registered professional engineer, as authorized by chapter 492, Florida Administrative Code, I certify that I am a qualified professional, with knowledge and expertise in facility plan preparation. To the best of my knowledge, the information presented in this report is true, accurate, complete, and in accordance with applicable regulations.



J. Philip Cooke, PE
FL Engineering Certification No. 47137



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SECTION 1.0 Executive Summary

1.1 Introduction

The City of Hollywood has the responsibility for planning, regulating, operating and maintaining a wastewater collection and transmission system and a regional wastewater treatment and disposal system within the City's corporate limits. Additionally, the City must comply with regulatory programs at various levels (federal, state, county and local) and fulfill contractual obligations to its Large Users.

The City is located in southeast Broward County. Currently, six surrounding municipalities send their wastewater to the City of Hollywood. These neighboring communities account for nearly 60 percent of the entire wastewater revenue stream. Approximately 54 percent of the City of Hollywood is connected to the wastewater system. The remaining residents and businesses rely on septic tanks installed during the 1950s and 1960s.

In an effort to most effectively fulfill its responsibilities to both local and regional customers and continue to comply with all regulatory programs at various levels, the City drafted a comprehensive wastewater master plan for the near and long term future of the utility. This effort was completed as the *Wastewater Master Plan, Amended October 2008*. The projects identified as a result of the Master Plan have largely been completed according to their priority. The City's next goal is to expand the existing sewer system to the unsewered areas and expand the effluent disposal capacity to comply with the Ocean Outfall Legislation. These capital improvements are planned for fiscal years 2019 through 2039.

1.2 Collection and Transmission System

The first component of the facilities plan is the sanitary sewer collection and transmission system. City's wastewater collection system has expanded over the years to include approximately 205 miles of gravity sewer lines and 5,085 manholes owned by the City. Due to the size of the system and the volume of wastewater flows conveyed, more than 16 percent of the piping is greater than 18 inches in diameter and close to 7 percent is from 36 to 72 inches in diameter. Approximately 46 percent of the City is unsewered.

The City owns more than 80 wastewater pump stations with approximately 65 miles of force main piping. Additionally, the City receives wastewater flows from the six satellite Large User collection systems previously mentioned as well as approximately 215 pump stations owned by entities other than the Department of Public Utilities, mainly low-volume stations serving individual apartment buildings or businesses.

Projects that have been completed by the City since the previous 201 Facilities Plan Amendment (2009) include but are not limited to:

- Taft Street Interceptor
- Dixie Corridor Septic to Sewer Conversion
- System Wide Gravity
- DIW/MSRO

Proposed projects include expanding the sewage collection system to unsewered areas of the City to eliminate septic tanks and provide sewer connections to approximately 17,700 parcels. The planned projects for expansion of the sewer system are:

- Royal Poinciana Sewer Expansion
- 441 Septic to Sewer Conversion
- Washington Park/Lawn Acres Septic to Sewer Conversion
- Driftwood Septic to Sewer Conversion Phase I
- Boulevard Heights Septic to Sewer Conversion Phase I
- North Central Septic to Sewer Conversion Phase I
- North Central Septic to Sewer Conversion Phase II
- Playland Estates Septic to Sewer Conversion
- Hollywood Gardens Septic to Sewer Conversion
- Park East Septic to Sewer Conversion
- Hollywood Hills Septic to Sewer Conversion Phase I
- Hollywood Hills Septic to Sewer Conversion Phase II
- Driftwood Septic to Sewer Conversion Phase II
- Hollywood Hills Septic to Sewer Conversion Phase III
- Highland Gardens Septic to Sewer Conversion Phase I
- Highland Gardens Septic to Sewer Conversion Phase II
- Boulevard Heights Septic to Sewer Conversion Phase II
- Boulevard Heights Septic to Sewer Conversion Phase III
- Driftwood Septic to Sewer Conversion Phase III

1.3 Wastewater Treatment System

The Southern Regional Wastewater Treatment Plant (SRWWTP) is located at 1621 North 14th Avenue in Hollywood, Florida. Using an on-site cryogenic oxygen generation facility, the plant employs the pure oxygen-activated sludge process for the treatment of raw sewage and is divided into East and West sections which are capable of operating independently. In addition to providing treatment services for the City's own retail customers and the previously mentioned Large Users, the City also has agreements to provide effluent disposal via the ocean outfall for wastewater treatment facilities in the City of Cooper City and the Town of Davie. Current plant capacity is 55.5 mgd on an average annual daily basis.

Table 1-1 summarizes the principal process components of the SRWWTP. All treatment components have ample capacity for the existing flow and can accommodate an annual average flow rate of up to 55.5 mgd. Additional treatment facilities will be required beyond this flow rate. A variety of repair, replacement, and upgrade projects will also be needed throughout the treatment and disposal facilities.

TABLE 1-1
City of Hollywood SRWWTP
Major Process Components

Component	Description
Influent Pumps	4 pumps – 67 mgd @ 44 feet 1 pump – 32 mgd @ 40 feet
Mechanical Screens	
Number	2
Grit Chambers	
Number	3
Oxygenation Trains	
Number of Trains	5
Cryogenic Oxygen Plant	
Maximum Gaseous Production Rate	55 tons/day
Liquid Production Rate	2.4 tons/day
Secondary Clarifiers	
Number	8
Outfall Pumps	2 pumps – 85 mgd @ 40 feet TDH 2 pumps – 25.5 mgd @ 68 feet TDH
Ocean Outfall	
Diameter	60 inches
Length	3.7 miles
Rated Capacity	46.3 mgd (AADF)
Reuse	
Filter Banks	4 mgd
Injection Wells (On-site)	
Number	2
Diameter	24 inches
Rated Capacity	37.4 mgd
Injection Wells (Off-site)	
Number	1
Diameter	24 inches
Rated Capacity	13.6 mgd

Projects completed since the previous 201 Facilities Plan Amendment (2009) include:

- Reuse System Expansion Phase I
- Headworks Rehabilitation and Expansion
- RAS Pump Station No. 2 Replacement
- Reuse System Expansion Phase II
- Clarifier Nos. 5-8 Flow Distribution Box Rehabilitation

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Projects currently underway include Clarifier Nos. 5&6 Rehabilitation and the design for RAS Pump Station No. 1 Rehabilitation and Replacement.

1.4 Effluent Disposal System

Treated effluent from the Hollywood SRWWTP is disposed of through three separate systems consisting of an ocean outfall, deep well injection, and irrigation-quality reuse. The ocean outfall system includes an effluent pump station and a 60-inch diameter ocean outfall pipe which has a permitted annual average capacity of 46.3 mgd and discharges treated effluent to the Atlantic Ocean. The deep well injection system was completed in 2003 and includes two injection wells, one dual zone monitoring well and an injection well pump station. Each well has a permitted capacity of 18.7 mgd for a total injection well capacity of 37.4 mgd. Approximately 2 to 3 mgd of irrigation-quality reuse water is delivered off-site via a 4 mgd system. The City is pursuing commitments and associated work to expand the customer base to an average of 4 mgd.

The proposed projects include expansion of the injection well system to reduce the use of the ocean outfall. Planned projects are:

- Deep Injection Well No. 3 Construction
- Deep Injection Well No. 4 Construction

1.5 Program Costs

The sum of the estimated capital costs of all projects identified for State Revolving Fund (SRF) loans totals about \$407.6 million. However, implementation of projects associated with the funds being requested from SRF will be phased according to priority. Respective funds will be requested only as needed. Table 1-2 shows the total estimated costs for each project category.

TABLE 1-2
 Estimated Capital Costs for All Projects

Collection and Transmission System	\$327.6 million
Effluent Disposal System	<u>\$80.0 million</u>
Grand Total	\$407.6 million

The planned improvement loans will be funded through water and sewer user fees. The septic tank replacement program will be paid back through a combination of funding sources, including impact fees. The capital improvement program is summarized in Table 1-3. This outlines the major projects for the next 20 years, including estimated costs and schedule. SRF loans are a major component of timely implementation.

This document is based on recent planning for major improvements and has been prepared to facilitate the City’s efforts to obtain SRF loans. It is an update to the existing 201 Facilities Plan, first developed in 1978 by Broward County, and subsequently updated in 1982, 1992, 2001 and 2009. To support this plan, this document covers the current status of the wastewater utility. The capital plan for the next 20 years is also summarized in this document. Appendices include additional cost details and related planning documents.

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Table 1-3
Long Range Capital Plans 2019-2023

Project Name	Planning Years (Dollars in 000s)						Total
	2019	2020	2021	2022	2023	Future	
Collection and Transmission							
Royal Poinciana Sewer Expansion	12,246	-	-	-	-	-	12,246
441 Septic to Sewer Conversion	26,051	-	-	-	-	-	26,051
Washington Park/Lawn Acres Septic to Sewer Conversion	5,025	-	-	-	-	-	5,025
Driftwood Septic to Sewer Conversion Phase I	-	35,536	-	-	-	-	35,536
Boulevard Heights Septic to Sewer Conversion Phase I	455	-	14,156	-	-	-	14,611
North Central Septic to Sewer Conversion Phase I	891	-	-	24,975	-	-	25,865
North Central Septic to Sewer Conversion Phase II	443	-	9,848	-	-	-	10,291
Playland Estates Septic to Sewer Conversion	-	-	694	-	27,761	-	28,455
Hollywood Gardens Septic to Sewer Conversion	-	-	596	-	12,491	-	13,088
Park East Septic to Sewer Conversion	-	-	-	570	-	12,028	12,598
Hollywood Hills Septic to Sewer Conversion Phase I	-	-	-	413	-	8,794	9,207
Hollywood Hills Septic to Sewer Conversion Phase II	-	-	-	410	-	9,563	9,973
Driftwood Septic to Sewer Conversion Phase II	-	-	-	-	1,000	33,221	34,221
Hollywood Hills Septic to Sewer Conversion Phase III	-	-	-	-	-	15,508	15,508
Highland Gardens Septic to Sewer Conversion Phase I	-	-	-	-	-	18,162	18,162
Highland Gardens Septic to Sewer Conversion Phase II	-	-	-	-	-	23,692	23,692
Boulevard Heights Septic to Sewer Conversion Phase II	-	-	-	-	-	11,283	11,283
Boulevard Heights Septic to Sewer Conversion Phase III	-	-	-	-	-	5,562	5,562
Driftwood Septic to Sewer Conversion Phase III	-	-	-	-	-	16,238	16,238
Collection & Transmission Total	45,111	35,536	25,294	26,368	41,252	154,051	327,613
Effluent Disposal System							
Injection Well No.3	1,000	19,000	20,000	-	-	-	40,000
Injection Well No.4	1,000	19,000	20,000	-	-	-	40,000
Wastewater Treatment and Disposal Total	2,000	38,000	40,000	-	-	-	80,000
Total for 20 Year Planning Period	47,111	73,536	65,294	26,368	41,252	154,051	407,613



SECTION 2.0 Introduction

2.1 Background

The City of Hollywood has the responsibility for planning, regulating, designing, constructing, operating, and maintaining a wastewater collection system and a regional wastewater treatment system within the City's corporate limits. Additionally, the City must comply with regulatory programs at various levels (federal, state, county and local) and fulfill contractual obligations to Large Users. This report is submitted to update the City's Wastewater Facilities Plan and addresses service improvement projects.

2.2 Corporate Limits

The City of Hollywood is located in southeast Broward County. The corporate limits correspond with the retail water service area and are bounded on the north by the City of Dania Beach, on the east by the Atlantic Ocean, on the west by the City of Pembroke Pines, and the south by the cities of Hallandale Beach, Pembroke Park and Miramar. The City encompasses approximately 29 square miles. Hollywood has Large User Agreements for wastewater service with:

- Pembroke Pines
- Dania Beach
- Broward County
- Miramar
- Pembroke Park
- Hallandale Beach

The City also has a wastewater effluent disposal agreement with Davie and Cooper City for discharging secondary treated effluent into the City's outfall for disposal. Figure 2-1 shows the wastewater service area for the City.

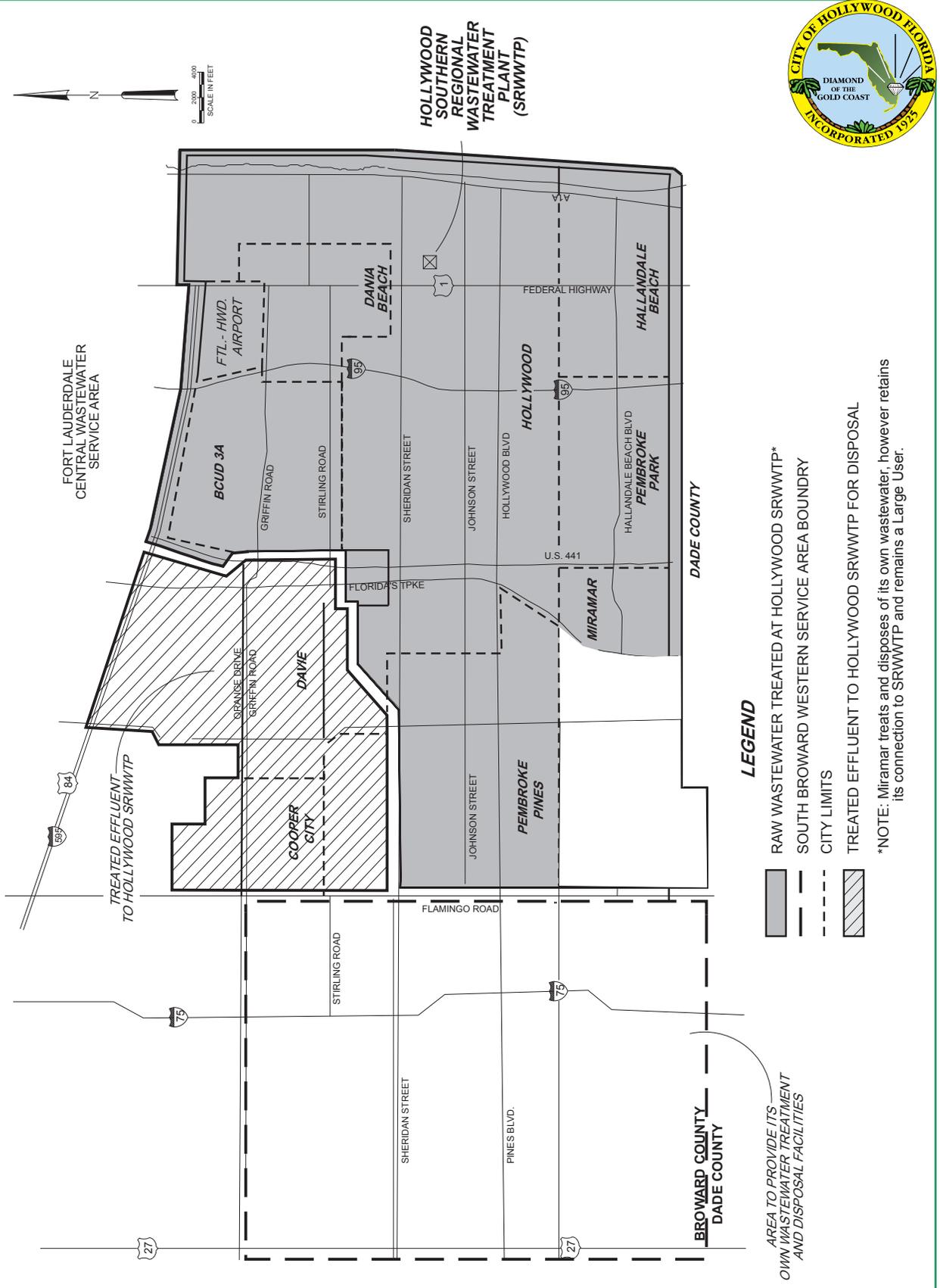


Figure 2-1
Southern Regional Wastewater Treatment Plant
Location and Service Area



2.3 Wastewater Utility Needs

The City of Hollywood owns and operates the Hollywood Southern Regional Wastewater Treatment Plant (SRWWTP), and provides wastewater collection, treatment and disposal services to 39,543 retail customers. The wastewater flows from the retail customers are collected in 286 wastewater sub-basins located throughout the City. Six Large Users also transport their wastewater flows to the Hollywood wastewater collection system for treatment and disposal. Currently, about 54 percent of the City's water customers receive wastewater services from the City and the rest rely on septic systems.

The City's wastewater collection system was originally constructed in the 1950's and has expanded over the years to include approximately 205 miles of gravity sewer lines and 5,085 manholes (owned by the City). The City owns and operates more than 80 wastewater pump stations with approximately 65 miles of force main piping. To maintain adequate wastewater collection and transmission system service to existing customers and expand sewer service as needed, the City has identified the following immediate needs:

1. Extend the gravity collection system to unsewered areas of the City.
2. Perform pump station and force main upgrades to address both deteriorated conditions and projected capacity constraints in identified areas of concern.
3. Expand the existing deep injection well system for compliance with the Ocean Outfall Legislation (OOL).

The SRWWTP currently has a permitted capacity of 55.5 mgd. Additional treatment facilities will be required beyond this flow rate. The facility is permitted to discharge an annual average daily flow of 46.3 mgd to Class III waters via an open ocean outfall. The remainder of the plant flow is discharged via deep injection wells and reclaimed water for non-potable water (NPW) plant-site uses and off-site irrigation uses at local golf courses. In addition, the SRWWTP also accepts and disposes of effluent from the Town of Davie and the City of Cooper City wastewater treatment plants. This effluent is primarily used for the reuse system due to its low salinity.



SECTION 3.0

Environmental Background

3.1 Description of Planning Area

3.1.1 Planning Area

The planning area is within the corporate limits of the City which is bounded on the north by the City of Dania Beach, on the east by the Atlantic Ocean, on the west by the City of Pembroke Pines, and the south by the cities of Hallandale Beach, Pembroke Park and Miramar. The City encompasses approximately 31 square miles. The surface is low-lying and mostly flat. Vegetation includes pines, palmettos, and native grasses. Most of the City of Hollywood is developed.

3.1.2 Climate

The southeastern coast of Florida is a humid sub-tropical climate. Summers are long, warm, and humid. Winters are generally mild. According to the United States Department of Agriculture (USDA) Soil Survey of Broward County, the average annual temperature is 75 degrees Fahrenheit. Summer temperatures often exceed 90 degrees F and winter temperatures are generally in the low 60s. Rare cold spells drop temperatures below freezing for short periods of time. The waters of the Atlantic Ocean exert a moderating influence on the coastal areas maintaining a humid climate and mild winters.

The average annual rainfall for the area is 60 inches. The majority of rainfall occurs during the wet season of June through October. This period accounts for approximately 65 percent of the annual rainfall. Rainfalls of more than 8 inches may occur during hurricane or tropical storm events, usually in July through October.

3.1.3 Topography and Drainage

Based on data from the USDA Soil Survey of Broward County, the planning area lies within a low coastal area with elevations between two and ten feet above sea level. It is made up of low, sandy ridges, commonly called flatwoods. These areas contain deep, poorly drained sandy soils. Major drainage systems flow from west to east through a series of canals and ultimately into the Atlantic Ocean.

3.1.4 Geology

The geology below the planning area, from the Surficial Aquifer System to the Lower Floridan Aquifer, has been studied by the South Florida Water Management District¹. The Surficial Aquifer System starts at the groundwater table and extends down to the intermediate confining unit. It consists mostly of sand, shell, clayey sand, and cavity-riddled limestone from the Miocene to Holocene age. It generally extends to a depth of 360 feet below the surface.

The Hawthorn Group and Suwannee Limestone units make up the intermediate confining unit. It extends from 360 feet to between 960 and 1,400 feet below the surface. Beneath this is the Floridan Aquifer System, which generally consists of clays and limestone and is 2,500 to 3,000 feet thick. The Floridan Aquifer System is made up of upper, middle, and lower sections separated by semi-confining units.

3.1.5 Wetlands

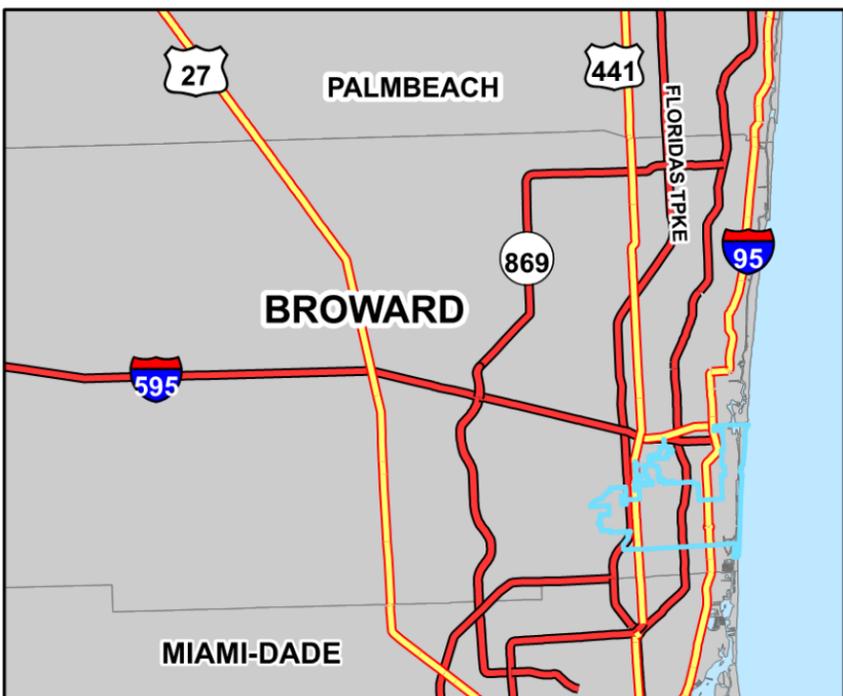
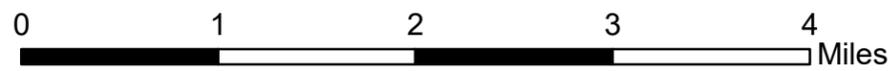
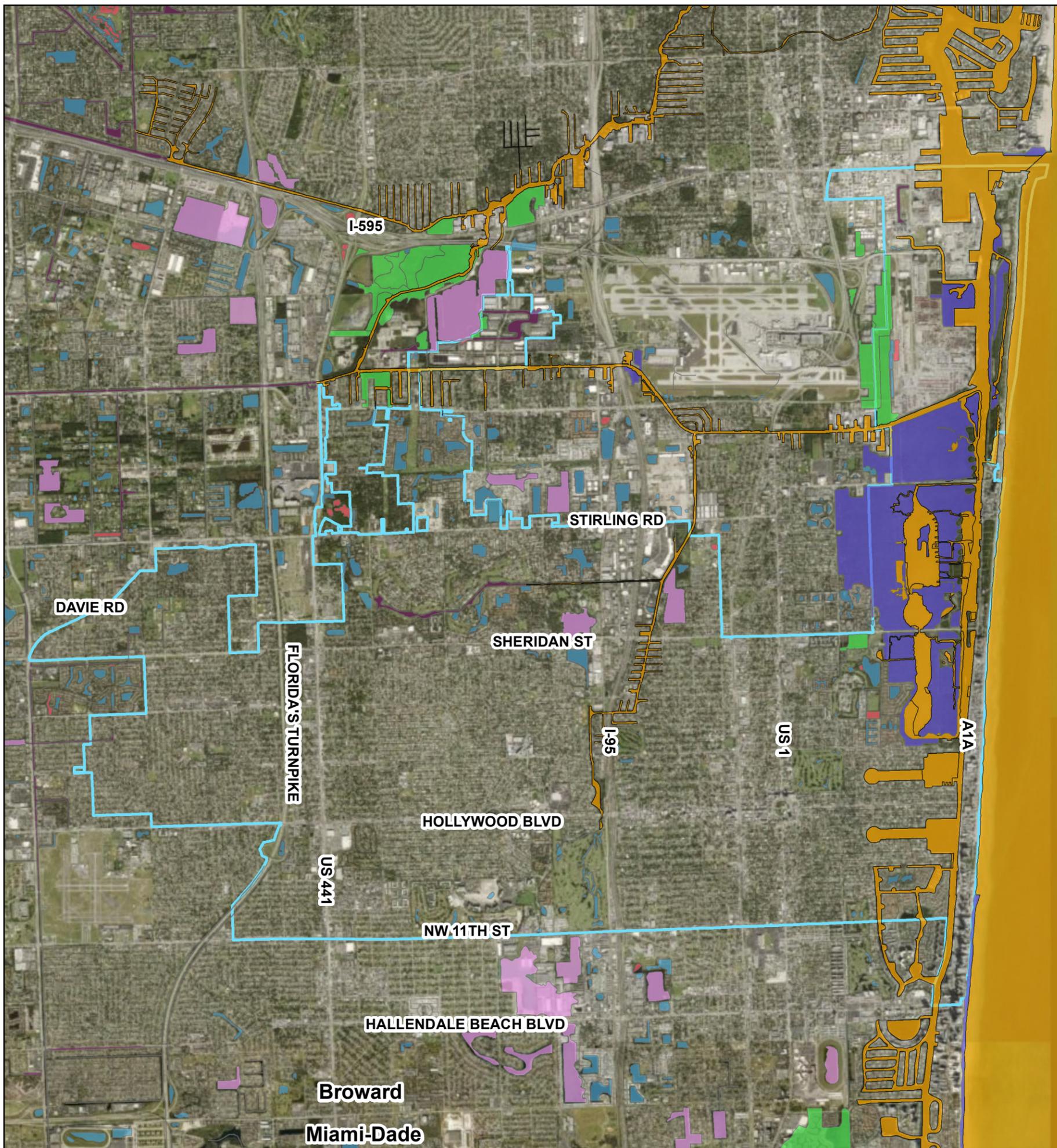
The designation of “wetland” describes an area where the soil is generally saturated with water. These areas vary widely due to regional differences in climate, topography, soil composition, vegetation, and other factors. The Clean Water Act designates wetlands as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas²” These areas provide numerous benefits to people, fish, and wildlife including providing habitats, storing floodwaters, and filtering said water. Figure 3-1 illustrates designated wetlands in the planning and service areas.

3.1.6 Flood Plain

Flood zones are geographic areas that the FEMA has defined according to varying levels of flood risk. Each zone reflects the severity or type of flooding in the area. Zones B and C have a moderate to low risk of flooding. Areas in Zone X are above the 100-year floodplain. Zones A, AE, AH, AO, AR, and A99 are designated high flood risk zones. Zones V and VE are high risk coastal areas and zone D designates an area with an undetermined flood risk. Figure 3-2 illustrates the flood zones within the planning and service areas.

¹ South Florida Water Management District, “Floridan Aquifer System Test Well Program C-13 Canal, Oakland Park, Florida, Technical Publication WS-16”, April 2003.

² EPA regulation, 40 CFR 230.3(t).



Legend

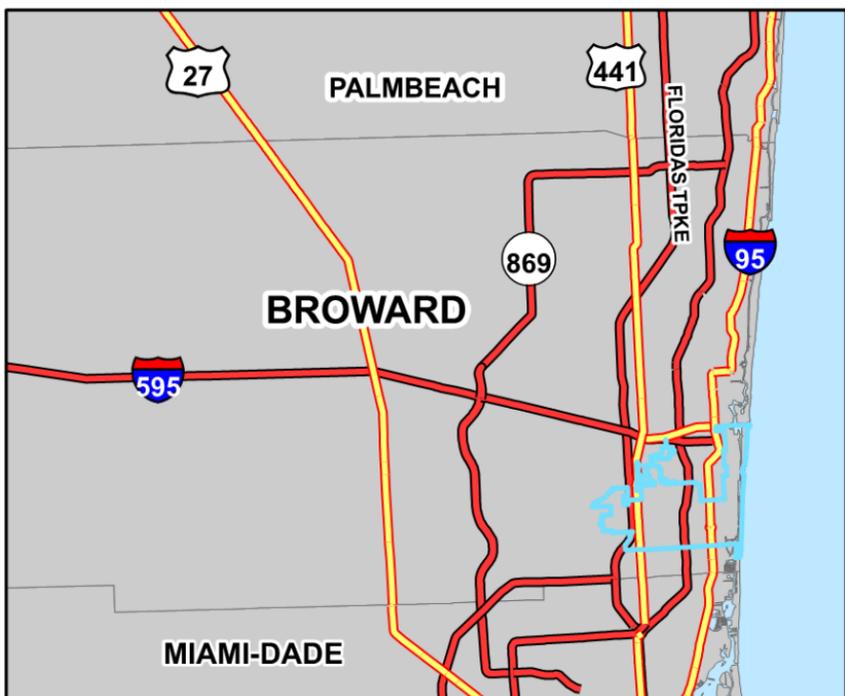
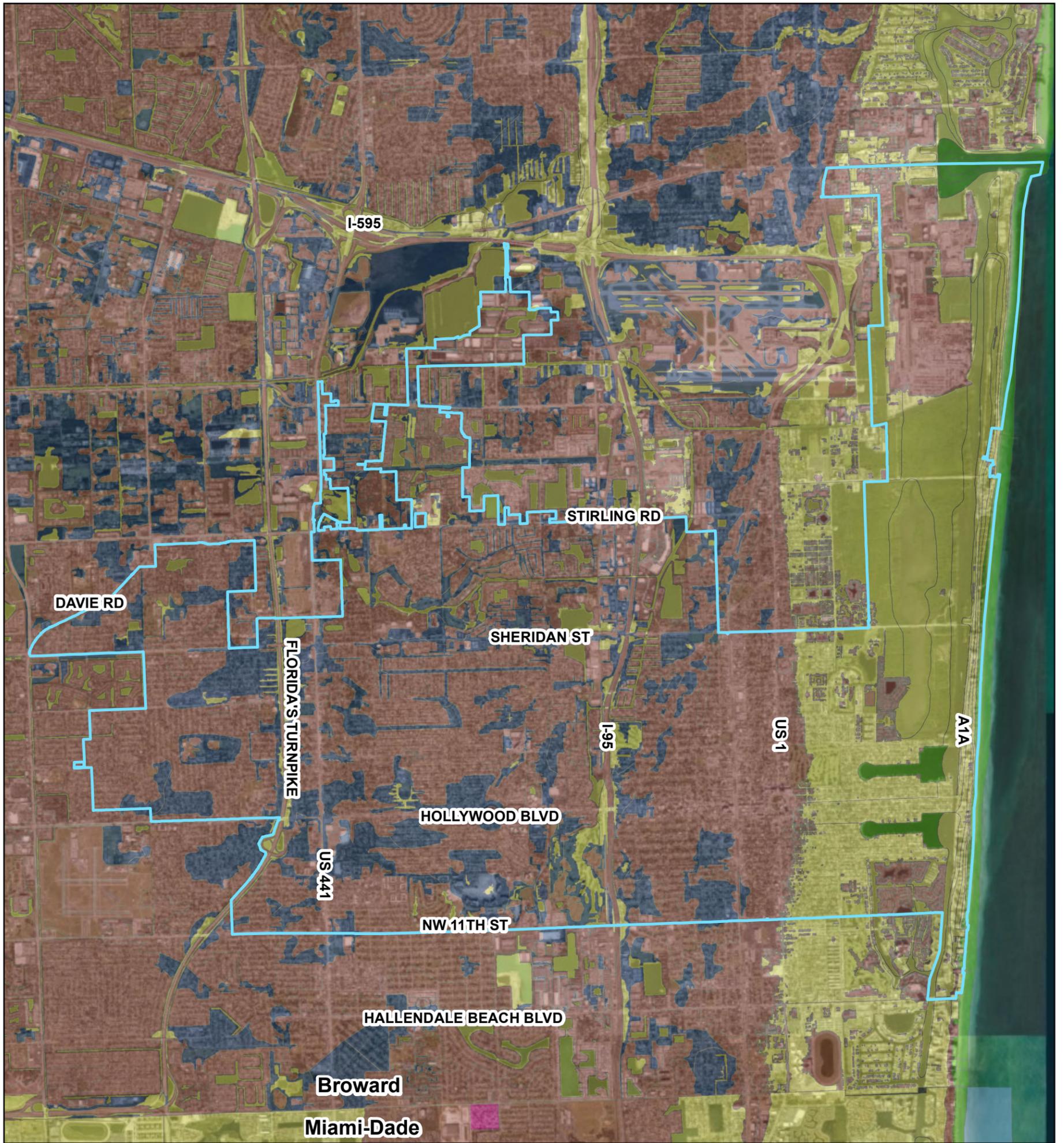
City of Hollywood

Wetland Type

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine



Figure 3-1 Wetlands



Legend

City of Hollywood

Flood Zone Designation

- A
- A99
- AE
- AH
- AO
- AREA NOT INCLUDED
- D
- NP
- OPEN WATER
- V
- VE
- X



Figure 3-2 Flood Zone Designations

3.1.7 Air Quality

Based on data from the Florida Department of Environmental Protection, the air quality index for the planning area is “good” for 75 to 80 percent of the year. The air quality index drops to “moderate” for 20 to 25 percent of the year, with less than 2 percent of days in the “unhealthy for sensitive groups” category. The planning area is classified as “attainment” for all criteria air pollutants as defined by the National Ambient Air Quality Standards. All major sources of emission in Broward County are currently in compliance with their permits.

3.2 Population

The population of the City of Hollywood is estimated as 147,212 based on the population projections by the Bureau of Economic and Business Research (BEBR, University of Florida April, 2017). Table 3-1 lists the 2017 population estimates for Hollywood and each of the Large Users from which the City of Hollywood provides wastewater service.

TABLE 3-1
2017 Population Estimates for City of Hollywood and Large Users (BEBR)

Entity	Area (square miles)	Population
Hollywood	30.8	147,212
Pembroke Pines	34.4	163,103
Miramar	31.0	136,246
Hallandale Beach	4.55	38,746
Dania Beach	6.31	31,473
Broward County	1,320	1,873,970*
Pembroke Park	1.78	6,368

**Note: Only a portion of Broward County is served by the SRWWTP*

3.3 Wastewater System

3.3.1 Sewer Service Area

The City of Hollywood operates a regional wastewater treatment plant for the bulk of southern Broward County. The City also owns and maintains an extensive network of wastewater collection pipelines, pump stations and force mains that collect and transport wastewater to the SRWWTP. The City services two types of customers: retail customers and large users.

Retail Customers. The City of Hollywood provides wastewater collection, treatment and disposal services to approximately 39,543 retail customers. Almost all of these customers are located within the Hollywood city limits. Currently, about 54 percent of the City's water customers receive wastewater services from the City. The rest rely on septic systems for wastewater treatment and disposal.

Large Users. Six municipal and county wastewater utilities transport their wastewater flows to the Hollywood wastewater collection system. Once these flows enter Hollywood's system, they are transported to the SRWWTP. These utilities are as follows:

- Broward County
- City of Dania Beach
- City of Hallandale Beach
- City of Miramar
- Town of Pembroke Park
- City of Pembroke Pines

Figure 2-1 in Section 2.2 shows the wastewater service area.

3.3.2 Collection and Transmission System

The City's wastewater collection system was originally constructed in the 1950s and has undergone various expansions in subsequent years. The City owns more than 80 pump stations within the collection system. The pumping facilities are relatively evenly distributed throughout the system. In addition, there are approximately 215 lift stations connected to the City of Hollywood collection system that are owned by entities other than the Department of Public Utilities. Approximately 24 percent of the collection and transmission system infrastructure is more than 25 years old, 51 percent is less than 25 years and insufficient information is available to determine the age of the remaining 25 percent. Approximately 46 percent of the City is unsewered.

In all, there are more than 228 miles of gravity sewer lines in the City's collection system. In addition, the City owns approximately 5,085 manholes. Approximately 75 percent of the gravity lines are 8-inches in diameter. Approximately 22 percent are larger than 8-inches and just under 3 percent are smaller. Vitrified clay pipe is the most common construction material for the gravity system, which is consistent with installation practices during the time it was constructed. A relatively large percentage (16 percent) is of unknown construction material. Polyvinyl chloride (PVC) pipe makes up approximately 30 percent of the gravity system while the remainder includes cast iron, ductile iron and concrete.

In total, there are approximately 65 miles of force main in the City's transmission system. Force main sizes vary extensively. Pipes less than 6 inches in diameter account for approximately 27 percent of the total. Cast iron is the most common of the known construction materials. Information regarding construction material is not available for approximately 16 percent of the force main piping.

3.3.3 Wastewater Treatment System

Raw wastewater is transported to the plant by gravity and forced flow. Pre-treatment consists of screening and grit removal. The activated sludge process includes oxygenation and secondary clarification. After chlorination, effluent is discharged into the deep injection well system or the ocean outfall.

Raw waste activated sludge is dewatered by belt filter presses. Lime and sulfamic acid are then added to the dewatered sludge cake to provide stabilization, in accordance with Class A standards. A private hauler transports the stabilized final product off-site.

Table 3-2 summarizes the principal process components of the SRWWTP. All treatment components have ample capacity for the existing flow and can accommodate an average annual flow rate of up to 55.5 mgd. Additional treatment facilities will be required beyond this flow rate. While no expansion requirements are identified for the SRWWTP, a variety of repair, replacement, and upgrade projects will also be needed throughout the collection and disposal facilities.

TABLE 3-2
City of Hollywood SRWWTP
Major Process Components

Component	Description
Influent Pumps	4 pumps – 67 mgd @ 44 feet 1 pump – 32 mgd @ 40 feet
Mechanical Screens	
Number	2
Grit Chambers	
Number	3
Oxygenation Trains	
Number of Trains	5
Cryogenic Oxygen Plant	
Maximum Gaseous Production Rate	55 tons/day
Liquid Production Rate	2.4 tons/day
Secondary Clarifiers	
Number	8
Outfall Pumps	2 pumps – 85 mgd @ 40 feet TDH 2 pumps – 25.5 mgd @ 68 feet TDH
Ocean Outfall	
Diameter	60 inches
Length	3.7 miles
Rated Capacity	46.3 mgd (AADF)
Reuse	
Filter Banks	4 mgd
Injection Wells (On-site)	
Number	2
Diameter	24 inches
Rated Capacity	37.4 mgd
Injection Wells (Off-site)	
Number	1
Diameter	24 inches
Rated Capacity	13.6 mgd

Section 5 of the Wastewater Master Plan discusses the SRWWTP in detail and includes a process diagram.

3.3.4 Wastewater Flow and Load Projections

Wastewater flows from retail customers are collected in the wastewater sub-basins located throughout the City. Six large users, including unincorporated Broward County and the

neighboring municipalities of Dania Beach, Hallandale Beach, Miramar, Pembroke Park, and Pembroke Pines, also transport their wastewater flows to the Hollywood wastewater collection system for treatment and disposal.

Wastewater flows for years 2005-2015 and projections for 2020, 2025 and 2030 were quantified. The wastewater flows from the retail wastewater customers were based on the 2004 and projected water uses by Traffic Analysis Zone (TAZ) provided by Malcolm Pirnie as part of the Water Master Plan effort. This work was primarily based on merging a map of the City's wastewater sub-basins with a map of the City's water customers. As part of the conversion from water demand to wastewater flows, it was estimated that infiltration and inflow currently accounts for slightly more than fifty percent of the retail system flow reaching the SRWWTP. The 2004 and projected wastewater flows from the large users were provided by the respective entities. Inflow and Infiltration I/I projections were not performed for the Large Users. Table 3-3 provides a summary of historic and forecasted wastewater flows to the SRWWTP from the City's retail customers and Large Users.

TABLE 3-3
City of Hollywood SRWWTP
Historic and Projected Wastewater Flow (mgd)

Year	Total Large Users	City of Hollywood	
	Except Hollywood	Retail	Hollywood SRWWTP
2005	22.87	18.58	41.84
2006	22.88	19.42	42.31
2007	22.92	18.44	41.36
2008	21.68	18.69	40.38
2009	21.78	17.35	39.14
2010	21.68	17.91	39.59
2011	19.81	16.57	36.39
2012	20.54	18.92	39.49
2013	21.16	17.35	38.50
2014	21.25	16.05	37.30
2015	21.44	15.17	36.62
2016	21.40	15.03	36.43
2017	21.36	15.62	36.98
Forecasts			
2020	25.73	19.72	45.45
2025	26.63	20.29	46.92
2030	26.77	20.85	47.62
Build-Out			63.00

Proper sizing and operation of treatment units within a wastewater treatment plant facility require an evaluation of wastewater influent characteristics including 5-day carbonaceous biochemical oxygen demand (CBOD₅) and total suspended solids (TSS). The projected CBOD₅ and TSS annual average loads were estimated by multiplying the projected annual average flows with the annual average concentration for that parameter. The projected annual average loads are summarized in Table 3-4.

TABLE 3-4
City of Hollywood SRWWTP
Projected Total Wastewater Loads*

Year	CBOD ₅	TSS
2020	49,200	56,000
2025	50,800	57,800
2030	51,500	58,600

* All loads are AADF values in lbs/day.

3.3.5 Effluent Disposal System

Treated effluent from the Hollywood SRWWTP is disposed of through three separate systems consisting of an ocean outfall, deep well injection, and irrigation-quality reuse. The ocean outfall system includes an effluent pump station and a 60-inch diameter ocean outfall pipe which has a permitted annual average capacity of 46.3 mgd and discharges treated effluent to the Atlantic Ocean. The deep well injection system was completed in 2003 and includes two injection wells, one dual zone monitoring well and an injection well pump station. Each well has a permitted capacity of 18.7 mgd for a total injection well capacity of 37.4 mgd. Approximately 2 to 3 mgd of irrigation-quality reuse water is delivered off-site via a 4 mgd system. The City is pursuing commitments and associated work to expand the customer base to an average of 4 mgd. Due to a policy shift by the FDEP, the facility has been utilizing the deep injection wells as the primary means of disposal since 2009 with the outfall serving as backup during peak flow events.

Currently the City supplies reuse water primarily to contract customers including golf courses, schools, private developments, and other entities that have a relatively large irrigation demand. The SRWWTP effluent reuse system currently has a capacity of 8 mgd. The system produces 4 mgd of non-potable water (NPW) for plant uses and 4 mgd of irrigation-quality water using effluent from the Town of Davie and City of Cooper City. The NPW water is used on-site for foam control, process make-up water, and plant wash-down, since it is unsuitable for irrigation due to its salinity. To date, the lack of nearby customer demand has hindered expansion of the reuse system beyond its present capacity.



SECTION 4.0

Description of Alternatives

The alternatives for improving the City's wastewater system over the planning period of 2019-2039 include projects in the following three areas:

1. Collection and Transmission System
2. Effluent Disposal System

4.1 Royal Poinciana Sewer Expansion

4.1.1 No Action

This alternative will result in continued use of septic systems for the Royal Poinciana neighborhood between Taft Street and Sheridan Street. Consequences of continued septic system use on the community include negative social impacts, potential future costs incurred to maintain the existing system and rectify ongoing problems, and, any potential penalties that would be levied on the community. Additionally, this option does not address water quality concerns due to aging septic systems and was therefore rejected.

4.1.2 Royal Poinciana Sewer Expansion

Portions of the area between Taft Street and Sheridan Street are not sewerred. This alternative involves implementing a water main replacement program within this same area with the goal of increasing utility services to City residents and protecting groundwater quality. This project will include extensions to the existing gravity sewers along N. 21st Avenue, new gravity sewers in the unsewerred areas between Taft and Sheridan Streets and N. 21st Avenue and Federal Highway (US1), rehabilitation of Lift Station E-22 and its discharge force main (if required), and/or a new force main from a proposed lift station located at 1913 Coolidge St to the existing 60-inch diameter gravity interceptor along Taft Street. The estimated project cost for this alternative is \$12.3 million. This alternative is considered cost effective and was selected. (Refer Appendix A for detailed project description.)

4.2 State Road 7/US 441 Septic Program

4.2.1 No Action

This alternative will result in continued use of septic systems for the commercial properties along the State Road 7 Corridor. The *City of Hollywood 2001 City-Wide Master Plan* identified the development and redevelopment of the SR 7/US 441 Corridor as a priority. The lack of sewer service was recognized as preventing the accomplishment of this goal. This option also does not address water quality concerns due to aging septic systems and was rejected.

4.2.2 State Road 7/US 441 Septic Tank Conversions

This alternative involves extending the City's sewer collection system into the unsewered areas along State Road 7/US 441 per the City-Wide Master Plan recommendation. Furthermore, the Florida Department of transportation's (FDOT) has scheduled widening of the corridor within the City beginning in 2010. The road widening project will be divided into three phases. The septic conversion project will consist of gravity sanitary sewer lines, sanitary sewer pump stations and force mains, and potable water distribution lines. The potable water distribution line work will involve the replacement of existing aged water service lines within the FDOT proposed SR 7/US 441 street widening project. Replacement of the aged underground infrastructure is predicated upon the implementation of a 5-year FDOT-imposed moratorium against open cutting within the right-of-way upon completion of any re-paving project. The estimated project cost for this alternative is estimated at \$23.1 million. This option will provide reliable water and sewer service to the area and ensure adequate treatment of the area's wastewater and was selected.

4.3 Washington Park/Lawn Acres Septic to Sewer Conversion

4.3.1 No Action

This alternative will result in continued use of septic systems in the in the unsewered areas of Washington Park/Lawn Acres neighborhood located east of State Road 7 between Pembroke Road and Washington Street. Consequences of continued septic system use on the community include negative social impacts, potential future costs incurred to maintain the existing system and rectify ongoing problems, and, any potential penalties that would be levied on the community. Additionally, this option does not address water quality concerns due to aging septic systems and was therefore rejected.

4.3.2 Washington Park/Lawn Acres Septic to Sewer Conversion

Portions of the areas located east of State Road 7 between Pembroke Road and Washington Street are not sewerred. This alternative involves expanding the existing sewer network to

these unsewered areas as shown in Figure 4-1. The cost of project is estimated at approximately \$5.0 million. This alternative is cost-effective and was selected.

4.4 Driftwood Septic to Sewer Conversion Phase I

4.4.1 No Action

This alternative will result in continued use of septic systems for the customers in areas of Driftwood and Boulevard Heights. Consequences of continued septic system use on the community include negative social impacts, potential future costs incurred to maintain the existing system and rectify ongoing problems, and, any potential penalties that would be levied on the community. Additionally, this option does not address water quality concerns due to aging septic systems and was therefore rejected.

4.4.2 Driftwood Septic to Sewer Conversion Phase I

The areas of Driftwood and Boulevard Heights are located west of the Turnpike within City limits. Portions of these areas are already sewerred. A 30-inch force main on Taft Street and an 18-inch force main on Johnson Street transmit wastewater east of the Turnpike for ultimate treatment at the SRWWTP. This alternative will utilize these force mains to extend the existing sewer collection system into the unsewered areas as shown in Figure 4-1. The project will consist of constructing new sub-basin lift stations and expansion/replacement of existing sub-basins. This conversion will provide reliable sanitary sewer service to the area and ensure adequate treatment of the area wastewater. The estimated project cost for this alternative is \$35.5 million. This option is cost effective and was selected. (Refer Appendix B for detailed project description.)

4.5 Boulevard Heights Septic to Sewer Conversion Phase I

4.5.1 No Action

This alternative will result in continued use of septic systems in the unsewered areas of Boulevard Heights located west of State Highway 91 between Pines Boulevard and Taft Street. Consequences of continued septic system use on the community include negative social impacts, potential future costs incurred to maintain the existing system and rectify ongoing problems, and, any potential penalties that would be levied on the community. Additionally, this option does not address water quality concerns due to aging septic systems and was therefore rejected.



City of Hollywood Municipal Sewer Expansion Projects



SEWER PROJECT NAME	SEWER PROJECT	ESTIMATED CONSTRUCTION COST
ROYAL POINCIANA SEWER EXPANSION	7077	\$11,825,000
NORTH CENTRAL SSC PHASE 1	7083	\$24,974,625
70th AVE SEWER EXPANSION	7084	\$952,839
DRIFTWOOD SSC PHASE 1	7085	\$34,481,250
441 CORRIDOR SSC	7087	\$25,500,000
DRIFTWOOD SSC PHASE 2	7088	\$33,249,000
WASHINGTON PARK/LAWN ACRES SSC	7089	\$4,700,625
PLAYLAND ESTATES SSC	7090	\$27,761,250
HOLLYWOOD GARDENS SSC	7091	\$12,491,250
BOULEVARD HEIGHTS SSC PHASE 1	7092	\$14,156,250
PARK EAST/HOLLYWOOD HILLS SSC (W-26)	7093	\$12,028,125
NORTH CENTRAL SSC PHASE 2	7094	\$9,847,500
HOLLYWOOD HILLS SSC PHASE 1 (W-20)	7095	\$8,793,750
HIGHLANDGARDENS SSC PHASE 1	7096	\$17,483,625
DRIFTWOOD SSC PHASE 3	7097	\$15,682,500
NORTH BEACH SEPTIC TO SEWER	7098	\$3,562,500
JOHNSON ST SR7 TO 56 AVE SEWER	7042C	\$848,742
ANTON TERR SEWER EXPANSION	7084B	\$161,312
HOLLYWOOD PL - POLK ST SEWER EXPANSION	7084C	\$207,042
COLLINS CT SEWER EXPANSION	7084D	\$324,851
70th AVE SEWER EXPANSION	7084E	\$3,975,000
BOULEVARD HEIGHTS SSC PHASE 2	7092A	\$10,884,375
BOULEVARD HEIGHTS SSC PHASE 3	7092B	\$5,257,500
HOLLYWOOD HILLS SSC PHASE 2 (W-30)	7095A	\$9,562,500
HOLLYWOOD HILLS SSC PHASE 3 (W-XX) (GAR)	7095B	\$15,163,125
HIGHLANDGARDENS SSC PHASE 2	7096A	\$22,404,000

Legend

Sewer Project Status

- 2018
- 2019
- 2020
- 2021
- 2022
- 2023
- 2024
- 2025
- 2026
- 2027

— Major Roads
— Road Centerline
 COH Limits

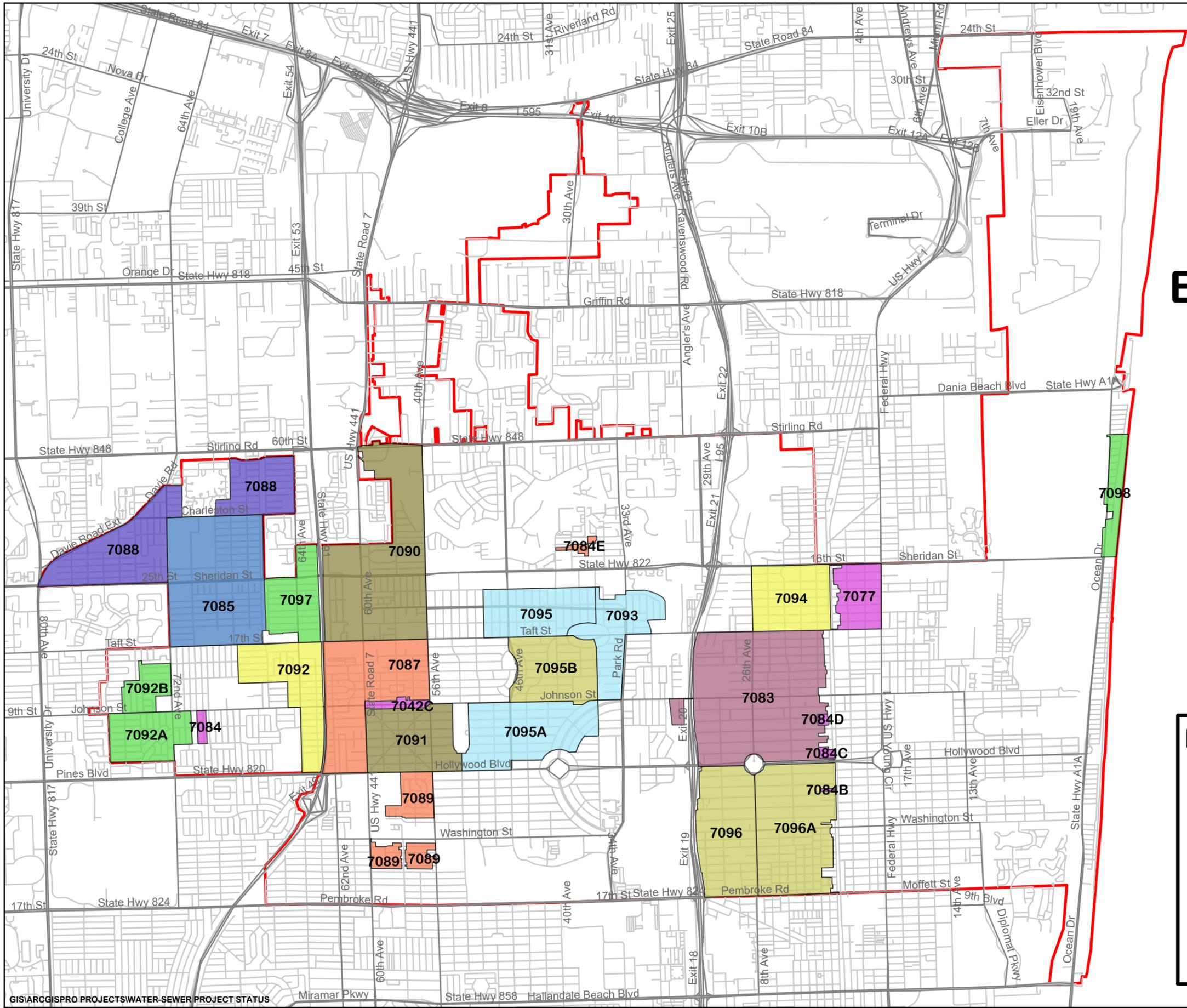


Figure 4-1: Location, Capital Cost and Expected Completion Date of Municipal Sewer Expansion Projects

4.5.2 Boulevard Heights Septic to Sewer Conversion Phase I

Portions of the areas west of State Highway 91 between Pines Boulevard and Taft Street are not sewered. This alternative involves expanding the existing sewer network to these unsewered areas as shown in Figure 4-1. The cost of construction is estimated at approximately \$14.6 million. This alternative is cost-effective and was selected.

4.6 North Central Septic to Sewer Conversion Phase I

4.6.1 No Action

This alternative will result in continued use of septic systems in the unsewered areas of North Central Hollywood located east of I-95 between Hollywood Blvd and Taft Street. Consequences of continued septic system use on the community include negative social impacts, potential future costs incurred to maintain the existing system and rectify ongoing problems, and, any potential penalties that would be levied on the community. Additionally, this option does not address water quality concerns due to aging septic systems and was therefore rejected.

4.6.2 North Central Septic to Sewer Conversion Phase I

Portions of the areas east of I-95 between Hollywood Blvd and Taft Street are not sewered. This alternative involves expanding the existing sewer network to these unsewered areas as shown in Figure 4-1. The cost of construction is estimated at approximately \$25.9 million. This alternative is cost-effective and was selected.

4.7 North Central Septic to Sewer Conversion Phase II

4.7.1 No Action

This alternative will result in continued use of septic systems in the unsewered areas of North Central Hollywood located east of 26th Avenue between Sheridan Street and Taft Street. Consequences of continued septic system use on the community include negative social impacts, potential future costs incurred to maintain the existing system and rectify ongoing problems, and, any potential penalties that would be levied on the community. Additionally, this option does not address water quality concerns due to aging septic systems and was therefore rejected.

4.7.2 North Central Septic to Sewer Conversion Phase II

Portions of the areas east of 26th Avenue between Sheridan Street and Taft Street are not sewered. This alternative involves expanding the existing sewer network to these unsewered areas as shown in Figure 4-1. The cost of construction is estimated at approximately \$10.3 million. This alternative is cost-effective and was selected.

4.8 Playland Estates Septic to Sewer Conversion

4.8.1 No Action

This alternative will result in continued use of septic systems in the unsewered areas of Playland Estates located between State Highway 91 and 56 Ave. Consequences of continued septic system use on the community include negative social impacts, potential future costs incurred to maintain the existing system and rectify ongoing problems, and, any potential penalties that would be levied on the community. Additionally, this option does not address water quality concerns due to aging septic systems and was therefore rejected.

4.8.2 Playland Estates Septic to Sewer Conversion

Portions of the Playland Estates area located between State Highway 91 and 56 Ave are not sewered. This alternative involves expanding the existing sewer network to these unsewered areas as shown in Figure 4-1. The cost of construction is estimated at approximately \$28.5 million. This alternative is cost-effective and was selected.

4.9 Hollywood Gardens Septic to Sewer Conversion

4.9.1 No Action

This alternative will result in continued use of septic systems in the unsewered areas of Hollywood Gardens located east of State Road 7 between Hollywood Boulevard and Johnson Street. Consequences of continued septic system use on the community include negative social impacts, potential future costs incurred to maintain the existing system and rectify ongoing problems, and, any potential penalties that would be levied on the community. Additionally, this option does not address water quality concerns due to aging septic systems and was therefore rejected.

4.9.2 Hollywood Gardens Septic to Sewer Conversion

Portions of the Hollywood Gardens located east of State Road 7 between Hollywood Boulevard and Johnson Street are not sewered. This alternative involves expanding the

existing sewer network to these unsewered areas as shown in Figure 4-1. The cost of construction is estimated at approximately \$13.1 million. This alternative is cost-effective and was selected.

4.10 Park East Septic to Sewer Conversion

4.10.1 No Action

This alternative will result in continued use of septic systems for the customers in areas of Park East area. The *City of Hollywood 2001 City-Wide Master Plan* identified the lack of sanitary sewers as an issue for the economic development and redevelopment of the area. This option does not address City's plan to encourage development in the area and the water quality concerns due to aging septic systems, as such, it was rejected.

4.10.2 Park East Septic to Sewer Conversion

Portions of the Park East neighborhood located Johnson street and state highway 822 are not sewered. This alternative involves expanding the existing sewer network to these unsewered areas as shown in Figure 4-1. The cost of construction is estimated at approximately \$12.6 million. This alternative is cost-effective and was selected.

4.11 Hollywood Hills Septic to Sewer Conversion Phase I

4.11.1 No Action

This alternative will result in continued use of septic systems for the customers in areas of Hollywood Hills area. The *City of Hollywood 2001 City-Wide Master Plan* identified the lack of sanitary sewers as an issue for the economic development and redevelopment of the area. This option does not address City's plan to encourage development in the area and the water quality concerns due to aging septic systems, as such, it was rejected.

4.11.2 Hollywood Hills Septic to Sewer Conversion Phase I

Portions of the Hollywood Hills neighborhood located west of Park Road between Taft Street and Thomas Street are not sewered. This alternative involves expanding the existing sewer network to these unsewered areas as shown in Figure 4-1. The cost of construction is estimated at approximately \$9.2 million. This alternative is cost-effective and was selected.

4.12 Hollywood Hills Septic to Sewer Conversion Phase II

4.12.1 No Action

This alternative will result in continued use of septic systems for the customers located West of Park Road between Hollywood Blvd and Johnson Street. The *City of Hollywood 2001 City-Wide Master Plan* identified the lack of sanitary sewers as an issue for the economic development and redevelopment of the area. This option does not address City's plan to encourage development in the area and the water quality concerns due to aging septic systems, as such, it was rejected.

4.12.2 Hollywood Hills Septic to Sewer Conversion Phase II

Portions of the Hollywood Hills neighborhood located West of Park Road between Hollywood Blvd and Johnson Street are not sewered. This alternative involves expanding the existing sewer network to these unsewered areas as shown in Figure 4-1. The cost of construction is estimated at approximately \$10.0 million. This alternative is cost-effective and was selected.

4.13 Driftwood Septic to Sewer Conversion Phase II

4.13.1 No Action

This alternative will result in continued use of septic systems for the customers in areas of Driftwood and Boulevard Heights. The City of Hollywood's plan for redevelopment of this area requires implementation of a sanitary sewer collection system. This option does not address water quality concerns due to aging septic systems and was rejected.

4.13.2 Driftwood Septic to Sewer Conversion Phase II

This alternative includes replacing septic systems with sewer connections in the area located west of Davie Road between Stirling Road and Sheridan Street. The estimated cost for this alternative is \$34.2 million. This option will provide reliable sewer service to the area and ensure adequate treatment of the area's wastewater and was selected.

4.14 Hollywood Hills Septic to Sewer Conversion Phase III

4.14.1 No Action

This alternative will result in continued use of septic systems for the customers located in Hollywood Hills. The *City of Hollywood 2001 City-Wide Master Plan* identified the lack of sanitary sewers as an issue for the economic development and redevelopment of the

area. This option does not address City's plan to encourage development in the area and the water quality concerns due to aging septic systems, as such, it was rejected.

4.14.2 Hollywood Hills Septic to Sewer Conversion Phase III

Portions of the Hollywood Hills neighborhood located West of Park Road between Taft Street and Johnson Street are not sewered. This alternative involves expanding the existing sewer network to these unsewered areas as shown in Figure 4-1. The cost of construction is estimated at approximately \$15.5 million. This alternative is cost-effective and was selected.

4.15 Highland Gardens Septic to Sewer Conversion Phase I

4.15.1 No Action

This alternative will result in continued use of septic systems in the unsewered areas of Highland Gardens located east of I-95 between Hollywood Boulevard and Pembroke Road. Consequences of continued septic system use on the community include negative social impacts, potential future costs incurred to maintain the existing system and rectify ongoing problems, and, any potential penalties that would be levied on the community. Additionally, this option does not address water quality concerns due to aging septic systems and was therefore rejected.

4.15.2 Highland Gardens Septic to Sewer Conversion Phase I

Portions of the Highland Gardens neighborhood east of I-95 between Hollywood Boulevard and Pembroke Road are not sewered. This alternative involves expanding the existing sewer network to these unsewered areas as shown in Figure 4-1. The cost of construction is estimated at approximately \$18.2 million. This alternative is cost-effective and was selected.

4.16 Highland Gardens Septic to Sewer Conversion Phase II

4.16.1 No Action

This alternative will result in continued use of septic systems in the unsewered areas of Highland Gardens located east of 8th Avenue between Hollywood Boulevard and Pembroke Road. Consequences of continued septic system use on the community include negative social impacts, potential future costs incurred to maintain the existing system and rectify ongoing problems, and, any potential penalties that would be levied on the community. Additionally, this option does not address water quality concerns due to aging septic systems and was therefore rejected.

4.16.2 Highland Gardens Septic to Sewer Conversion Phase II

Portions of the Highland Gardens area east of 8th Avenue between Hollywood Boulevard and Pembroke Road are not sewered. This alternative involves expanding the existing sewer network to these unsewered areas as shown in Figure 4-1. The cost of construction is estimated at approximately \$23.7 million. This alternative is cost-effective and was selected.

4.17 Boulevard Heights Septic to Sewer Conversion Phase II

4.17.1 No Action

This alternative will result in continued use of septic systems in the unsewered areas of Boulevard Heights located west of Park Road between Johnson Street and Hollywood Boulevard. Consequences of continued septic system use on the community include negative social impacts, potential future costs incurred to maintain the existing system and rectify ongoing problems, and, any potential penalties that would be levied on the community. Additionally, this option does not address water quality concerns due to aging septic systems and was therefore rejected.

4.17.2 Boulevard Heights Septic to Sewer Conversion Phase II

Portions of the Boulevard Heights neighborhood located west of Park Road between Johnson Street and Hollywood Boulevard are not sewered. This alternative involves expanding the existing sewer network to these unsewered areas as shown in Figure 4-1. The cost of construction is estimated at approximately \$11.3 million. This alternative is cost-effective and was selected.

4.18 Boulevard Heights Septic to Sewer Conversion Phase III

4.18.1 No Action

This alternative will result in continued use of septic systems in the unsewered areas of Boulevard Heights located west of 72nd Avenue between Taft Street and Johnson Street. Consequences of continued septic system use on the community include negative social impacts, potential future costs incurred to maintain the existing system and rectify ongoing problems, and, any potential penalties that would be levied on the community. Additionally, this option does not address water quality concerns due to aging septic systems and was therefore rejected.

4.18.2 Boulevard Heights Septic to Sewer Conversion Phase III

Portions of the Boulevard Heights neighborhood located west of 72nd Ave between Taft Street and Johnson Street are not sewered. This alternative involves expanding the existing sewer network to these unsewered areas as shown in Figure 4-1. The cost of construction is estimated at approximately \$5.6 million. This alternative is cost-effective and was selected.

4.19 Driftwood Septic to Sewer Conversion Phase III

4.19.1 No Action

This alternative will result in continued use of septic systems for the customers in areas of Driftwood and Boulevard Heights. The City of Hollywood's plan for redevelopment of this area requires implementation of a sanitary sewer collection system. Consequences of continued septic system use on the community include negative social impacts, potential future costs incurred to maintain the existing system and rectify ongoing problems, and, any potential penalties that would be levied on the community. Additionally, this option does not address water quality concerns due to aging septic systems and was therefore rejected.

4.19.2 Driftwood Septic to Sewer Conversion Phase III

This alternative includes replacing septic systems with sewer connections in the Driftwood neighborhoods located west of State Highway 91 between Taft Street and N 33rd Street. The estimated cost for this alternative is \$16.2 million. This option will provide reliable sewer service to the area and ensure adequate treatment of the area's wastewater and was selected.

4.20 Deep Injection Well Nos. 3 & 4

4.20.1 No Action

Ocean Outfall Legislation (OOL) mandates that wastewater facilities are to cease discharging treated effluent through ocean outfalls (except for peak flow management) by December 31, 2025. In addition to the compliance with the OOL, no new non-domestic (except stormwater runoff) discharges to surface waters or to ground water is permitted in Broward County as per Broward County Code of Ordinances Section 27-193. This leaves no viable alternative for disposal of the SRWWTP effluent. Therefore, not taking any action to supplement the existing effluent disposal capacity will result in non-compliance and is therefore rejected.

4.20.2 Deep Injection Well Nos. 3 & 4

Subsequent to passage of the OOL, the City conducted an assessment of its effluent disposal alternatives to meet the OOL requirement for elimination of effluent disposal through the outfall (SRWWTP Ocean Outfall Compliance Report (2009) and SRWWTP Ocean Outfall Compliance Report Update (2016)). Based on the evaluation conducted as part of these reports, it was recommended that the City expand its use of injection wells to handle the effluent disposal requirements for compliance with the regulations. Therefore, this alternative involves construction of Injection Well Nos. 3 and 4 at the site of the SRWWTP. This alternative will provide the necessary wastewater effluent discharge capacity required to comply with the OOL requirements. The estimate construction cost for the injection wells and ancillary facilities is \$80 million. This is cost effective and is therefore selected. (Refer Appendix C for detailed project description.)



SECTION 5.0

Selected Plan

The following sections summarize the selected projects from the alternatives presented in Section 4. Additional details for these projects can be found in Appendices A and B.

5.1 Royal Poinciana Sewer Expansion

Portions of the area between Taft Street and Sheridan Street are not sewered. This alternative involves implementing a water main replacement program within this same area with the goal of increasing utility services to City residents and protecting groundwater quality. This project will include extensions to the existing gravity sewers along N. 21st Avenue, new gravity sewers in the unsewered areas between Taft and Sheridan Streets and N. 21st Avenue and Federal Highway (US1), rehabilitation of Lift Station E-22 and its discharge force main (if required), and/or a new force main from a proposed lift station located at 1913 Coolidge St to the existing 60-inch diameter gravity interceptor along Taft Street. The estimated project cost for this alternative is \$12.3 million. This alternative is considered cost effective and was selected. (Refer Appendix A for detailed project description.)

5.2 State Road 7/US 441 Septic Program

This alternative involves extending the City's sewer collection system into the unsewered areas along State Road 7/US 441 per the City-Wide Master Plan recommendation. Furthermore, the Florida Department of transportation's (FDOT) has scheduled widening of the corridor within the City beginning in 2010. The road widening project will be divided into three phases. The septic conversion project will consist of gravity sanitary sewer lines, sanitary sewer pump stations and force mains, and potable water distribution lines. The potable water distribution line work will involve the replacement of existing aged water service lines within the FDOT proposed SR 7/US 441 street widening project. Replacement of the aged underground infrastructure is predicated upon the implementation of a 5-year FDOT-imposed moratorium against open cutting within the right-of-way upon completion of any re-paving project. The estimated project cost for this alternative is estimated at \$23.1 million. This option will provide reliable water and sewer service to the area and ensure adequate treatment of the area's wastewater and was selected.

5.3 Washington Park/Lawn Acres Septic to Sewer Conversion

Portions of the areas located east of State Road 7 between Pembroke Road and Washington Street are not sewered. This alternative involves expanding the existing sewer network to these unsewered areas as shown in Figure 4-1. The cost of project is estimated at approximately \$5.0 million. This alternative is cost-effective and was selected.

5.4 Driftwood Septic to Sewer Conversion Phase I

The areas of Driftwood and Boulevard Heights are located west of the Turnpike within City limits. Portions of these areas are already sewered. A 30-inch force main on Taft Street and an 18-inch force main on Johnson Street transmit wastewater east of the Turnpike for ultimate treatment at the SRWWTP. This alternative will utilize these force mains to extend the existing sewer collection system into the unsewered areas as shown in Figure 4-1. The project will consist of constructing new sub-basin lift stations and expansion/replacement of existing sub-basins. This conversion will provide reliable sanitary sewer service to the area and ensure adequate treatment of the area wastewater. The estimated capital cost for this alternative is \$69.9 million. This option is cost effective and was selected. (Refer Appendix B for detailed project description.)

5.5 Boulevard Heights Septic to Sewer Conversion Phase I

Portions of the areas west of State Highway 91 between Pines Boulevard and Taft Street are not sewered. This alternative involves expanding the existing sewer network to these unsewered areas as shown in Figure 4-1. The cost of construction is estimated at approximately \$14.6 million. This alternative is cost-effective and was selected.

5.6 North Central Septic to Sewer Conversion Phase I

Portions of the areas east of I-95 between Hollywood Blvd and Taft Street are not sewered. This alternative involves expanding the existing sewer network to these unsewered areas as shown in Figure 4-1. The cost of construction is estimated at approximately \$25.9 million. This alternative is cost-effective and was selected.

5.7 North Central Septic to Sewer Conversion Phase II

Portions of the areas east of 26th Avenue between Sheridan Street and Taft Street are not sewered. This alternative involves expanding the existing sewer network to these unsewered areas as shown in Figure 4-1. The cost of construction is estimated at approximately \$10.3 million. This alternative is cost-effective and was selected.

5.8 Playland Estates Septic to Sewer Conversion

Portions of the Playland Estates area located between State Highway 91 and 56 Ave are not sewerred. This alternative involves expanding the existing sewer network to these unsewerred areas as shown in Figure 4-1. The cost of construction is estimated at approximately \$28.5 million. This alternative is cost-effective and was selected.

5.9 Hollywood Gardens Septic to Sewer Conversion

Portions of the Hollywood Gardens located east of State Road 7 between Hollywood Boulevard and Johnson Street are not sewerred. This alternative involves expanding the existing sewer network to these unsewerred areas as shown in Figure 4-1. The cost of construction is estimated at approximately \$13.1 million. This alternative is cost-effective and was selected.

5.10 Park East Septic to Sewer Conversion

Portions of the Park East neighborhood located Johnson street and state highway 822 are not sewerred. This alternative involves expanding the existing sewer network to these unsewerred areas as shown in Figure 4-1. The cost of construction is estimated at approximately \$12.6 million. This alternative is cost-effective and was selected.

5.11 Hollywood Hills Septic to Sewer Conversion Phase I

Portions of the Hollywood Hills neighborhood located west of Park Road between Taft Street and Thomas Street are not sewerred. This alternative involves expanding the existing sewer network to these unsewerred areas as shown in Figure 4-1. The cost of construction is estimated at approximately \$9.2 million. This alternative is cost-effective and was selected.

5.12 Hollywood Hills Septic to Sewer Conversion Phase II

Portions of the Hollywood Hills neighborhood located West of Park Road between Hollywood Blvd and Johnson Street are not sewerred. This alternative involves expanding the existing sewer network to these unsewerred areas as shown in Figure 4-1. The cost of construction is estimated at approximately \$10.0 million. This alternative is cost-effective and was selected.

5.13 Driftwood Septic to Sewer Conversion Phase II

This alternative includes replacing septic systems with sewer connections in the area located west of Davie Rd between Stirling Rd and Sheridan Street. The estimated cost for

this alternative is \$34.2 million. This option will provide reliable sewer service to the area and ensure adequate treatment of the area's wastewater and was selected.

5.14 Hollywood Hills Septic to Sewer Conversion Phase III

Portions of the Hollywood Hills neighborhood located West of Park Road between Taft Street and Johnson Street are not sewered. This alternative involves expanding the existing sewer network to these unsewered areas as shown in Figure 4-1. The cost of construction is estimated at approximately \$15.5 million. This alternative is cost-effective and was selected.

5.15 Highland Gardens Septic to Sewer Conversion Phase I

Portions of the Highland Gardens neighborhood east of I-95 between Hollywood Blvd and Pembroke Rd are not sewered. This alternative involves expanding the existing sewer network to these unsewered areas as shown in Figure 4-1. The cost of construction is estimated at approximately \$18.2 million. This alternative is cost-effective and was selected.

5.16 Highland Gardens Septic to Sewer Conversion Phase II

Portions of the Highland Gardens area east of 8th Avenue between Hollywood Boulevard and Pembroke Rd are not sewered. This alternative involves expanding the existing sewer network to these unsewered areas as shown in Figure 4-1. The cost of construction is estimated at approximately \$23.7 million. This alternative is cost-effective and was selected.

5.17 Boulevard Heights Septic to Sewer Conversion Phase II

Portions of the Boulevard Heights neighborhood located west of Park Rd between Johnson Street and Hollywood Boulevard are not sewered. This alternative involves expanding the existing sewer network to these unsewered areas as shown in Figure 4-1. The cost of construction is estimated at approximately \$11.3 million. This alternative is cost-effective and was selected.

5.18 Boulevard Heights Septic to Sewer Conversion Phase III

Portions of the Boulevard Heights neighborhood located west of 72nd Ave between Taft Street and Johnson Street are not sewered. This alternative involves expanding the existing sewer network to these unsewered areas as shown in Figure 4-1. The cost of construction is estimated at approximately \$5.6 million. This alternative is cost-effective and was selected.

5.19 Driftwood Septic to Sewer Conversion Phase III

This alternative includes replacing septic systems with sewer connections in the Driftwood neighborhoods located west of State Highway 91 between Taft Street and N 33rd Street. The estimated cost for this alternative is \$16.2 million. This option will provide reliable sewer service to the area and ensure adequate treatment of the area's wastewater and was selected.

5.20 Deep Injection Well No. 3 & 4

Disposal alternatives to meet the OOL requirement for elimination of effluent disposal through the outfall (SRWWTP Ocean Outfall Compliance Report Update, 2016) were evaluated. Based on the evaluation conducted for compliance, it was recommended that the City expand its use of injection wells for compliance with the regulations. Therefore, this alternative involves construction of an Injection Well Nos. 3 and 4 at the site of the South Regional Wastewater Treatment Plant. This alternative will provide additional wastewater effluent discharge capacity required to comply with the OOL requirements. The estimate construction cost for the injection wells is \$80 million. This is cost effective and is therefore selected. (Refer Appendix C for detailed project description.)

5.21 Environmental Assessment

The City of Hollywood has evaluated the existing wastewater collection, transmission, treatment, and effluent disposal system needs and intends to embark upon a major sewer capital improvement program to upgrade, replace, or expand existing facilities. A description of the project alternatives is presented in Section 4.0. The majority of the improvements are driven by regulatory requirements, new demands and facility age. For purposes of environmental assessment, the projects are divided into two categories: Collection and Transmission System and Effluent Disposal System. The program is intended to ensure that the City meets its contractual obligations to its existing customers and the Large Users over the planning period and should permit the City to meet all regulatory requirements currently in effect.

This section outlines the environmental review of the major components of the program where SRF loans are proposed. Environmental assessments were conducted for the expanded Southern Regional Wastewater Treatment Plant (to 59 mgd) in previous Facilities Plan Amendments and the original 201 Plan for the facility. Subsequent projects have been in keeping with 201 Plan and have addressed new regulatory requirements.

5.21.1 Collection and Transmission System

The sanitary sewer collection and transmission system includes gravity pipelines, force mains and sewage lift stations. The following capital improvement projects are included:

- Royal Poinciana Sewer Expansion
- 441 Septic to Sewer Conversion
- Washington Park/Lawn Acres Septic to Sewer Conversion
- Boulevard Heights Septic to Sewer Conversion Phase I
- North Central Septic to Sewer Conversion Phase I
- North Central Septic to Sewer Conversion Phase II
- Playland Estates Septic to Sewer Conversion
- Hollywood Gardens Septic to Sewer Conversion
- Park East Septic to Sewer Conversion
- Hollywood Hills Septic to Sewer Conversion Phase I
- Hollywood Hills Septic to Sewer Conversion Phase II
- Hollywood Hills Septic to Sewer Conversion Phase III
- Highland Gardens Septic to Sewer Conversion Phase I
- Highland Gardens Septic to Sewer Conversion Phase II
- Boulevard Heights Septic to Sewer Conversion Phase II
- Boulevard Heights Septic to Sewer Conversion Phase III
- Driftwood Septic to Sewer Conversion Phase II
- Driftwood Septic to Sewer Conversion Phase III

What Happens if the Program is Not Constructed (No Action)?

Physical

Surface Water:	May adversely affect surface waters due to spills and overflows of the sanitary sewer system if capacity is insufficient.
Groundwater:	Leakage from corroded sewer lines and existing septic systems may infiltrate into groundwater.
Air Quality:	No impact.
Noise:	No impact.
Flood Plains:	No impact.

Wetlands: No impact.

Biological

Aquatic: Overflows and leakage may adversely affect surface and ground waters, which may in turn adversely affect public health and aquatic species.

Terrestrial: No impact

Socio-economic

Economy: Will adversely impact the City as a result of regulatory fines, penalties and legal costs for sanitary sewer overflows and failure to meet treatment standards, and may subject the City to lawsuits from Large Users, residents and third parties in the event of a moratorium as a result of frequent overflows due to excessive infiltration.

Land Use: No change in impact.

Public Health: May adversely affect public health due to higher risk of untreated sewage spills without rehabilitation of existing facilities.

Transportation: No impact.

Community
Facilities: No impact.

Energy: No impact.

Cultural

Aesthetics: The aesthetic impact of sewage spills and odors is unacceptable.

Architectural/

Historical: No impact.

What Happens if the Program is Constructed (Action)?

Physical

Surface Water: Less potential for spills, since the reliability and capacity of the facilities would be appropriate for the wastewater generated in the service area

Groundwater: Replacing septic systems with sanitary sewer collection systems may improve groundwater by eliminating infiltration from the replaced septic systems.

Air Quality: No impact.

Noise: No impact.

Flood Plains: No impact.

Wetlands: No impact.

Biological

Aquatic: Less impact to aquatic species should be created with improved pipe and pump station capacity.

Terrestrial: No impact. All projects are located on developed areas and will not impact threatened or endangered species.

Socio-economic

Economy: Failure to increase sanitary sewer capacity could place the City of Hollywood in a building moratorium. Construction would maintain

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the current economy. Rates and fees are, or will be in place to cover the facility costs.

Land Use: No impact.

Public Health: Reduction in potential spills and overflows will better protect public health.

Transportation: Minor inconvenience during construction on plant site and temporary increase in traffic on road into plant site.

Community

Facilities: No impact.

Energy: No impact.

Cultural

Aesthetics: No impact.

Architectural/

Historical: No impact.

5.21.2 Effluent Disposal System

The effluent disposal project includes the expansion of existing deep injection well facilities for compliance with recent regulatory mandates. The following Effluent Disposal System capital improvement project is included:

- Deep Injection Well No. 3
- Deep Injection Well No. 4

What Happens if the Program is Not Constructed (No Action)?

Physical

Surface Water: No action will result in non-compliance with existing regulations and is therefore, unacceptable.

Groundwater: No impact.

Air Quality: No impact.

Noise: No impact.

Flood Plains: No impact.

Wetlands: No impact.

Biological

Aquatic: Studies performed by the coastal utilities and NOAA determined that continued use of the ocean outfalls will not adversely affect aquatic life.

Terrestrial: No impact. All projects are located on developed areas and will not impact threatened or endangered species.

Socio-economic

Economy: Will adversely impact the City as a result of regulatory fines, penalties and legal costs for violating the new rules on open ocean outfalls.

Land Use: No change in impact.

Public Health: No impact.

Transportation: No impact.

Community
Facilities: No impact.

Energy: No impact.

Cultural

Aesthetics: No impact.

Architectural/
Historical: No impact.

What Happens if the Program is Constructed (Action)?**Physical**

Surface Water: Nutrient loading to the open ocean will be slightly decreased.

Groundwater: No impact.

Air Quality: No impact.

Noise: No additional impact. Existing injection wells and other facilities at the SRWWTP are operational. No increase in noise is anticipated.

Flood Plains: Minor impacts will be addressed through an updated MSSW drainage plan.

Wetlands: No impact.

Biological

Aquatic: No benefits to aquatic life are envisioned.

Terrestrial: Minor, short-term impacts to the SRWWTP site are expected. Minimal impact to wildlife is expected as very little wildlife frequents the site.

Socio-economic

Economy: Failure to secure adequate capacity will place Hollywood in violation of Florida Statutes. Construction will maintain the current economy. Rates and fees are, or will be in place to cover the facility costs.

Land Use: No change in impact.

Public Health: No impact.

Transportation: Minor inconvenience during construction on plant site and temporary increase in traffic on road into plant site.

Community Facilities: No impact.

Energy: Additional energy will be required for construction and operation of the new injection well pumps and facilities. Some of this will be offset by decreasing the use of ocean outfall pumping.

Cultural

Aesthetics: No impact.

Architectural/
Historical: No impact.

5.22 Program Costs

Table 5-1 shows the total estimated capital and additional operating costs for the 20 year planning period.

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**Table 5-1
Total Wastewater CIP Program Costs**

Project Name	Capital Cost
Collection and Transmission System	
Royal Poinciana Sewer Expansion	12,246,315
441 Septic to Sewer Conversion	26,050,822
Washington Park/Lawn Acres Septic to Sewer Conversion	5,025,225
Driftwood Septic to Sewer Conversion Phase I	35,536,421
Boulevard Heights Septic to Sewer Conversion Phase I	14,611,050
North Central Septic to Sewer Conversion Phase I	25,865,199
North Central Septic to Sewer Conversion Phase II	10,290,900
Playland Estates Septic to Sewer Conversion	28,454,850
Hollywood Gardens Septic to Sewer Conversion	13,087,650
Park East Septic to Sewer Conversion	12,598,125
Hollywood Hills Septic to Sewer Conversion Phase I	9,206,550
Hollywood Hills Septic to Sewer Conversion Phase II	9,972,900
Driftwood Septic to Sewer Conversion Phase II	34,221,358
Hollywood Hills Septic to Sewer Conversion Phase III	15,508,125
Highland Gardens Septic to Sewer Conversion Phase I	18,162,225
Highland Gardens Septic to Sewer Conversion Phase II	23,692,000
Boulevard Heights Septic to Sewer Conversion Phase II	11,283,375
Boulevard Heights Septic to Sewer Conversion Phase III	5,561,700
Driftwood Septic to Sewer Conversion Phase III	16,238,100
Collection & Transmission Total	327,612,890
Effluent Disposal System	
Injection Well No.3	40,000,000
Injection Well No.4	40,000,000
Wastewater Treatment and Disposal Total	80,000,000
Total for 20 Year Planning Period	\$ 407,612,890



SECTION 6.0

Implementation and Compliance

6.1 Public Hearing/Dedicated Revenue Hearing

A public hearing/dedicated revenue hearing will be held at City Hall, City Commission Chambers, Room 219, located at 2600 Hollywood Boulevard on May 16, 2018 at 1:00 p.m. In accordance with 40 CFR 25.5, a notice of the hearing was publicized at least 14 days in advance of the meeting. The notice appeared in the Sun Sentinel on May 3, 2018 and the City's Sunshine Board on May 1, 2018. A complete record of the proceedings will be kept by the City of Hollywood and made available to the public.

6.2 Regulatory Agency Review

Keeping with the requirements of the SRF, copies of the City's Wastewater Capital Improvements Plan will be sent to the following government agencies for review and comments:

- Florida Department of Environmental Protection
- Florida Department of Health
- South Florida Water Management District
- U. S. Environmental Protection Agency
- Department of Community Affairs, State Clearinghouse
- U.S. Fish and Wildlife Services

6.3 Financial Planning

The Department of Environmental Protection's State Revolving Fund is expected to be the primary financing source for the capital improvements program. The major highlights of the wastewater improvements program are:

- Collection and Transmission System Rehabilitation and Improvements (\$327.6 million). This includes rehabilitation of existing gravity pipes and force mains, installation of new force mains, and rehabilitation and replacement of lift stations.
- Effluent Disposal System Expansion (\$80 million). This project includes construction two new injection wells and ancillary facilities to decrease reliance on the open ocean

outfall for compliance with the OOL for closure of the ocean outfall by 2025 (except for discharging peak flows).

The SRF loans will be repaid from water and sewer user fees. Capital financing plans will be developed on a project-by-project basis and submitted to the FDEP.

6.4. Implementation

The order of priority for the City's program with respect to SRF loans for the wastewater system is as follows:

- Expand sewer collection system to eliminate septic tanks and protect groundwater.
- Expand wastewater effluent disposal capacity by constructing new injection wells.

6.5. Compliance

- Plant effluent will meet the requirements of Chapter 62-650, FAC
- Effluent disposal practices will comply with OOL (FS §403-086) by the year 2025.