



10-Year Water Supply Facilities Work Plan – 2025 Update

February 2026 / DRAFT





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Abbreviations

| | |
|---------|--|
| AADF | annual average daily flow |
| ADD | annual average day demand |
| AIX | anion exchange |
| AMI | automated meter infrastructure |
| ASR | aquifer storage and recovery system |
| AWS | alternative water supply |
| BC | Broward County |
| BCWPA | Broward County Water Preserve Areas |
| BCWWS | Broward County Water and Wastewater Services |
| BLS | below land surface |
| BMP | best management practice |
| CEPP | Central Everglades Planning Project |
| CERP | Comprehensive Everglades Restoration Project |
| CII | Commercial/ Industrial/ Institutional |
| CIP | clean-in-place |
| CO2 | carbon dioxide |
| Compact | Southeast Florida Regional Climate Change Impact |
| CUP | consumptive use permit |
| DIP | ductile iron pipe |
| DIW | deep injection well |
| DWI | deep well injection |
| EPA | Environmental Protection Agency |
| F.A.C. | Florida Administrative Code |
| FDEP | Florida Department of Environmental Protection |
| FERN | Ferncrest Utilities |
| FGBC | Florida Green Building Coalition |
| FLL | Fort Lauderdale |
| F.S. | Florida Statutes |
| ft | feet |
| FY | fiscal year |
| GEEC | Green Energy and Environmental Committee |
| GIS | geographic information system |
| GOPs | goals, objectives, and policies |
| gpcd | gallons per capita per day |
| gpd | gallons per day |
| gpm | gallons per minute |
| GST | ground storage tank |
| HET | high efficiency toilet |

| | |
|------------------|---|
| HLD | high-level disinfection |
| HLWD-DPU | City of Hollywood Department of Public Utilities |
| H ₂ S | hydrogen sulfide |
| ICLEI | International Council for Local Environmental Initiatives |
| IFAS | Institute of Food and Agricultural Sciences |
| IWRP | Integrated Water Resource Plan |
| IX | ion exchange |
| LAS | liquid ammonium sulfate |
| lbs/day | pounds per day |
| LEC | Lower East Coast |
| LOCAR | Lake Okeechobee Component A Storage Reservoir |
| LORS08 | 2008 Lake Okeechobee Regulation Schedule |
| LOS | level of service |
| LOSOM | Lake Okeechobee System Operating Manual |
| LS | lime softening |
| LOWRP | Lake Okeechobee Watershed Restoration Project |
| MAAB | Mitigation Area A Berm |
| MBR | membrane bioreactor |
| MDD | maximum day demand |
| MFL | minimum flow and minimum water level |
| MG | million gallons |
| mgd | million gallons per day |
| mg/L | milligrams per liter |
| mgm | Million Gallons per Month |
| MLE | Modified Ludzack-Ettinger |
| MORs | monthly operating reports |
| N/A | not applicable |
| NIS | NatureScape Irrigation Services |
| NSU | Nova Southeastern University |
| O&M | operations and maintenance |
| OOL | Ocean Outfall Legislation |
| PAR | public access reuse |
| PFAS | per- and polyfluoroalkyl substances |
| PFAM | population forecast and allocation model |
| psi | pounds per square inch |
| PVC | polyvinyl chloride |
| RAA | restricted allocation area |
| RCAP | Regional Climate Action Plan |
| RO | reverse osmosis |
| RWA | regional water availability |

| | |
|--------|---|
| RWSP | Regional Water Supply Plan |
| SFWMD | South Florida Water Management District |
| SIP | Savings Incentive Program |
| SRW | South Regional Wellfield |
| SRWWTP | Southern Regional Wastewater Treatment Plant |
| STA | stormwater treatment area |
| SUN | Sunrise Utilities |
| THISCD | Tindall Hammock Irrigation and Soil Conservation District |
| TN | total nitrogen |
| TOD | Town of Davie |
| Town | Town of Davie |
| TP | total phosphorous |
| UF | University of Florida |
| USGBC | United States Green Building Council |
| USGS | United States Geologic Survey |
| WRF | water reclamation facility |
| WRRDA | Water Resources Reform and Development Act |
| USACE | U.S. Army Corps of Engineers |
| WSFWP | water supply facilities work plan |
| WTF | water treatment facility |
| WTP | water treatment plant |
| WUP | water use permit |
| WWIND | Welcoming Wildlife into Natural Davie |

SECTION 1 INTRODUCTION

Over the past decade, the State of Florida has updated its legislation to more closely link growth with water resource availability, based on the specific demands identified through the water supply planning process. This 10-Year Water Supply Facilities Work Plan (WSFWP) has been prepared for the Town of Davie (Town), located in Broward County (BC), in response to state requirements for local governments to incorporate a WSFWP into their Comprehensive Plans. Local governments must amend their Comprehensive Plan and submit the corresponding Comprehensive Plan Amendments within 18 months of the adoption of their Regional Water Supply Plan (RWSP). This section provides an overview of the applicable statutory framework, general background on the local government, and the project objectives, along with a brief description of the contents of this WSFWP report.

1.1 Local Government Overview

The Town of Davie is known for its blend of suburban and rural character, featuring open spaces and equestrian trails, while also being an educational hub. Land use is diverse, with residential areas alongside agricultural, commercial, and industrial zones. The Town balances suburban neighborhoods with preserved rural areas, with recent developments trending towards higher-density, mixed-use construction near transportation corridors. The Town operates its own Utilities Department.

1.2 Statutory Overview

Beginning in 2002 and continuing through passage of the Community Planning Act in 2011, the State of Florida enacted legislation to address statewide water supply needs. The Florida Legislature enacted related bills during the 2002, 2004, 2005, 2011, 2012, 2015, and 2016 sessions. These bills, particularly Senate Bills 360 and 444 (2005 legislative session), significantly changed Chapters 163 and 373 of the Florida Statutes (F.S.), strengthening the statutory connection between the RWSPs prepared by the water management districts and the comprehensive plans prepared by local governments. These bills also established a framework to improve coordination between the RWSP and local land use planning.

Under Chapter 163, Part II, F.S., requires local governments to prepare and adopt a 10-Year WSFWP into their comprehensive plans within 18 months of the approval of a RWSP or plan update by the South Florida Water Management District (SFWMD). The SFWMD Governing Board adopted the 2023–24 Lower East Coast Water Supply Plan Update (2023–24 LEC Plan Update) on September 23, 2024. As a result, local governments within the Lower East Coast Region must amend their comprehensive plans to include an updated 10-Year WSFWP and associated planning elements no later than March 23, 2026.

The State of Florida further requires the 10-Year WSFWP to address the development of traditional and alternative water supplies (AWSs), along with associated management strategies such as conservation and reuse, to meet the Town’s future demands. The supporting data and analyses, including population projections and water demands, must cover a minimum 10-year planning horizon and be consistent with the 2023-2024 LEC Plan Update. The data presented in this report reflects the planning period through the year 2045.

1.3 Objective

The purpose of the WSFWP is to evaluate the Town’s existing water resources and the water supply facilities of the utilities that provide service to the Town, namely the City of Sunrise, BC, the City of Fort Lauderdale, the City of Hollywood, Cooper City, and the Tindal Hammock Soil and Water Conservation District (Tindall Hammock). Carollo was contracted by the Town’s Utilities Department to update the Town’s 2020 WSFWP to represent the year 2025 and through the 2045 planning horizon (WSFWP 2025 Update).

The WSFWP assesses whether these resources and facilities are adequate to meet the Town’s projected potable water demands and supports the development of a Comprehensive Plan amendment that includes the required WSFWP updates, as outlined in Section 163.3177(6)(c)3., F.S., and is consistent with the water resource and water supply development projects identified in the 2023-2024 LEC Plan Update. It outlines the AWS projects needed to address potential shortfalls, provides an implementation schedule, and summarizes how these projects affect treated water availability and deficiency. The WSFWP also evaluates and describes the capital improvement plans required to support current and future water supply needs and incorporates the Town’s 5-year Capital Improvement Plan funding plan, as applicable.

Additionally, the WSFWP documents the coordination required between water supply and land use planning efforts. Preparation of this WSFWP involves collaboration among the Town’s Planning and Zoning Department, Utility Department, the SFWMD, the municipalities receiving water from the Town (Seminole Tribe of Florida and Tindall Hammock), and the utilities providing water service to the Town (BC, City of Hollywood, City of Fort Lauderdale, Cooper City, and City of Sunrise).

1.4 Project Overview

This WSFWP 2025 Update identifies water utilities that serve the Town’s jurisdiction and presents the development of traditional and AWSs, bulk sale agreements, and conservation and reuse programs that are necessary to serve existing and new development for a specific planning period while complying with regulatory requirements. Although this report is referred to as a 10-Year WSFWP, the water demand forecast provided in this document extends to the year 2045, which is consistent with the latest LEC Plan Update.

This Town of Davie WSFWP 2025 Update builds upon or utilizes the following documents:

- Town’s 10-Year Water Supply Facilities Work Plan – 2020 Update.
- Town’s Interim Final 2020 Utilities Comprehensive Master Plan.
- SFWMD’s 2018 LEC Plan Update.
- SFWMD’s 2023-2024 LEC Plan Update.
- City of Sunrise 10-Year Water Supply Facilities Work Plan – 2020 Update.
- Final City of Hollywood Water Supply Facilities Work Plan (WSFWP) 2025 Update, dated 2025.
- Final BC’s Water Supply Facilities Work Plan, dated 2025.
- Final City of Fort Lauderdale Water Supply Facilities Work Plan 2025 Update, dated June 19, 2025.

This WSFWP 2025 Update includes the following items:

- Five-year population and water demand projections through the year 2045 within the Town’s jurisdiction and Davie service area.
- Assessment of the Town’s current water supply sources and treatment capacities.
- Identification of AWS projects for implementation including cost and schedule.
- Recognition of the regional water supply planning issues that have the potential to impact the Town.
- Identification of water conservation and reuse practices and regulations within the Town’s service area.
- Identification of the Town’s capital improvement projects CIPs.
- Demonstration that the Town has coordinated with other service providers supplying water within the Town’s jurisdiction (i.e. BC, the City of Hollywood, the City of Fort Lauderdale, and the City of Sunrise) to ensure that short- and long-term water supply needs will be met.
- Identification of goals, objectives, and policies (GOPs) required to implement the Work Plan and water supply concurrency requirements.

This report is organized into the following sections.

Section 1 – Introduction: Presents the local government and statutory overview and the project objective, including a brief description of the content in this report.

Section 2 – Water Service Area: Introduces the geographic area served by the Town, other utilities that provide water service within the Town of Davie and describes the Town’s reuse water system customers.

Section 3 – Existing Water Supply System: Characterizes the water infrastructure that serves the Town’s service area include water raw water sources, existing treatment facilities, and distribution systems and associated consumptive use permits (CUPs).

Section 4 – Reclaimed Water System and Water Conservation Program: Characterizes the reuse water usages and water conservation program within the Town and the Ocean Outfall Legislation (OOL) compliance. Intergovernmental coordination efforts are also discussed.

Section 5 – Data and Analysis of Water Demand Forecast and Supply Adequacy: Presents the methods, data and results of the water demand forecasts within the Town’s water service area and provides a comparison of future water demand to available water supply. This section demonstrates that the existing water supply permitted quantities, coupled with the Town’s conservation and reuse practices, will meet projected demands through 2045.

Section 6 – Regional Issues and Intergovernmental Coordination Activities: Summarizes the regional water supply planning issues that have the potential to impact the Town. Intergovernmental coordination activities are also reviewed for adequacy and if new activities are needed because of changes in statutory requirements.

Section 7 – Water Supply Capital Improvements: Identifies the capital improvements required to build public water supply facilities to serve the existing and new development within the Town’s jurisdiction.

Section 8 – Comprehensive Plan (Related Amendments): Includes an assessment of draft Comprehensive Plan Infrastructure and Capital Improvements Elements GOPs and identifies any new or revised GOPs, relative to the 10-Year WSFWP – 2020 Update, needed to implement the work plan.

Section 9 – Summary and Conclusions.

SECTION 2 WATER SERVICE AREAS

This section introduces the Town of Davie geographic service area and identifies the water utilities serving portions of the Town. This section also describes the Town’s reuse water system.

2.1 Potable Water Service Areas

The Town of Davie, incorporated in 1960, is located in the southeastern portion of BC. It is bordered by the City of Weston to the west; Pembroke Pines, the City of Hollywood, Southwest Ranches, and the City of Cooper City to the south; the City of Plantation and the City of Sunrise to the north; and Dania Beach, unincorporated BC, and the City of Fort Lauderdale to the east.

Besides the Utilities of the Town of Davie municipality, there are other water providers that established their water service within the Town’s municipal boundary including Ferncrest Utilities (Tindall Hammock), City of Hollywood, BC, City of Fort Lauderdale, Cooper City, and City of Sunrise. In addition, in case of emergencies, the Town can receive water from other providers via interconnects, including City of Hollywood, BC, City of Sunrise, and City of Cooper City.

Figure 2.1 illustrates the water service areas in the Town of Davie. There are no anticipated changes in the size or coverage of these water service areas.

2.1.1 Town of Davie Service Area

The Town provides retail water service to approximately one-third of its geographic footprint, which is 11.67 square miles. The Town's main service area is bordered to the north by Fern Crest Village (associated with Tindall Hammock Irrigation and Soil Conservation District) and State Road 84, to the south by Stirling Road, to the east by State Road 7, BC, and the Seminole Indian Reservation, and to the west by Hiatus Road and University Drive. As shown in Figure 2.1, the Town's utility service area includes the majority of eastern Town of Davie.

At northeast of the main service area, the Town owns infrastructure in the Hacienda Village subnetwork, located along State Road 84 and east of State Road 7. However, this subnetwork is served by the City of Fort Lauderdale under a wholesale agreement. Under this agreement between the Town and Fort Lauderdale, the Town purchases potable water from Fort Lauderdale and serves Hacienda Village using distribution system and meters owned and maintained by the Town. In the event of an emergency, the Town can also supply water to Hacienda Village through an interconnection.

As reported in the Town’s 2024 Annual Utility Report, the Town currently provides water services to 38,924 people, which includes the Hacienda Village area. The three large users that the Town also serves are Reddy Ice Group, Andrx Pharmaceuticals, and Ferncrest Utilities. Historically, approximately 8 percent of the total annual water produced by the Town is consumed by the large users. In addition, emergency interconnections exist with the City of Sunrise Utilities Department, City of Fort Lauderdale Utilities (who serve Hacienda Village), City of Cooper City, BC Utilities Department, City of Hollywood, and Ferncrest Utilities.

The Town owns and operates two water treatment plants (WTPs) – System III WTP and System V WTP. Since June 2021, System V WTP has been the sole source of potable water supply for these customers after System III WTP was permanently shut down. System III WTP will not return to service in the future due to operating and maintenance costs. The treatment capacity of System V WTP is 6.0 million gallons per day (mgd). Based on historical WTP monthly operating reports (MORs) from the System V WTP, the Town produced an average of approximately 3.93 million gallons per day (mgd) of potable water in fiscal year (FY) 2024.

The Town of Davie has no plans to provide raw or finished water to any retail or wholesale customer outside of its existing water service areas.

2.1.2 City of Sunrise Service Area

The City of Sunrise Utilities serves the western portion of the Town of Davie, which is approximately two-thirds of the Town or 21.2 square miles. Sunrise is responsible for the water utilities and public water supply systems serving this service area. In addition, there is an emergency interconnection that enables Sunrise to supply water to the Town if needed. The City of Sunrise’s 10-Year Water Supply Facilities Work Plan – 2020 Update (2020 Sunrise WSFWP) confirms its continued commitment to providing these services. See Appendix A for the 2020 Sunrise WSFWP.

2.1.3 Ferncrest Utility Service Area – Tindall Hammock Irrigation and Soil Conservation District (Tindall Hammock)

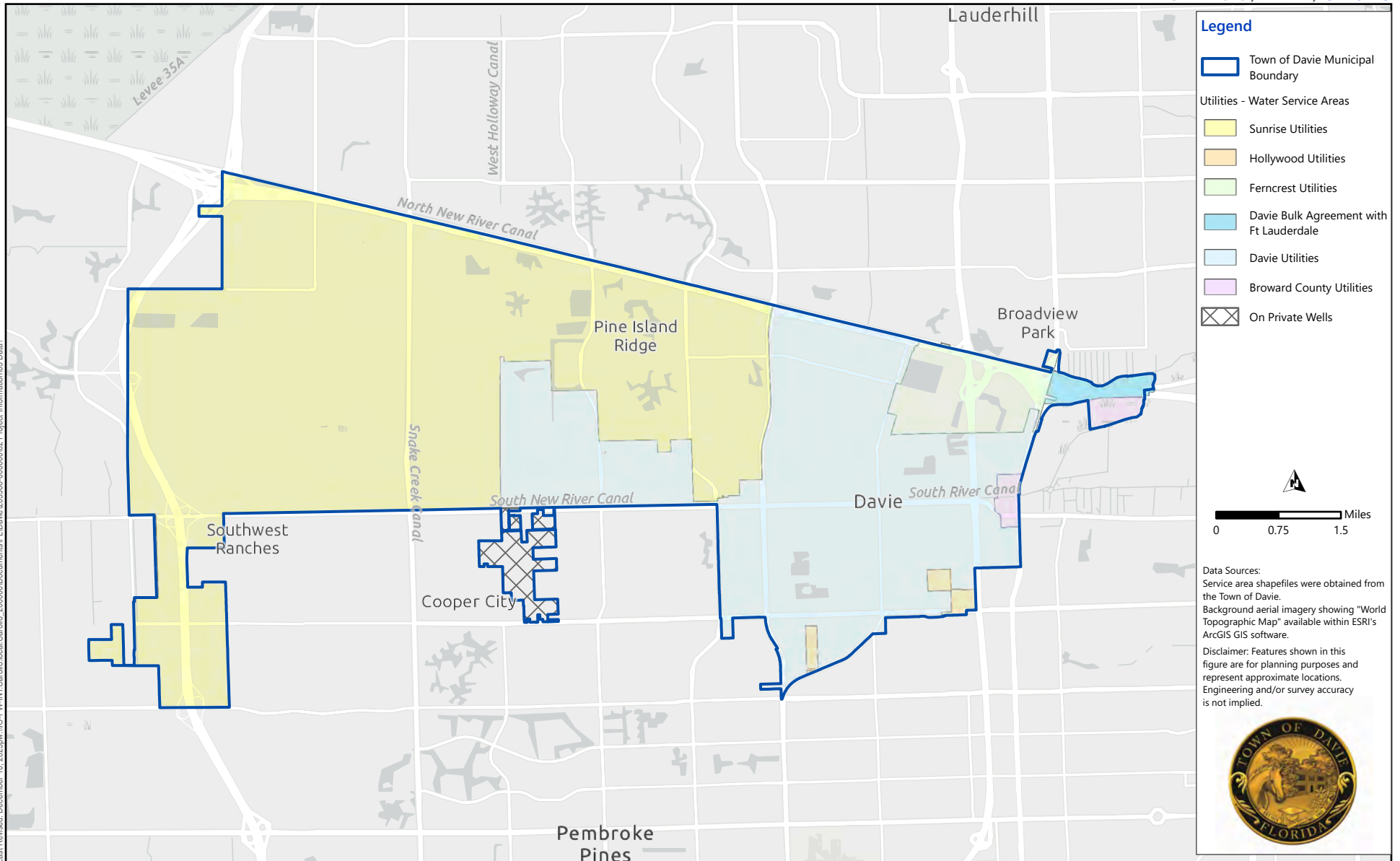
Ferncrest Utility is a private utility company whose service area, Tindall Hammock, lies within the Town’s corporate limits east of the Florida Turnpike and north of Oaks Road. Because Ferncrest’s water treatment facility (WTF) does not have adequate capacity to meet the potable water needs of all residents in Tindall Hammock, the Town provides water and wastewater service to the eastern portion of the area pursuant to a Bulk Water and Sewage User Agreement that was signed on July 7, 1999. In addition, the Town can supply water to the western portion of Tindall Hammock, specifically west of the Florida Turnpike, through a metered wholesale interconnect during emergency situations. Historically, this area of the Town consumes about 2.6 percent of the Town’s total annual water production and its water demand, mostly industrial, is included as a large user in this WSFWP 2025 Update’s water demands analysis.

2.1.4 City of Hollywood Service Area

The City of Hollywood Department of Public Utilities (HLWD-DPU) serves approximately 300 acres of area within the Town’s jurisdiction, at northwest of the intersection of Sterling Road and Florida Turnpike and an additional small area south of Stirling Road and north of Davie Road. The City of Hollywood’s Draft Water Supply Facilities Work Plan 2025 Update (Draft 2025 Hollywood WSFWP) confirms its continued commitment to serving this area. See Appendix B for the Draft 2025 Hollywood WSFWP.

2.1.5 Broward County BCWWS Districts 3A Service Area

Broward County Waster and Wastewater Services (BCWWS) District 3A serves a small area along the eastern edge of the Town’s jurisdiction near Griffin Road and Orange Drive. The BCWWS districts receive potable water through an interlocal resale water agreement under which BC purchases water from the City of Hollywood for distribution to its customers. Broward County’s Final Water Supply Facilities Work Plan 2025 Update (2025 BC WSFWP) confirms its continued commitment to serving this small area. See Appendix C for the 2025 BC WSFWP.



Last Revised: December 10, 2025pw:\110-FW-INT-Carollo_cac\Carollo_2000001\Documents\FLDavie\203965-00000002 Project Information\03_Data1

Figure 2.1 Utility Service Areas in the Town of Davie
 TOWN OF DAVIE FLORIDA



2.1.6 Summary of Water Service Areas Supplying the Town of Davie

In summary, five water utilities serve the Town of Davie jurisdiction. The Town of Davie Utilities and Ferncrest Utilities are supplied by the Town’s System V WTP and deliver potable water to most of the eastern portion of the Town. Exceptions include Hacienda Village, which is supplied by the City of Fort Lauderdale Public Works Department, and a few small areas supplied by the City of Hollywood and BCWWS. The western portion of the Town is served and supplied by the City of Sunrise Utilities. Table 2.1 tabulates the square-mile coverage of each potable water service area within the Town, as illustrated in Figure 2.1. There are no anticipated changes in the size or coverage of these potable water service areas.

Table 2.1 Geographic Size of Water Utility Service Areas in Square Miles

| Water Utility Serving the Geographic Area | Area Within Town of Davie (square miles) | Total Served from Town's WTP by Water Service Area (square miles) |
|--|--|---|
| Davie Utilities (Town WTP) to Eastern Town of Davie Customers | 11.67 | 11.37 |
| Ferncrest Utilities (Town WTP) to Tindall Hammock Customers | 1.49 | 0.31 |
| BCWWS (Hollywood WTP) to BCWWS District 3A Customers | 0.17 | 0.00 |
| HLWD-DPU (Hollywood WTP) to Town of Davie Customers | 0.22 | 0.00 |
| Sunrise Utilities (Sunrise WTP) to Western Town of Davie Customers | 21.25 | 0.00 |
| Total | 34.80 | 11.68 |

Sourced from the Town of Davie Utilities Reference geographic information system (GIS) shapefile.

2.2 Private Suppliers

Non-municipal water service providers are required to have Water Use Irrigation Permits, Major General Water Use Irrigation Permits, Individual Permits, or Major Water Use Permits issued by SFWMD. Permits are used to allow users to withdraw a specified amount of water, either from ground, canals, lakes, or rivers. This water is usually used to irrigate golf courses, crops, nurseries, residential landscaping or industrial. Individual and general permit wells within Town’s municipal boundary is shown in Figure 2.2. There are seven individual users in Town of Davie that are outside of the Town’s existing service area and are on domestic self-supply system.

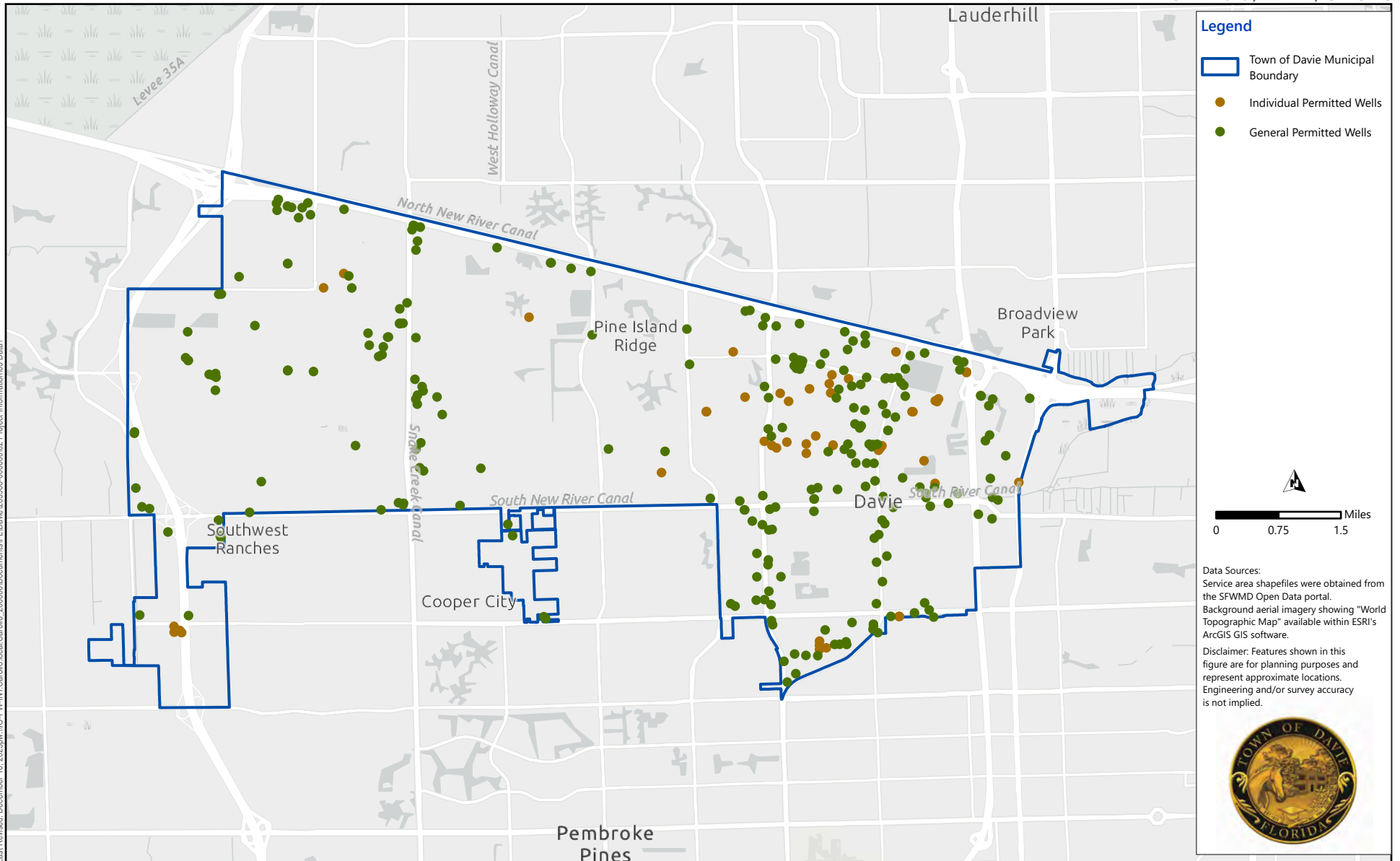


Figure 2.2 Individual and General Permitted Water Use Wells in the Town of Davie
 TOWN OF DAVIE FLORIDA

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2.3 Reuse Water Customers

The Town has implemented a reuse system at the System IV Water Reclamation Facility (WRF) by making use of treated effluent from its own wastewater service area. As reported in the Town’s 2024 Reclaimed Water Report, 44 percent of treated wastewater was reused in 2024. Currently, the reuse system serves mainly the educational complexes south of the System IV WRF, but recent expansion projects will extend the system east to Broward College Central Campus and west to Bamford Park, Pine Island Park, Bamford Sports Complex, University Drive, Broward County Tree Tops Park, and the Pine Island Road corridor.

The Town’s reuse water system has 11 existing and planned major users. Major users are defined as usage of 0.1 mgd or more. Among these customers, six are connected customers and four are future customers. One customer, Grand Oaks Country Club, has returned to using their CUP allocation and is no longer receiving reuse water. This customer base was served 0.775 mgd of reuse water in 2023. Table 2.2 presents a summary of these customers as reported in the Florida Department of Environmental Protection (FDEP) 2023 Reuse Inventory and Table 2.3 presents a summary of customers connected or planned to be connected after 2023. The total capacity of the customers presented in both tables is 3.729 mgd.

Table 2.2 Reuse Water Customers Reported in FDEP 2023 Reuse Inventory

| Customer Name | Connection Status | User Type | Capacity (mgd) | Acreage | Consumption in 2023 (mgd) |
|--|--|---------------------------------|----------------|--------------|---------------------------|
| Grand Oaks Country Club (previously connected) | Discontinued (Returned to potable water) | Golf Course | 0.54 | 174.4 | 0.0 |
| NSU Main Campus | Connected | University | 0.439 | N/A | 0.607 |
| NSU Cooling Towers | Connected | Industrial/ at other Facilities | 0.225 | N/A | 0.088 |
| University of Florida (UF) | Connected | Industrial/ at other Facilities | 0.242 | N/A | 0.088 |
| Town of Davie | Connected | Industrial/ at Treatment Plant | 0.891 | N/A | 0.05 |
| Town of Davie | Connected | Toilet Flushing | 0.16 | N/A | 0.03 |
| Total | | | 2.497 | 214.0 | 0.775 |

Abbreviations: UF – University of Florida; NSU – Nove Southeastern University; N/A – not applicable

Sources:

- 1) FDEP Domestic Wastewater Facility Permit Renewal, Town of Davie Water Reclamation Facility, July 1, 2020.
- 2) FDEP, 2023 Reuse Inventory, December 2024, Appendix D.

Table 2.3 Reuse Water Customers Connected or Potentially be Connected after 2023

| Customer Name | Connection Status | User Type | Capacity (mgd) | Acreage | Consumption in 2025 (mgd) |
|---|---|-------------|----------------|--------------|---------------------------|
| Bamford Park & Sports Complex and University Drive | Connected (Operational since June 2024) | Landscaping | 0.5 | 138.0 | 0.066 |
| Davie Golf Course (formerly Arrowhead Country Club) | To be connected (Completed, pending operational plan) | Golf Course | 0.332 | 76.0 | -- |
| Broward College | Negotiation for connection | University | 0.175 | N/A | -- |
| NSU 2 Additional Cooling Towers | To be connected (Anticipated expansion) | Industrial | 0.225 | N/A | -- |
| Total | | | 1.232 | 214.0 | 0.066 |

Sources:

- 1) FDEP Domestic Wastewater Facility Permit Renewal, Town of Davie Water Reclamation Facility, July 1, 2020.
- 2) Town of Davie 2024 Reclaimed Water Report.
- 3) Town of Davie, 2025.

SECTION 3 EXISTING WATER SUPPLY SYSTEM

This section characterizes the water suppliers including CUP information, raw water sources, and existing treatment facilities.

As described in Section 2, the Town of Davie is served by the Town’s own potable water system along with several other water suppliers. The water suppliers of the City’s residents and businesses include the following.

- **Town of Davie:** Provides water for the eastern portion of Davie serving approximately one-third of the area.
- **City of Sunrise:** Serves the western section of the Town covering about two-thirds of the geographic area.
- **Ferncrest Utility Service Area:** Supplies water to a small portion of the Northeast area of the Town.
- **City of Hollywood:** Serves small sections in the Southeast region of the Town.
- **BCWWS District 3A:** Serves a small area along the eastern border of the Town.

Table 3.1 Utility Services within the Town’s Political Boundary

| Utility Services within the Town’s Political Boundary | Who Owns the Pipes | Who Owns the Meters | Who Serves It Currently | Who Serves It Near Future | Who Serves It Long Term |
|--|-----------------------------|---------------------|-------------------------|---------------------------|-------------------------|
| Davie Service Area | TOD | TOD | TOD | TOD | TOD |
| Davie Bulk Agreement Ft. Lauderdale - Hacienda Village | TOD | TOD ⁽¹⁾ | FLL | TOD | TOD |
| BC Utilities | BC | BC | BC | BC | BC |
| Ferncrest Utilities East of Turnpike | TOD/ FERN ⁽²⁾ | FERN | TOD | TOD | TOD |
| Ferncrest Utilities West of Turnpike | FERN | FERN | FERN | FERN | TOD |
| Sunrise Utilities | SUN | SUN | SUN | SUN | SUN |

Abbreviations: TOD – Town of Davie; FLL – Fort Lauderdale; FERN – Ferncrest Utilities; SUN – Sunrise Utilities

Notes:

(1) Except for the master meter at interconnect, which belongs to FLL.

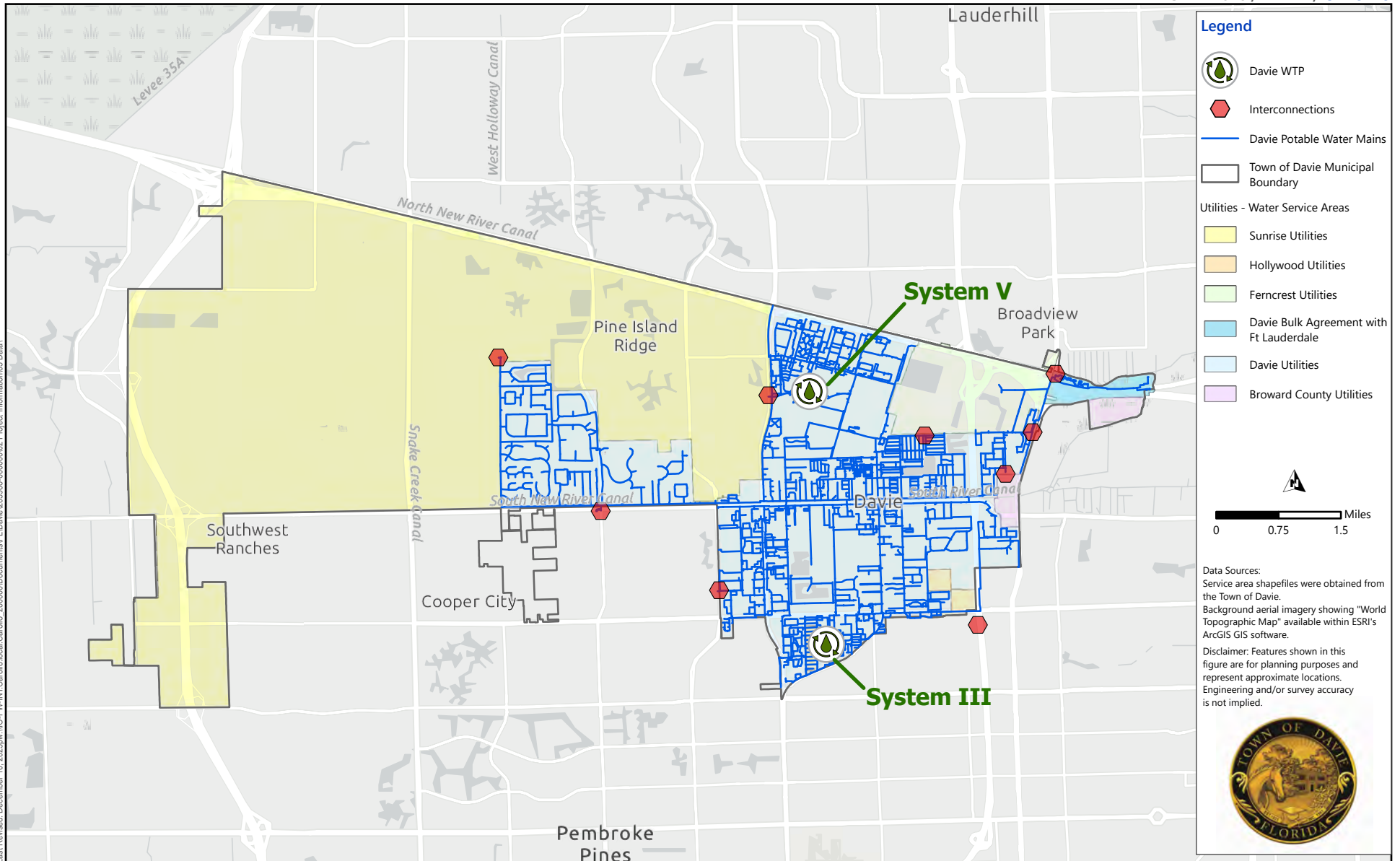
(2) TOD owns the transmission pipe shown on this map; other pipes exist that are the property of FERN.

Source: Figure ES.1 Davie Utilities Comprehensive Master Plan 2020

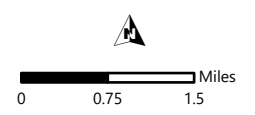
3.1 Town of Davie Potable Water System

The Town of Davie potable water system includes two wellfields, a raw water supply system, two WTPs, and a distribution system. Locations of the potable water infrastructure are shown in Figure 3.1. The descriptions and information in this subsection were summarized from these documents:

- The Town of Davie Water Use Permit (WUP) No. 06-001340-W (see Appendix E).
- System III Water Treatment Plant Facility Permit No. 0126324-256-WC.
- System V Water Treatment Plant Facility Permit No. 0126324-266-WC.



- Legend**
- Davie WTP
 - Interconnections
 - Davie Potable Water Mains
 - Town of Davie Municipal Boundary
- Utilities - Water Service Areas
- Sunrise Utilities
 - Hollywood Utilities
 - Ferncrest Utilities
 - Davie Bulk Agreement with Ft Lauderdale
 - Davie Utilities
 - Broward County Utilities



Data Sources:
 Service area shapefiles were obtained from the Town of Davie.
 Background aerial imagery showing "World Topographic Map" available within ESRI's ArcGIS GIS software.
 Disclaimer: Features shown in this figure are for planning purposes and represent approximate locations. Engineering and/or survey accuracy is not implied.



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Figure 3.1 Town of Davie Potable Water Infrastructure
 TOWN OF DAVIE FLORIDA

3.1.1 Raw Water Supply

The Town of Davie's System III WTP draws its raw water from the Biscayne Aquifer. This plant has a permitted withdrawal of 1,830.8 million gallons (MG) per year, which is approximately 5 mgd. The Town's System V WTP utilizes the Floridan aquifer for its raw water supply. Its total permitted withdrawal is 5,413.3 MG per year, equating to approximately 14.8 mgd. Collectively, these two WTPs (System III and System V) operate a total of nine active raw water supply wells.

A decommissioned Town facility, referred to as System I, previously housed four Biscayne aquifer wells. This facility is no longer in use, and its wells are to be abandoned. Even though the facility and wells were decommissioned, the Town's permitted raw water allocation remained constant.

Table 3.2 Town of Davie's Biscayne Aquifer and Floridan Aquifer Withdrawal Wells

| Groundwater Source | WTP | Well Name | Casing Diameter (inches) | Depth of Well (ft) | Pumping Capacity (gpm) | Year Drilled | Status |
|--------------------|------------|-----------|--------------------------|--------------------|------------------------|--------------|-----------------------------|
| Biscayne | System I | B1-1 | 10 | 110 | 550 | 1959 | To Be Plugged and Abandoned |
| Biscayne | | B1-2 | 10 | 110 | 550 | 1961 | To Be Plugged and Abandoned |
| Biscayne | | B1-3 | 12 | 150 | 1050 | 1972 | To Be Plugged and Abandoned |
| Biscayne | | B1-4 | 12 | 140 | 1050 | 1972 | To Be Plugged and Abandoned |
| Biscayne | System III | B3-5 | 16 | 165 | 900 | 1995 | Active |
| Biscayne | | B3-6 | 20 | 165 | 900 | 1995 | Active |
| Biscayne | | B3-7 | 20 | 125 | 1600 | 1986 | Active |
| Biscayne | | B3-10 | 18 | 120 | 1500 | 2001 | Active |
| Floridan | System V | FA-PW1 | 16 | 1580 | 1460 | 2011 | Active |
| Floridan | | FA-PW2 | 16 | 1580 | 1460 | 2011 | Active |
| Floridan | | FA-PW3 | 16 | 1570 | 1460 | 2011 | Active |
| Floridan | | FA-PW4 | 16 | 1582 | 1460 | 2009 | Active |
| Floridan | | FA-PW5 | 16 | 1400 | 1460 | 2012 | Active |

Abbreviations: ft – feet; gpm – gallons per minute

Source: Town of Davie Water Use Permit No. 06-001340-W September 29, 2020.

3.1.1.1 Water Supply Allocation

The Town's WUP No. 06-001340-W, issued on October 17, 2010, provides limits to the annual and monthly withdrawals from the Town's Biscayne Aquifer and Floridan Aquifer wellfields. This permit expires on October 24, 2030, and application for a permit modification may be made at any time. Based on the CUP, the total annual groundwater allocation from Biscayne Aquifer and Floridan Aquifer System shall not exceed 7,244 MG, and maximum monthly allocation shall not exceed 652 MG. In addition to a maximum month allocation, the CUP also identifies a maximum day withdrawal for each aquifer. These limitations are summarized in Table 3.3.

Table 3.3 Town of Davie Biscayne and Floridan Wellfields Permitted Withdrawal Limits

| Aquifer | Equivalent Annual Average Day (mgd) | Maximum Monthly Allocation (mgm) |
|----------------------------|-------------------------------------|----------------------------------|
| Biscayne Aquifer Wellfield | 5.02 | 164.8 |
| Floridan Aquifer Wellfield | 14.83 | 487.2 |
| Total | 19.85 | 652.0 |

Abbreviations: mgm – Million Gallons per Month

Source: Town of Davie WUP No. 0600134-W.

3.1.1.2 Alternative Water Supply

The Town’s commitment to the development of AWS sources through the reduction of potable water used for irrigation and conservation of water have been demonstrated through their reclaimed water system expansion projects, community outreach, rebate programs, and ordinances efforts.

As of November 2025, with FDEP’s approval, the Town is contracting a consultant to perform a pilot study to evaluate an AWS with existing infrastructure and expansion. The study will include source water characterization, system design, a minimum of 1 year of operational data collection and optimization. Water generated from the pilot study will be discharged to System IV WRF.

3.1.2 Water Treatment Facilities

The Town's Utilities Department operates two WTPs, System III and System V, with a total treatment capacity of 12 mgd. Both plants operate based on specific permits and general guidelines for FDEP and Environmental Protection Agency (EPA) drinking water standards. Treatment capacity of each plant is shown in Table 3.4.

Table 3.4 Davie WTP Capacity

| System | Total Installed Capacity (mgd) | Total Firm Capacity (mgd) |
|--------------|--------------------------------|---------------------------|
| System III | 4 | 4 |
| System V | 8 | 8 |
| Total | 12 | 12 |

Source: Town of Davie WUP No. 0600134-W.

3.1.2.1 System III Water Treatment Plant

Built in 1988, the System III WTP, owned and operated by the Town, has a rated capacity of 4.0 mgd and is located at 3500 NW 76th Avenue, Hollywood, FL 33024. A process flow diagram of the System III WTP is shown in Figure 3.2.

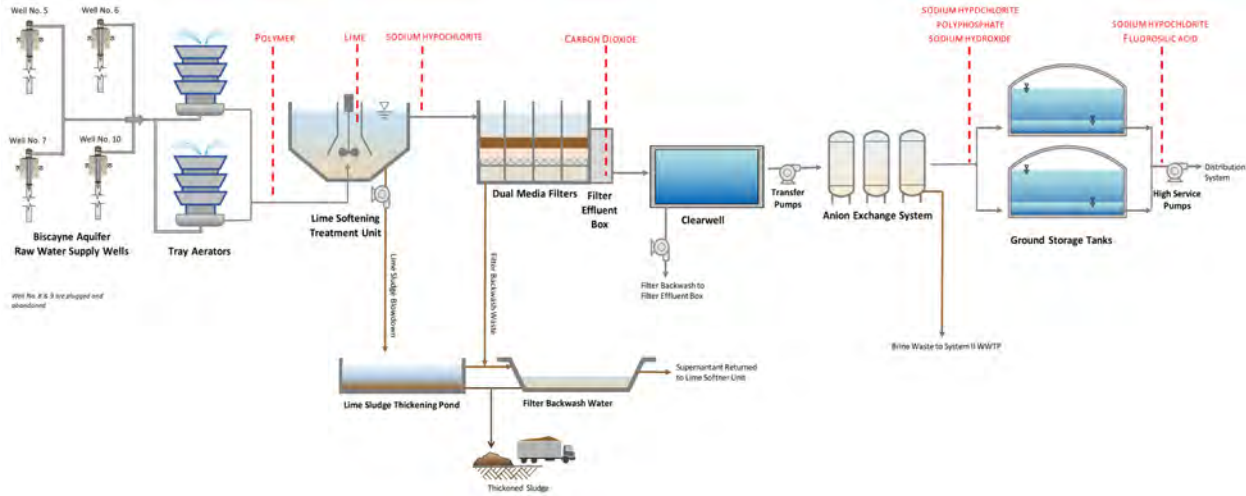


Figure 3.2 System III Process Flow Diagram

Raw water is supplied from four wells (No. 5, 6, 7, and 10) that pump from the Biscayne aquifer at depths from 100 to 145 feet below land surface (BLS). Well No. 5 is rated for 1.3 mgd capacity, while Wells No. 6, 7, and 10 are rated for 2.2 mgd each. The raw water is treated through two cascading tray aerators for removal of hydrogen sulfide (H₂S) and carbon dioxide (CO₂). Polymer (coagulant aid) is added follow by lime addition for treatment through the lime softening unit for hardness removal. The lime sludge is thickened onsite via a sludge holding pond and thickened sludge is hauled off by truck. After lime softening, the water is treated with sodium hypochlorite before filtration by four dual media filters. The dual media filters consist of gravel, sand, and anthracite. The filtered water is then treated with CO₂ for pH adjustment before the clearwell and the anion exchange (AIX) system. The AIX system, built in 2008, removes color and organics from the water. After AIX, the water is treated with sodium hypochlorite for disinfection, corrosion inhibitor for corrosion control, and sodium hydroxide for pH adjustment before being stored in the two ground storage tanks (GSTs). Sodium hypochlorite and fluorosilicic acid are added before the high service pumps, and disinfected water is then pumped to the distribution system. There is also a sludge dewatering building and gravity thickener located onsite that are no longer in use.

System III was operated periodically until June 2021 when water production was shifted to System V.

3.1.2.2 System V Water Treatment Plant

System V WTP is a reverse osmosis (RO) treatment facility that draws water from the Floridan Aquifer with a rated capacity of 8 mgd and ultimate build-out capacity of 12 mgd. This WTP was commissioned in 2014 and located at 3500 Northwest 76th Avenue. The approximate area served by System V WTP lies east of University Drive and north of Orange drive within the Town boundaries. Figure 3.3 shows the components of this RO WTP. The capacity of System V WTP was previously 6.0 mgd, it was rerated and permitted as 8.0 mgd on August 21, 2024. Appendix F contains more information regarding the rerating process.

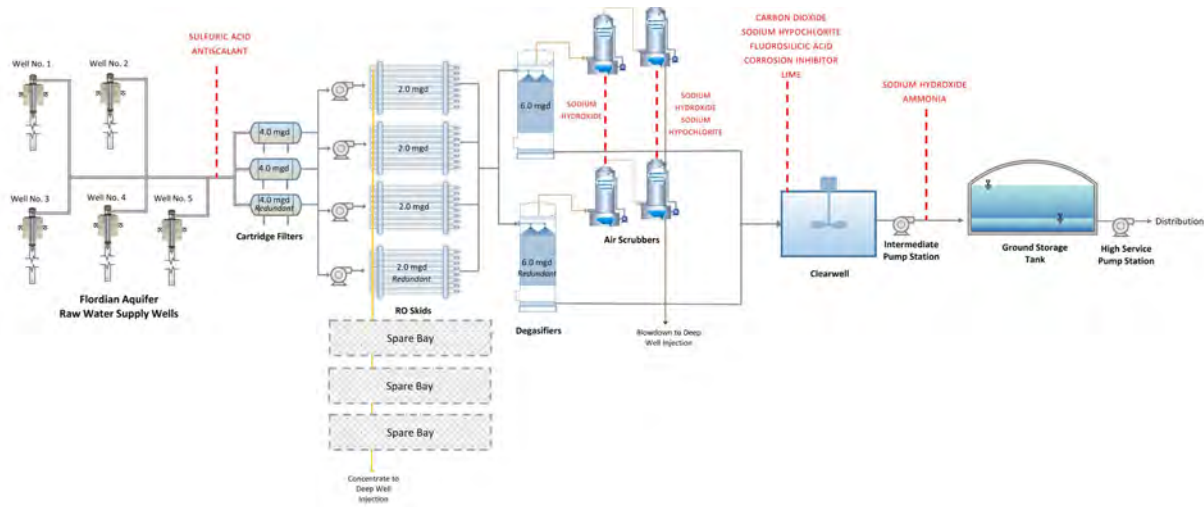


Figure 3.3 System V Process Flow Diagram

Raw water is supplied from five raw water wells in the upper Floridan aquifer which range in depth from 1,585 to 1,650 feet BLS. Each well produces approximately 2.5 to 2.7 mgd of raw water for a total installed pumping capacity of 12.5 mgd. This provides up to 10 mgd of finished water flow at 80 percent recovery through the membranes. Currently, only 8.0 mgd is supplied due to the existing firm capacity of the RO skids. However, in order to achieve the facility’s build-out capacity to 12 mgd additional raw water wells would be needed. After pH adjustment with sulfuric acid and antiscalant addition, the pretreated raw water is filtered through 5-micron cartridge filters. The high-pressure feed pumps then supply the pretreated water to the two-stage RO skids. A clean-in-place (CIP) system provides chemicals for the removal of scale and/ or organic foulants from the RO membranes when required. The concentrate from the RO system is disposed of through deep well injection (DWI), and the permeate is sent to the degasifiers for the removal of H₂S. The off gas from degasifiers is then treated by a two-stage odor control chemical scrubber, while the degassed RO permeate is transferred to the clearwell.

Post treatment chemical addition before mixing in the clearwell includes CO₂, lime, and sodium hydroxide for pH adjustment and alkalinity addition. A corrosion inhibitor is added to protect the distribution system and fluorosilicic acid is added for fluoride. Sodium hypochlorite (generated onsite) and ammonium hydroxide are added for primary and secondary disinfection. The water is then transferred to the GST via the intermediate pump station and subsequently transferred to the distribution system via the HSPS.

The Town would like to expand the System V WTP’s capacity to replace the loss of the System III WTP and assume the processing of its allocation. The advantages of the System V WTP are its capability to process per- and polyfluoroalkyl substances (PFAS) and cost efficiency. The Town does not have any other planned major improvement projects to alter the System V WTP’s treatment processes.

3.1.2.3 Operational Change

In 2020, the System III WTP was taken offline for periods of time after testing showed natural ammonia levels in the raw water source (Biscayne Aquifer) nearing zero parts per million. The shutdown was necessary because, without sufficient level of natural ammonia, the System III WTP is unable to properly disinfect via chloramine method. As of 2020, the Town's raw water testing has shown no return of historical normal levels of ammonia. System III WTP was shut down in June 2021 and remained offline, water production was shifted to System V. In 2023, the Town added a Liquid Ammonium Sulfate (LAS) system to the System III WTP, but the WTP continues to remain offline due to operating and maintenance costs.

The Town would like to transfer the System III WTP's raw water allocation to the System V WTP and treat the System III WTP's allocation there. This request will be addressed in a separate submittal in the near future. In addition, the treatment technology at the System V WTP is capable of processing PFAS, which the System III WTP is incapable of and is essential for satisfying PFAS limits.

3.1.2.4 Water Quality

The Town issues annual Drinking Water Quality Reports to share information about its water quality. The 2024 report included test results indicating the Town's potable water has no water quality violation. PFAS was among the contaminants tested, the result was that PFAS was not detected, indicating the substance was not found by the laboratory analysis.

3.1.3 Water Storage Facilities

The Town has two water storage tanks with the capacity of 2 MG each located at the System III WTP. In addition, System V WTP has one storage tank with a capacity of 2.5 MG. These storage tanks with combined capacity of 6.5 MG are sufficient to provide the required water for fire and peak hourly flows demands.

3.1.4 Finished Water Distribution System

The Town of Davie's water distribution system consists of 165.3 miles of pipe ranging from 2 to 24 inches in diameter, with 8-inch diameter being the most common. There are also a few hundred feet of 36- and 30-inch diameter pipes connecting the GSTs with the HSPSs. Table 3.5 presents a summary of system.

The majority of the pipe material is polyvinyl chloride (PVC) and C-900, followed by ductile iron pipe (DIP) and cast iron pipe, with cast iron pipe located in the northernmost part of the service area, generally north of Nova Drive. The replacement of some asbestos-cement (Transite) pipes is in progress. The Town of Davie Utilities provides water to over 10,000 user accounts and has interconnections with several other entities. Recent distribution system improvement projects were performed on University Drive (completed in May 2025) and SW 121st Avenue (ongoing, complete by Summer 2026).

These entities include:

- City of Sunrise Utilities Department.
- City of Fort Lauderdale Utilities (serving Hacienda Village).
- Cooper City.

- BC Utilities Department.
- City of Hollywood.
- Ferncrest Utilities (a current wholesale customer).

Table 3.5 Town of Davie Water Distribution System Pipe Diameters

| Diameter (inches) | Approximate Length (miles) | Percent of Total Length |
|-------------------|----------------------------|-------------------------|
| 2 | 12.7 | 8% |
| 4 | 4.3 | 3% |
| 6 | 36.4 | 22% |
| 8 | 76.5 | 46% |
| 10 | 13.8 | 8% |
| 12 | 14.3 | 9% |
| 16 | 5.8 | 3% |
| 18 | 0.7 | 0.4% |
| 20 | 0.1 | 0.1% |
| 24 | 0.5 | 0.3% |
| Total | 165.3 | 100% |

3.2 Broward County Potable Water System

Portions of the Town of Davie are served by the BC District 3A service area. BC has a wholesale agreement with the City of Hollywood for District 3A, 3B, and 3C, where water is supplied by the City of Hollywood to the District who in turn serves some customers located in the Town of Davie local government. The City of Hollywood is responsible for ensuring adequate raw water supply and treatment facilities in their current Water Supply Plan Update to serve District 3, while the County is responsible for the operations and maintenance (O&M) of the distribution system.

The City of Hollywood existing CUP (Permit No. 06-00038-W) was issued by SFWMD on April 10, 2008 and expires on April 9, 2028. The permit contains sufficient allocation to meet demands for the District 3A service area through the planning period. The existing CUP has 13.16 mgd raw water allocation for the BC subdistrict 3A/3BC areas. The City of Hollywood Water Supply Plan reports that no additional water supply is needed for their service area through the year 2045. The City's permitted raw water withdrawal limit of 38.64 mgd (annual average daily flow [AADF]) is higher than the forecasted raw water demand of 30.93 mgd (AADF) by 2045. According to the City of Hollywood WSFWP 2025 Update the forecasted finished water demand for the 2025 and 2045 period expected to be 24.02 and 26.47 mgd (AADF) respectively, which is lower than the City's finished water treatment capacity of 35.54 mgd (AADF). Please see Appendix B for further details on the Hollywood WSFWP 2025 Update.

BC District 3 finished water demand for 2025 is reported as 6.09 mgd and projected to increase up to 6.31 mgd by year 2045. The raw water demand is also projected to reach around 6.88 mgd by year 2045. This District 3 existing and projected finished water demands, and raw water demands are provided in Table WS19 and Table WS20 of the BC WSFWP (2025 BC Work Plan), respectively. Additional details regarding the BC water supply facilities and service can be found in Appendix C.

In this regard, the data analysis provided in both BC and City of Hollywood WSFWPs suggests that the existing and future water resources will be adequate for BC District 3 to serve the parts of Town of Davie for the next 20-year planning time frame.

3.3 City of Fort Lauderdale Potable Water System

The City of Fort Lauderdale maintains wholesale agreements for potable water supply to the portion of the Town located along State Road 84, east of State Road 7, in the area previously known as Hacienda Village. The City of Fort Lauderdale obtains all of its raw water supply from the surficial aquifer system via two active wellfields known as the Dixie Wellfield and the Prospect Wellfield serving the Peele Dixie WTP and the Fiveash WTP, respectively. The SFWMD issued the City's WUP (No. 06-00123-W) on September 11, 2008; the permit expires on September 11, 2028. The permit limits withdrawal from Biscayne Aquifer and the Floridan Aquifer.

The City of Fort Lauderdale owns two WTPs: the Fiveash WTP and the Peele Dixie WTP. The City of Fort Lauderdale WSFWP 2025 Update shows that Fiveash WTP and Peele Dixie WTP have sufficient plant capacity combined at 62 mgd in order to meet the projected maximum day demand of 56.7 mgd by 2045. There is no water supply shortfall anticipated in the next 20 years. The City of Fort Lauderdale purchased a 3.0 mgd offset from Palm Beach Aggregates LLC for C-51 Reservoir Phase 1 that is expected to be used starting in 2027 to meet maximum month demands. Additional details are discussed in the "Alternative Water" Supply section of the City of Fort Lauderdale WSFWP 2025 Update in Appendix D.

3.4 City of Hollywood Potable Water System

The HLWD-DPU water retail area includes approximately 300 acres in the Town of Davie, along with a wholesale service area within the Town covering BC Water and Wastewater Services District 3A. The City's WTP treats water from the City's Biscayne aquifer and Floridan Aquifer wellfields and water from BC's Aquifer wells at the South Regional Wellfield (SRW). Raw water from Biscayne Aquifer is of high quality while raw water from the deeper Floridan Aquifer is brackish and requires RO treatment. The City's WUP No. 06-00038-W, issued on April 10, 2008 and expires on April 9, 2028, provides limits to the annual and monthly withdrawals from the City's two Biscayne Aquifer wellfields and the City's Floridan Aquifer wellfield. The City of Hollywood Water Supply Plan reports that no additional water supply is needed for their service area through the year 2045. The City's permitted raw water withdrawal limit of 38.63 mgd (AADF) is higher than the forecasted raw water demand of 30.93 mgd (AADF) by 2045. According to the City of Hollywood Work Plan the forecasted finished water demand for 2025 and 2045 period expected to range between 24.02 to 26.47 mgd (AADF) still lower than the City's finished water treatment capacity of 35.54 mgd (AADF). There are no anticipated changes in the size or coverage of the City's potable water service area. Please see the *Water Demand Forecast* and *Supply Adequacy* sections of Appendix B for further details.

3.5 City of Sunrise Potable Water System

The City of Sunrise's utility currently serves approximately 60 percent of the area encompassed by the Town of Davie. The City of Sunrise is responsible for the planning, financing, constructing, operating, and maintaining of its utilities and public water supply system that serve portions of the Town of Davie, approximately 63,300 people in 2025. The existing water supply system withdraws from the Biscayne and Floridan Aquifers. The current CUP (Permit No. 06-00120-W) issued to the City of Sunrise by the SFWMD expires on May 15, 2028 and includes the Springtree, Sawgrass (Arena), Southwest, and Flamingo Park Wellfields. The Biscayne Aquifer facilities have a constructed capacity of 60 mgd with a permitted water use allocation of 29.09 mgd and the Floridan Aquifer facilities have a capacity of 11 mgd with a permitted water use allocation of 10.98 mgd as provided in the Section 3.0 WSFWP of the City of Sunrise 10-Year WSFWP 2020 Update. The City of Sunrise expects that majority of its water demand will be met through the year 2045 by the traditional water supply (Biscayne Aquifer) treatment facilities. The City's projected water demand is reported at 27.86 mgd (AADD) for 2045. However, after 2040 the City's future demands will exceed Biscayne Aquifer allocation which is fixed at 29.09 mgd in the CUP. The City has several plans for a number of AWS projects to stay ahead of the anticipated demands. The City of Sunrise Water Utilities has planned several AWS projects within its 5-Year Capital Improvement Plan and 10-Year Water Supply Plan. The City has a Capacity Allocation Agreement with Palm Beach Aggregates, LLC and has an application for WUP renewal to secure a C-51 Reservoir Project offset. The City recently completed the construction of a 3 mgd ion exchange (IX) facility to save additional raw water and improve the finished water quality at the Sawgrass WTP. Please see Section 6.3 *Alternative Water Supply Projects of the City of Sunrise 10-Year Water Supply Facilities Work Plan - 2020 Update* for further details.

All additional details regarding the City of Sunrise water supply facilities and service can be found in Appendix A.

3.6 Tindall Hammock Irrigation and Soil Conservation District

The Town of Davie signed an agreement with Tindall Hammock Irrigation and Soil Conservation District ([THISCD] or Tindall Hammock) on July 7, 1999 for bulk water and sewage service. The agreement includes the purchase of maximum average flow of 0.2 mg of potable water from the Town of Davie by Tindall Hammock. Tindall Hammock owns, operates, and maintains an adequately sized distribution system to deliver required water and pressure to its customers.

The current source of raw water for Tindall Hammock is Biscayne Aquifer. Withdrawal allocations are governed by CUP (Permit No. 06-00170-W). The permit was issued on November 9, 2006 and expires on November 9, 2026. Annual allocation is 271 MG and the maximum month allocation is 25.1 MG.

Tindall Hammock plans to continue providing service to the area located west of Florida Turnpike from Tindall Hammock, while the Town will continue serving part of Tindall Hammock located east of the Florida Turnpike.

SECTION 4 REUSE WATER SYSTEM AND WATER CONSERVATION PROGRAM

This section characterizes the reuse water usages and water conservation program within the Town and the OOL compliance. Intergovernmental coordination efforts are also discussed.

4.1 Reuse Water System

Reuse water plays a vital role in sustainable water resource management. By diversifying available water supplies, communities can balance resource conservation, development costs, and long-term sustainability. When treated to appropriate standards, reuse water can be used for a wide range of purposes, including:

- Irrigation of golf courses, parks, medians, residential lots, school landscaping, and other green space.
- Cooling water and process water.
- Decorative lakes, ponds, and fountains.
- Car washing, toilet flushing, and dust control.
- Agricultural and nursery irrigation.
- Wetlands creation, restoration, and enhancement.
- Groundwater recharge.

As the Town of Davie plans to meet future water supply needs, reuse water has been identified as a key component of its long-term utility strategy. Using reuse water helps reduce local and regional demand on freshwater aquifer systems, which are increasingly stressed by growing usage and changing climatic conditions. Many utilities in southeast Florida—such as Sunrise, Hollywood, Pompano Beach, and those in Broward and Palm Beach counties—already operate successful reclaimed water programs. In alignment with regional efforts promoting expanded use of reuse water, the Town of Davie is committed to expanding its reuse water customer base. Throughout this work plan, the terms **reuse water** and **reclaimed water** are used interchangeably, as no universal terminology has been adopted within the industry or regulatory framework.

4.1.1 Existing Reuse Infrastructure

The Town's reuse water system was developed in response to legislative requirements aimed at eliminating ocean outfalls for wastewater disposal, making wastewater reuse a necessary compliance measure. The Town's reuse water distribution system was completed and placed into service in late 2015. The distribution system's design capacity is 2.7 mgd and the pressure is maintained at between 40 and 70 pounds per square inch (psi).

The reuse water is produced at System IV WRF, which is a 3.5 mgd facility commissioned in 2013 and located at the same site as System V WTP. System IV WRF operates according to Permit No. FLA706736. The facility uses a Modified Ludzack-Ettinger (MLE)/ membrane bioreactor (MBR) process to meet secondary treatment requirements and high-level disinfection (HLD) standards. HLD disinfection is required for both public access reuse (PAR) and deep injection well (DIW) disposal. The system has potential for expansion to 7 mgd.

From System IV WRF, the reuse water is conveyed to the distribution system through a 24-inch transmission main, which reduces to 20 inches along SW 30th Street. To the east of System IV WRF, this line along SW 30th Street connects to the Nova Southeastern University (NSU) main campus. To the west of System IV WRF and west of University Drive, the line reduces to 16-inch to serve Grand Oaks Golf Club before further reducing to 12-inch and ending at Davie Bamford Pine Island Sports Complex. To the north of SW 30 Street, the system extends north along University Drive as a 12-inch line to serve Davie Golf Course and Country Club.

Recent expansion projects have been extending the reuse distribution system east to Broward College Central Campus and west to Bamford Park, Pine Island Park, Bamford Sports Complex, University Drive, Broward County Tree Tops Park, and the Pine Island Road corridor. The grants pursued and project status for those expansion projects, including the three projects identified in the LEC Plan Update, are described below:

- Bamford Park and Sports Complex plus University Drive:
 - » The BC Integrated Water Resource Plan (IWRP) provided cost share funding for design and feasibility study of reuse water line expansion project to use reuse water for irrigation of approximately 138 acres of the Pine Island Park, Bamford Sports Complex, and University Drive.
 - » The SFWMD AWS program provided cost share construction funds for installation of reuse water distribution pipelines along University Drive (from SW 30 St to SW 36 St) and inside Bamford Park and Sport Complex to supply approximately 0.5 mgd of reuse water for irrigation purpose.
 - » This expansion project was completed as of June 2024 and is currently in use.
- College Avenue to SW 30th St:
 - » IWRP provided cost share funding for design and feasibility of reuse expansion along SW 30th St to potentially serve academic corridor including Broward College Central Campus. The project went out to bid in Spring 2024.
 - » The SFWMD AWS program provided cost share construction funds for installation of reuse water distribution pipeline along SW 30th Street to supply approximately 0.2 to 0.5 mgd of reuse water for irrigation purposes.
 - » The construction of this expansion project, approximately 1,600 feet of 16-inch pipeline, was expected to be completed by summer 2025. However, as of March 2025, this construction was stopped before the College Avenue intersection because of the college's unwillingness to connect.
- SW 92nd Ave to Pine Island Road:
 - » IWRP provided cost share funding for design and feasibility of reuse expansion along SW 92nd Ave to potentially serve Pine Island Road corridor as well as Broward County Tree Tops Park in the future.
 - » The project design is complete; however, the Town has decided not to proceed with construction.

- Davie Golf Course:
 - » This site is located at the end of the existing reclaimed water system; therefore, no additional pipeline within the right-of-way is needed.
 - » As of March 2025, the Town was accessing the potential to irrigate the golf course with a combination of reuse water and surface water.

System IV WRF has a permitted treatment capacity of 3.5 mgd. As summarized in Table 2.2 and Table 2.3, the estimated total reuse demand, accounting for both existing customers and the planned expansion projects but excluding discontinued customer, is 3.189 mgd. Therefore, the facility has adequate capacity to meet projected reuse needs without requiring expansion or upgrades.

4.1.2 Ocean Outfall Legislation

The Town's reuse water system was developed to comply with state legislation, specifically section 403.086(9), F.S., which mandates the elimination of domestic wastewater ocean outfalls as a primary disposal method and promotes the development of reuse water systems to beneficially reuse treated effluent.

In 2008, the State Legislature enacted the OOL, requiring all Florida utilities to eliminate wastewater effluent discharges from ocean outfalls by 2025, except during peak flow events. The legislation also requires the utilities to implement technically, economically, and environmentally feasible reuse water projects that achieve reuse equivalent to 60 percent of the baseline annual average flow from 2003 to 2007 by December 31, 2025, and to reduce nitrogen and phosphorus loadings from ocean outfalls by 2018.

The Town and Cooper City have an agreement to send wastewater to the City of Hollywood, which has to comply with the Ocean Outfall Law, and thus the three municipalities are linked in their obligation to meet the requirements for nutrient removal. Currently, the Town is obligated to provide 2.3 mgd of treated wastewater to the City of Hollywood's reuse program. The Town's treated effluent is pumped to Hollywood's Southern Regional Wastewater Treatment Plant (SRWWTP) for disposal through either a DIW, a reuse water system, or an open ocean outfall. Due to the Town's low-saline effluent, a high portion of effluent is preferentially used for off-site reuse (i.e., golf courses) or used by the industrial reuse system when SRWWTP effluent is not sufficient. However, a portion of the effluent that is sent to SRWWTP can be discharged to the ocean outfall at times, and thus the Town has an obligation to meet the 60 percent reuse requirement. The baseline and target nutrient loadings for the Town, Cooper City, and Hollywood are presented in Table 4.1. The Town's ocean outfall baseline flow is 1.9 mgd, therefore the Town's reuse requirement is 1.1 mgd. This obligation is legally enforceable through an Administrative Order (AO-18-003-DW-06-SED) placed on System II's FDEP permit.

Table 4.1 Baseline Nutrient and Target Nutrient Loadings for Ocean Outfall

| Treatment Facility | Baseline Flow (mgd) | Target Reuse (mgd) | Baseline TN Load (lbs/day) | Target TN Load (lbs/day) | Baseline TP Load (lbs/day) | Target TP Load (lbs/day) |
|-----------------------------|---------------------|--------------------|----------------------------|--------------------------|----------------------------|--------------------------|
| Town of Davie | 1.9 | 1.1 | 260 | 48 | 21 | 16 |
| Cooper City | 1.5 | 0.9 | 197 | 37 | 16 | 12 |
| Hollywood Southern Regional | 34.0 | 10.0 | 4,480 | 851 | 359 | 284 |

Abbreviations: lbs/day – pounds per day; TN – total nitrogen; TP – total phosphorous

Source: "Implementation of Chapter 2008-232, Laws of Florida Domestic Wastewater Ocean Outfalls 2015 Progress Report." Division of Water Resources Management Florida Department of Environmental Protection. (July 2015). Target reuse for Hollywood was adjusted by FDEP to 10.0 mgd in 2016 based on FDEP's evaluation and identification of feasible reuse.

4.1.3 OOL Required Reuse Compliance

The Town's progress towards OOL compliance with respect to reuse water is summarized in Table 4.2. In June 2024, the Town completed the Bamford Park and Sports Complex plus University Drive expansion project, adding an estimated 0.5 mgd capacity to the reclaimed water usage. With this addition, the Town currently has 2.997 mgd of connected reuse capacity, which is more than sufficient to fulfill the 1.1 mgd requirement.

In addition, the Town plans to further extend reclaimed water usage at the Davie Golf Course, which has reuse capacity of 0.332 mgd based on the WRF's permit. The Town is also anticipating the addition of two cooling towers at NSU's campus and is currently negotiating a connection with Broward College for University user type usage. These two customers would add approximately 0.225 mgd and 0.175 mgd of reuse capacity, respectively.

Table 4.2 Status of Town of Davie's FDEP OOL Compliance with Respect to Reclaimed Water

| Requirement | Reclaimed Water Average Demand in mgd |
|--|---------------------------------------|
| OOL Reuse Required⁽¹⁾ | 1.1 |
| Ocean Outfall Baseline Flow | 1.9 |
| 60% Reclaimed Requirement | 1.1 |
| Reuse Capacity – Existing Customers^(2, 3, 4) | 2.997 |
| Grand Oaks Country Club | 0.54 |
| NSU Main Campus | 0.439 |
| University of Florida | 0.242 |
| NSU Cooling Towers | 0.225 |
| Town of Davie Industrial Usage | 0.891 |
| Town of Davie Toilet Flushing | 0.16 |
| Bamford Park & Sports Complex + University Drive Expansion Project Estimated Demand ^(2, 3) (completed and operational in June 2024) | 0.5 |

| Requirement | Reclaimed Water Average Demand in mgd |
|--|---------------------------------------|
| Reuse Estimated Capacity – Planned Customers^(2, 3, 4) | 0.732 |
| Davie Golf Course (completed, pending operational plan as of November 2025) | 0.332 |
| NSU 2 Additional Cooling Towers (anticipated expansion) | 0.225 |
| Broward College (negotiating for connection) | 0.175 |
| Total Reuse Capacity – Existing and Planned | 3.729⁽⁵⁾ |

Sources:

- 1) Town of Davie 2020 Utilities Comprehensive Master Plan.
- 2) Town of Davie 2024 Reclaimed Water Report.
- 3) Town of Davie 2024 Annual Utility Report.
- 4) FDEP Domestic Wastewater Facility Permit Renewal, Town of Davie Water Reclamation Facility, July 1, 2020.
- 5) Calculated as the sum of existing customers and recently completed projects, which is 2.997 + 0.732 = 3.729 mgd.

4.2 Town of Davie Water Conservation Program

The average gallons per capita per day (gpcd) over all customers served by the Town, including retail and wholesale customers, fell from a 5-year average of 129 gpcd in 2013-2017 to 114 gpcd in 2018-2022. The average demand remained steady at slightly above 100 gpcd in 2023 and 2024. The historic gpcd from 2013 to 2024 is provided in Table 4.3.

The reduction in gpcd is due to a variety of conservation efforts that include the implementation of a reuse water system in 2014, plumbing fixture replacement programs, public education, year-round irrigation restrictions, and other measures. The impact of the Town’s efforts appears to be permanent because the gpcd did not rebound during the recent economic recovery. F.S. 373.250(1) recognizes the importance of conservation and gives it equal consideration with reuse in promoting the public interest. Conservation programs are effective in producing the same water use impact as using reclaimed water at a fraction of the cost.

Table 4.3 City of Hollywood Historical Annual Average Per Capita Usage

| Year | Finished Water (mgd) | Population – Retail and Wholesale | Annual Average Usage (gpcd) | 5-Year Average Usage (gpcd) |
|------|----------------------|-----------------------------------|-------------------------------|-----------------------------|
| (a) | (b) | (c) | (d) = [(b) x 1,000,000] / (c) | (e) |
| 2013 | 4.19 | 31,134 | 135 | 129 |
| 2014 | 3.88 | 31,843 | 122 | |
| 2015 | 4.18 | 32,553 | 128 | |
| 2016 | 4.41 | 33,650 | 131 | |
| 2017 | 4.48 | 34,747 | 129 | |
| 2018 | 4.47 | 35,005 | 128 | 114 |
| 2019 | 4.30 | 35,851 | 120 | |
| 2020 | 4.05 | 36,696 | 110 | |
| 2021 | 3.97 | 37,516 | 106 | |

| Year | Finished Water (mgd) | Population – Retail and Wholesale | Annual Average Usage (gpcd) | 5-Year Average Usage (gpcd) |
|------|----------------------|-----------------------------------|-----------------------------|-----------------------------|
| 2022 | 3.95 | 37,722 | 105 | |
| 2023 | 3.87 | 37,928 | 102 | |
| 2024 | 3.97 | 38,924 | 102 | |

Sources:

- 1) 2013 to 2017 finished water and population data are from the Town's Utilities Comprehensive Master Plan Table 3.4.
- 2) 2018 finished water and population data are from the Town's 10-Year Water Supply Facilities Plan 2020 Update Table 6-1.
- 3) 2019 population was interpolated between 2018 and 2020.
- 4) 2019 to 2024 finished water data are from System III and System V WTP MORs
- 5) 2020 to 2024 population data are from the Town's Annual Utility Reports.

The Town's Water Conservation Plan was developed with the goal of maximizing the Town's water use efficiency and reducing overall potable water demand. This goal aligns with the conservation-related recommendations stated in Chapter 9 of the 2023-2024 LEC Plan Update, as well as the 2008 District's Comprehensive Water Conservation Program. The Town's Water Conservation Plan includes recommendations on water conservation measures and best management practices (BMPs) that the Town has elected to implement to reduce its per capita potable water consumption over time and make additional water resources available to support future growth.

The conservation-related actions identified in the 2023-2024 LEC Plan Update, and the efforts being implemented by the Town, are the following:

- "The SFWMD should continue to implement its Comprehensive Water Conservation Program and its Cooperative Funding Program." (2023-2024 LEC Work Plan Update).
 - » The initiatives and actions being implemented by the Town are in accordance with the 2008 District's Comprehensive Water Conservation Program. The Town continues to seek supplemental sources of revenue to expand the reclaimed system, promote water conservation, and provide AWS.
- "PS utilities are encouraged to develop goal-based water conservation plans and proactively implement water-saving measures and programs." (2023-2024 LEC Work Plan Update).
 - » The Town is a committed member of the Broward Water Partnership Conservation Program known as "ConservationPays" that has a goal of saving 30 mgd county-wide. This program was launched in 2011 and consists of 19 municipalities and water utilities that collaborate on water conservation implementation. This program helps inform residents about the importance of year-round water conservation and any available County conservation incentives.
 - » The Town continues to promote water conservation through various ways:
 - Passing Ordinance Section 25-32. (5) to mandate all-year, 2-day-a-week landscape irrigation restrictions in accordance with Rule 40E-24.301, Florida Administrative Code (F.A.C.).
 - Providing reuse water for irrigation and industrial use.
 - Implementing local public education programs and events, such as Water Matters Day and Earth Day, to encourage water conservation.
 - Providing educational material and Water Reuse tours at the Town's water, wastewater, and reuse treatment facilities for college and high school students throughout the year.

- Promoting Florida-friendly landscape practices and use of native plants to reduce irrigation water use on the Town’s Landscape Information website (<https://www.davie-fl.gov/426/Landscape-Information>).
 - Distributing of high efficiency toilet (HET) rebates, kitchen per rinse spray valves, and retrofit Water Conservation Kits giveaways.
 - Collaborating with BC through an interlocal agreement renewed in 2021 for cost share support of a water conservation incentives program that includes media campaign, rebate and incentives program, and an awards/ recognition program.
 - Participating in NatureScape –a BC program that provides free advice on irrigation efficiency to large water users.
 - Completing in 2020 the Utility-wide automated meter infrastructure (AMI) project consisting of water meter replacement to smart meters (with automatic readers), communication collectors and data management.
 - Providing tips and answers to FAQs on the Town’s Water Conservation website (<https://www.davie-fl.gov/576/Water-Conservation>).
- “Local governments should evaluate whether mandated water conservation measures, such as requirements for construction of water-efficient homes and commercial properties, are appropriate for their jurisdiction.” (2023-2024 LEC Plan Update).
 - » The Town promotes but does not mandate water conservation practices. It provides free Water Conservation Kits for water customers, which includes a low flow showerhead, a kitchen aerator, a bath sink aerator and leak detection tablets for toilet. It also collaborates with BC on the HET rebate program and kitchen per rinse spray valves. Between October to December of 2024, 10 HET rebates were reported in Town’s 2025 Quarter 1 Broward Water Partnership Quarterly Partner Update Report. The Town plans to continue the partnership to help offset future demand growth.
 - “Local governments should adopt a year-round irrigation ordinance that fully comports with the SFWMD’s Mandatory Year-Round Landscape Irrigation Conservation Measures Rule (Chapter 40E-24, F.A.C.). Although 71 of the 116 local governments have adopted acceptable ordinances, 45 in the LEC Planning area have not yet adopted irrigation ordinances.” (2023-2024 LEC Plan Update).
 - » The Town has adopted this irrigation ordinance. In 2010, the Town adopted an ordinance (Section 25-32. (5)) called “year-round landscape irrigation measures” to comply with the Rule 40E-24, F.A.C., for the SFWMD’s Mandatory Year-Round Landscape Irrigation Conservation Measures. The Town of Davie supports all-year, 2-day-a-week landscape irrigation restrictions imposed by the SFWMD and the BC Environmental Protection and Growth Management Department. These information as well as residential lawn watering schedules are available on the Town’s official website: <https://www.davie-fl.gov/1273/Water-Restrictions>. This WSFWP will recommend that the Town amend its Comprehensive Plan to include a policy supporting enforcement of this ordinance.
 - “Local governments should consider developing or enhancing ordinances regarding Florida-Friendly Landscaping Program principles [Section 373.185, F.S.].” (2023-2024 LEC Plan Update).

- » The Town will continue to promote Florida-friendly landscape practices and use of native plants to reduce irrigation water use. The Town’s Landscape Department is responsible for this effort and has developed five Florida-friendly demonstration gardens for Town residents to model their gardens after with the help of the Welcoming Wildlife into Natural Davie (WWIND) team and Town employees.
- “Public Education programs can help instill a year-round conservation ethic. Local and tribal government and PS Utilities are encouraged to provide conservation-related information, messaging, and educational programs in cooperation with the SFWMD.” (2023-2024 LEC Plan Update).
 - » The Town will continue to implement local public education programs to encourage water conservation. Public educational events are held regularly such as Water Matters Day in March and Earth Day in April. The Town also collaborates with schools and provides tours at the water and reclamation plants to college and high school students throughout the year. Additionally, the Town collaborates with schools for the AWWA Drop Savers Poster Contest, an annual event that encourages K-12 students to participate in a water conservation poster design competition, further engaging the community in water-saving efforts.
- “All eligible water users are encouraged to seek cost-share funding opportunities that may be available for water conservation projects.” (2023-2024 LEC Plan Update).
 - » The Town passed and adopted, effective October 1, 2016, an interlocal agreement with BC to provide cost share support of a water conversation incentives program. Resolution No. R 2021-227 renewed this agreement on July 28, 2021, in which the Town provides financial contribution for 5 years to support the BC Conversation Pays program. The total maximum cost of the 5-year commitment is summarized in Table 4.4. The agreement is set to expire in 2026. See Appendix G for the interlocal agreement and Resolutions No. R-2021-227. As of December 2025, Broward County is preparing a renewal agreement for the Town’s review, which the Town supports. The proposed renewal would extend the program for an additional five-year period, from October 2026 through September 2031.

Table 4.4 Water Conservation Incentives Program Cost-Sharing Agreement

| Year | Maximum Not to Exceed Contribution | |
|------|------------------------------------|---------------|
| | Broward County | Town of Davie |
| 1 | \$ 125,000.00 | \$ 24,998.04 |
| 2 | \$ 125,000.00 | \$ 25,448.46 |
| 3 | \$ 125,000.00 | \$ 25,912.40 |
| 4 | \$ 125,000.00 | \$ 26,390.25 |
| 5 | \$ 125,000.00 | \$ 26,882.44 |

- » As described in the Section 4, the Town has also applied for and received IWRP and AWS funding from FDEP in the past for reclaimed water expansion projects.
- “L/R water users are encouraged to use advanced irrigation technology, improve landscape design and BMPs, and participate in user recognition programs (e.g. Florida-Friendly Landscaping program) to further increase landscape water use efficiency.” (2023 – 2024 LEC Plan Update).

- » The Town, in coordination with BC NatureScape Division, will continue to perform irrigation system evaluations and provides irrigation efficiency advice to large water users. Launched in 2005, the NatureScape Irrigation Services (NIS) is implemented by the BC's Environmental Protection and Community Resilience Division with cost-share funding provided by BC Water and Wastewater Services and local municipalities. The NIS conducts irrigation evaluations of, mostly, large-scale irrigation systems. At each site, the NIS assesses irrigation system design, functional integrity, scheduling, and maintenance issues related to water use efficiency, and landscape BMPs. Following each assessment, efficiency improvement recommendations are provided to the site owner or manager. Water consumption is documented before and after improvements are implemented to calculate water savings. The program targets large water users including government facilities, parks, schools, and homeowner associations where the greatest potential exists for significant water savings. BMPs that encourage the 'right plant in the right place', irrigation water use efficiency, and smart irrigation technology help to secure outdoor water use reductions and long-term water savings.
- "Commercial/ Industrial/ Institutional (CII) entities are encouraged to use the Water Efficiency and Self-Conducted Water audits at Commercial and Institutional Facilities, a Guide for Facility Managers (SFWMD 2013) to improve water use efficiency and reduce operating costs." (LEC Plan Update).
 - » The Town will continue to encourage the implementation of EPA WaterSense guidelines including industrial, commercial, and institutional entities. To better implement this action, this WSFWP Update will suggest the Town to encourage self-conducted water audits.
- Smart Meter Technology:
 - » In 2020, the Town successfully completed the utility-wide AMI project consisting of water meter replacement to smart meters (with automatic readers), communication collectors and data management. There are approximately 10,000 smart meters utility-wide replaced allowing to hourly, daily, monthly water consumption and compliance monitoring by Utility staff. The implementation of a customer portal tool was not pursued.

SECTION 5 DATA AND ANALYSIS OF WATER DEMAND FORECAST AND SUPPLY ADEQUACY

This section presents the methods, data and results of the population and water demand forecasts within the Town’s water service area and provides a comparison of future water demand to available water supply. This section demonstrates that the existing water supply permitted quantities, coupled with the Town’s conservation and reuse practices, will meet projected demands through 2045.

5.1 Historical Population

Historic data was compiled from the U.S. Census Bureau 2024 population report, Town of Davie Annual Operation Reports and Water Loss Reports, and the latest Town of Davie Comprehensive Utilities Master Plan. This historic data was used to calculate the average per capita demand, or level of service (LOS). The compiled data and the calculations involved are presented in Table 5.1.

Table 5.1 Town of Davie Historical Service Area Population, Finished Water Production and Retail Per Capita Usage

| Reference | Parameter | FY 2020 | FY 2021 | FY 2022 | FY 2023 | FY 2024 |
|--|---|-------------|---------|---------|---------|---------|
| 1 | Town Retail Population Served | 36,696 | 37,516 | 37,722 | 37,928 | 38,924 |
| 2 | Avg. Daily Finished Water Production (mgd) | 4.06 | 3.97 | 3.99 | 3.87 | 3.93 |
| 3 | Large Users Consumption (mgd) | 0.25 | 0.35 | 0.31 | 0.27 | 0.33 |
| 4 | 5-Year Average Large User Consumption (mgd) | 0.30 | | | | |
| 5 | Town Non-Revenue Water (mgd) | 0.09 | 0.09 | 0.12 | 0.06 | 0.09 |
| 6 | 5-Year Average Town Non-Revenue Water (mgd) | 0.09 | | | | |
| 7 | Avg. Daily Finished Water to Town Retail Customers Excluding Large Users (mgd) ^(2, 3, 4) | 3.72 | 3.53 | 3.57 | 3.54 | 3.51 |
| 8 | Overall Town Residential Retail per Capita Demand Factor (gpcd) ^{(4)*1000000/(1)} | 101.4 | 94.2 | 94.6 | 93.4 | 90.3 |
| 5-Year Average Town Residential Water Demand (gpcd) | | 94.8 | | | | |

Sources:

- 1) Sourced from Annual Utility Report with 2022 extrapolated and Hacienda Village population subtracted. Hacienda Village population is based on Zone 651 data from the 2024 Broward County Population Forecast and Allocation Model (PFAM) study.
- 2) Sourced from Town of Davie monthly WTP Operation Reports for System III and System V. System III was in operation during parts of 2020 and 2021.
- 3) Sourced from Town of Davie Consumption Trend Reports for Reddy Ice and ANDRX Pharmaceuticals, and Annual Water Loss Reports and Annual Utility Reports for bulk sales to Ferncrest Utility.
- 4) Sourced 2022 and 2023 values from Annual Water Loss Reports for FY 2022 and 2023. The average percentage of 2022 and 2023 was assumed for 2020, 2021, and 2024. The reported non-revenue water includes fire protection and line flushing.

The historical per capita demand or LOS is an important and relevant planning value because of several reasons:

- It is later applied to project demand for future periods.
- It is an index used by the SFWMD to assess the ability of a utility to efficiently use and conserve water. Although the expectation of the SFWMD is for the LOS to decrease in time, the LOS must also be sufficient to cover the needs of residents.

From Table 5.1, the annual average water use of the Town’s residential retail customers measured as gpcd over the 5-year period from 2020 to 2024 is 94.8 gpcd. This value was used in conjunction with the projected population to forecast the population-dependent annual average daily water demand, which is shown in the fourth column of Table 5.2.

The 5-year average large user consumption is 0.30 mgd which is based on large user billing data. The 5-year average non-revenue water is 0.09 mgd, based on the annual average non-revenue percentage from the FY2022 and FY2023 Annual Water Loss Reports provided by the Town. Because historical data suggests that both the large users’ and non-revenue water volumes are approximately consistent and unaffected by population growth in the future, large users’ consumption and non-revenue water were added back to the population-dependent demand. The new total represents the projected finished water demand from the WTP and is shown in the last column of Table 5.2.

Table 5.2 Total Forecasted Average Daily Demand from 2025 to 2045

| Year | Total Population | Demand Factor (gpcd) | Population-Dependent Demand (mgd) | Large User Demand (mgd) | Non-Revenue Water (mgd) | Total Average Annual Demand (mgd) |
|------|------------------|----------------------|-----------------------------------|-------------------------|-------------------------|-----------------------------------|
| 2025 | 35,153 | 94.8 | 3.33 | 0.30 | 0.09 | 3.72 |
| 2030 | 37,073 | 94.8 | 3.51 | 0.30 | 0.09 | 3.90 |
| 2035 | 42,289 | 94.8 | 4.01 | 0.30 | 0.09 | 4.40 |
| 2040 | 42,936 | 94.8 | 4.07 | 0.30 | 0.09 | 4.46 |
| 2045 | 43,843 | 94.8 | 4.15 | 0.30 | 0.09 | 4.54 |

Based on the presented historical trends, the total finished water demand is projected to increase from 3.72 mgd in 2025 to 4.54 mgd in 2045.

5.2 Peaking Factor and Maximum Day Demand

The maximum day flow during the year from the WTP and the maximum day factor, which is the ratio of maximum day flow to AADF, were derived from the WTP MOR data. The average maximum day factor for the historical period of analysis can be used to estimate the maximum day finished water demand that needs to be supplied by the Town’s WTP in the future. The average maximum day factor between 2020 and 2024 was 1.33, as shown in Table 5.3.

Table 5.3 Historical Maximum Day Finished Water Production and Peaking Factor

| Year | Finished Water Production | | |
|-----------------------|---------------------------------------|--------------------------------|----------------------------|
| | Annual Average Day Demand (ADD) (mgd) | Maximum Day Demand (MDD) (mgd) | Maximum Day Peaking Factor |
| (1) | (2) | (3) | (4)=(3)/(2) |
| 2020 | 4.1 | 5.3 | 1.3 |
| 2021 | 3.97 | 4.8 | 1.2 |
| 2022 | 3.95 | 5.6 | 1.4 |
| 2023 | 3.87 | 5.2 | 1.3 |
| 2024 | 3.97 | 5.5 | 1.4 |
| 5-Year Average | | | 1.33 |

Abbreviation: ADD – annual average day demand; MDD – maximum day demand

Source: Town of Davie Monthly Operating Reports.

To forecast the maximum day finished water demand in the future, the maximum day peaking factor is applied to the forecasted annual average demand. The forecasted finished water production increases to 6.05 mgd by 2045 as depicted in Table 5.4.

Table 5.4 Forecasted Maximum Daily Demand from 2025 to 2045

| Year | Annual Average Day Demand (ADD) (mgd) | Max Day Peaking Factor | Max Day Demand (mgd) |
|------|---------------------------------------|------------------------|----------------------|
| (1) | (2) | (3) | (4)=(2)*(3) |
| 2025 | 3.72 | 1.33 | 4.96 |
| 2030 | 3.90 | 1.33 | 5.20 |
| 2035 | 4.40 | 1.33 | 5.86 |
| 2040 | 4.46 | 1.33 | 5.94 |
| 2045 | 4.54 | 1.33 | 6.05 |

5.3 Raw Water Demand Projection

For the purpose of determining the amount of raw water needed to produce the forecasted finished water demand, the treatment loss was projected using the data collected and summarized in the annual Water Loss Reports. Treatment loss is common and expected, particularly in facilities with membrane technology (such as the Town’s) where minerals and other rejected compounds (called the concentrate) are necessarily separated from the produced water stream (called the permeate) and disposed of. Table 5.5 summarizes the past 4 years of production losses.

Table 5.5 Historical Average Treatment Loss

| Historic Treatment Loss | | | | |
|----------------------------------|-------------|-------------|-------------|-------------|
| Year | 2021 | 2022 | 2023 | 2024 |
| Annual Loss (gal) | 521,507,612 | 510,278,625 | 511,003,787 | 526,912,172 |
| Annual Loss (mgd) ⁽¹⁾ | 1.43 | 1.40 | 1.40 | 1.44 |
| 4-Year Average (mgd) | 1.42 | | | |

Note:

(1) For years with incomplete treatment loss data, the annual sum was extrapolated using available data.

The resulting value of 1.42 mgd was used to convert the average finished water demand forecast into the total annual raw water requirement.

The raw water demand forecast is calculated in Table 5.6. It shall be noted that the treatment loss is a function of the installed technology, and therefore this demand forecast would be subject to change if the Town were to modify or diversify its current treatment technology. The total raw water needs under the assumption that no technology changes will occur and that any additional treatment capacity constructed at the plant will be of equal nature (RO), will increase each year from 5.14 mgd in 2025 to 5.96 mgd by 2045.

Table 5.6 Forecasted Raw Water Demand

| Year | Average Finished Water Demand (mgd) | 5-Year Historical Average Treatment Loss (mgd) | Annual Average Raw Water Demand (mgd) |
|------|-------------------------------------|--|---------------------------------------|
| (1) | (2) | (3) | (4)=(2)+(3) |
| 2025 | 3.72 | 1.42 | 5.14 |
| 2030 | 3.90 | 1.42 | 5.32 |
| 2035 | 4.40 | 1.42 | 5.81 |
| 2040 | 4.46 | 1.42 | 5.87 |
| 2045 | 4.54 | 1.42 | 5.96 |

5.4 Capacity Analysis

The Town’s combined permitted raw water withdrawal quantities from the Biscayne Aquifer and the Floridan Aquifer total 19.85 mgd on an annual average day basis and 652.0 MG on a maximum month basis, as summarized in Table 5.7.

Table 5.7 Town of Davie Permitted Raw Water Withdrawal Quantities

| Water Supply Source | Annual Average Day (mgd) | Maximum Monthly Allocation (mgm) |
|---------------------|--------------------------|----------------------------------|
| (1) | (2) | (3) |
| Biscayne Aquifer | 5.02 | 164.8 |
| Floridan Aquifer | 14.83 | 487.2 |
| Total | 19.85 | 652.0 |

The maximum amount of finished water that can be produced was based on the firm raw water treatment capacity of the Town’s System V WTP, the permitted quantities in the CUP, and the historical treatment losses. The calculation of the finished water treatment limit is provided in Table 5.8. The treatment firm capacity of the existing System V WTP and System III WTP are 8.0 mgd and 4.0 mgd, respectively. The capacity of System V WTP was previously 6.0 mgd, it was rerated and permitted as 8.0 mgd on August 21, 2024.

Table 5.8 Calculation of Finished Water Quantity Limit based on Raw Water Permit Limit

| Treatment Plant | Treatment - Firm Capacity (mgd) | Treatment Loss (mgd) | Raw Water Treatment Capacity (mgd) | - LIMIT - Raw Water Withdrawal Allocation (mgd) | - LIMIT - Finished Water Treatment (mgd) |
|---------------------------|---------------------------------|----------------------|------------------------------------|---|--|
| (a) | (b) | (c) | (d) = (b) + (c) | (e) | (f) = (e) – (c) |
| System V | 8.0 | 1.42 | 9.42 | 14.83 ⁽¹⁾ | 13.41 |
| System III ⁽²⁾ | 4.0 | 0.09 ⁽³⁾ | 4.09 | 5.02 ⁽⁴⁾ | 4.93 |

Notes:

- (1) System V is an RO treatment facility that withdraws water from the Floridan Aquifer only. The reported 14.83 mgd allocation represents the Town’s permitted quantity from the Floridan Aquifer.
- (2) System III WTP has not been in operation since June 2021.
- (3) System III WTP started operating intermittently in 2020 and has stopped operation since June 2021. The reported treatment loss is based on historic record from 2014 to 2018 as reported in the Town’s 2020 WSFWP, which is 2.2 percent.
- (4) System III WTP is a conventional Lime Softening treatment plant that withdrew water from Biscayne Aquifer only. The reported 5.02 mgd allocation represents the Town’s permitted quantity from the Biscayne Aquifer.

Comparison of the forecasted finished water demand (Table 5.4) and raw water needs (Table 5.6) to the finished water treatment limit and WTP firm capacity (Table 5.8) is provided in Figure 5.1. During the period 2025 through 2045, the finished water and raw water demand is within the treatment plant firm capacity, permitted withdrawal limit and treatment limit.

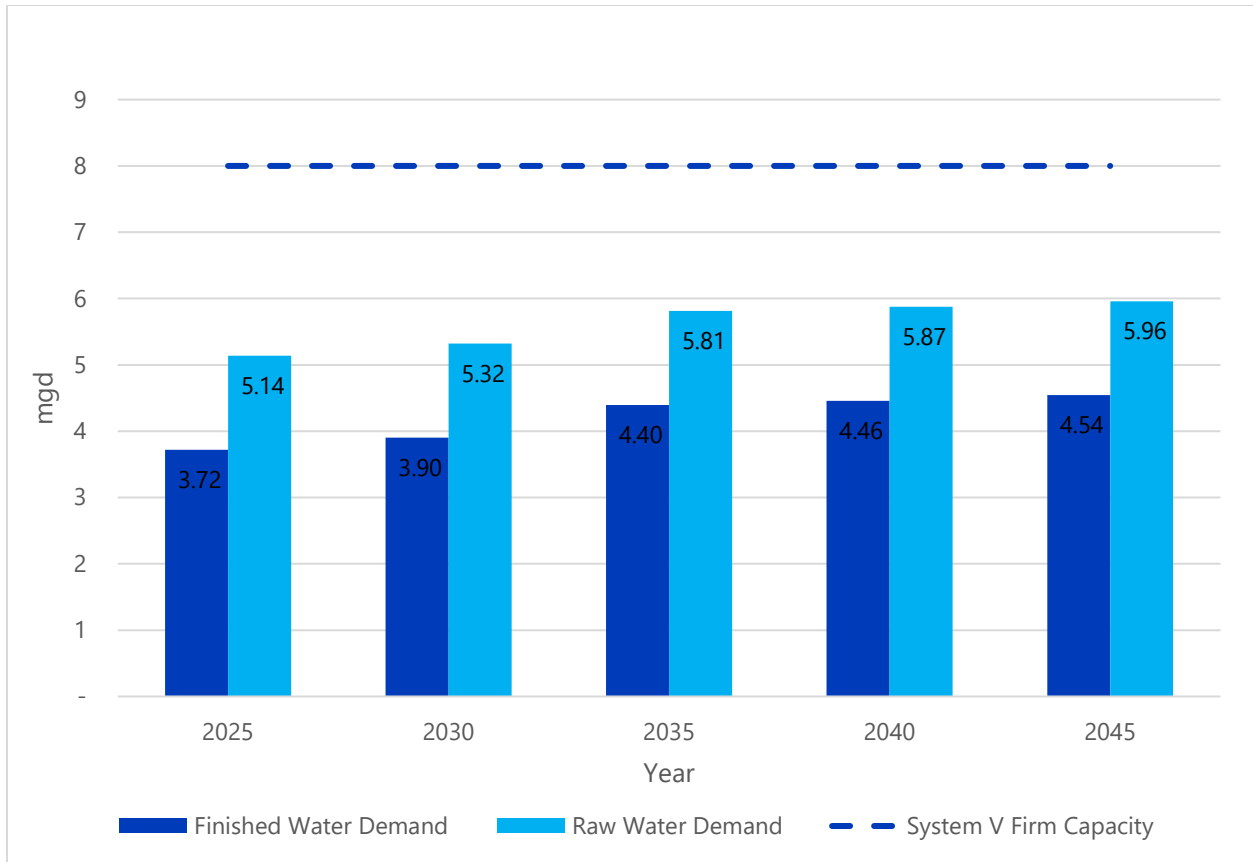


Figure 5.1 Comparison of Finished and Raw Water Demand Forecast to Treatment Capacity

SECTION 6 REGIONAL ISSUE AND INTERGOVERNMENTAL COORDINATION ACTIVITIES

This section summarizes the RWSP issues that have the potential to impact the Town. Intergovernmental coordination efforts are also reviewed for adequacy and if new activities will be needed because of changes in statutory requirements.

The Town is cognizant of the regional issues that are impacting or have the potential to impact water supply, water demand, and utility infrastructure. It actively collaborates with neighboring governments and utilities to address the challenges and opportunities that arise. This section provides an overview of the regional issues the Town is monitoring, including:

- Regional climate action plan.
- Climate change.
- Sea level rise.
- Saltwater intrusion.
- Extreme weather events.
- Infrastructure development.
- Lake Okeechobee surface water allocation limitations.
- Lowering Lake Okeechobee level.
- Infrastructure planned to attenuate damaging peak flow events from Lake Okeechobee.
- Use of brackish groundwater from the Floridan Aquifer. Each is discussed in turn.

6.1 Regional Climate Action Plan

Southeast Florida is one of the regions most vulnerable to climate change and sea level rise. This is largely the result of several unique geographic characteristics which include low land elevations, flat topography, a porous geology, and dense coastal development. Together, these factors heighten the challenges that climate change and sea level rise pose for water resource planning, management and infrastructure across the region, including Palm Beach, Broward, Miami-Dade, and Monroe counties. These communities have committed to collaborating on regionally coordinated climate mitigation and adaptation strategies as part of the Southeast Florida Regional Climate Change Compact (Compact) and have jointly developed and adopted a Regional Climate Action Plan (RCAP) including 17 recommendations that address “Water Supply, Management, and Infrastructure”. The 2018 LEC Plan Update and 2023-2024 LEC Plan Update both encourage local governments and utilities within the LEC Planning Area to participate in the Compact. Through its adoption of the Mayors’ Climate Action Pledge, the Town of Davie has been committed to support the Compact and the RCAP since February 6, 2013.

Table 6.1 summarizes the water supply-related recommendations from the RCAP 3.0.¹ These recommendations are intended to meet the goals of advancing water management strategies and infrastructure improvements needed to mitigate for adverse impacts of climate change and sea level rise on water supplies, water and wastewater infrastructure, and water management systems and have been incorporated throughout this WSFWP Update and related comprehensive planning element updates.

Table 6.1 Water Supply Recommendations of the 2022 Regional Climate Change Action Plan

| Item | Recommendations |
|-------|--|
| WS-1 | Practice integrated water resources management. |
| WS-2 | Foster innovative water management. |
| WS-3 | Advance water resource management research. |
| WS-4 | Coordinate regional investments in water management. |
| WS-5 | Expand use of green infrastructure and net zero solutions. |
| WS-6 | Use consistent future conditions water management scenario planning. |
| WS-7 | Assess climate impacts on water infrastructure. |
| WS-8 | Modernize water infrastructure development standards. |
| WS-9 | Ensure a resilient regional flood control system. |
| WS-10 | Integrate surface and groundwater impacts on infrastructure. |
| WS-11 | Increase resilient water infrastructure and water quality. |
| WS-12 | Phase out septic systems. |
| WS-13 | Coordinate saltwater intrusion mapping. |
| WS-14 | Develop a database of resilient water projects. |
| WS-15 | Support the Comprehensive Everglades Restoration Plan (CERP). |
| WS-16 | Expand surface water storage. |
| WS-17 | Support private property adaptation. |

Abbreviations: CERP – Comprehensive Everglades Restoration Plan

Source: *The Water focus area chapter of the RCAP 3.0, published in November 2022.*

6.2 Climate Change

Studies conducted at the national, regional, and local levels have highlighted the need to plan for the predicted impacts of more frequent and severe droughts, as well as increased tidal and storm-related flooding. To protect the Town’s water supply infrastructure, ongoing planning efforts should remain adaptable to these evolving climate conditions.

The Town, together with its municipal and regional partners, recognizes the importance of integrating water supply and climate change considerations through coordinated planning. It routinely updates its 10-Year WSFWP and strengthens the GOPs within its Comprehensive Plan.

¹ https://southeastfloridaclimatecompact.org/wp-content/uploads/2023/10/SEFL_RCAP3_Final.1.pdf

The Town’s commitment to sustainability was formalized through the adoption of Resolution No. 2007-182, leading to the implementation of numerous initiatives, including the formation of the Green Energy and Environmental Committee (GEEC), pursuit of the Florida Green Building Coalition (FGBC) Green Government Certification, and participation in organizations such as the U.S. Green Building Council (USGBC), the Florida and Broward League of Cities, and the International Council for Local Environmental Initiatives (ICLEI) Local Governments for Sustainability. This commitment also resulted in the development and adoption of a Sustainability Action Plan on June 1, 2011, which is currently being updated to incorporate resilience elements.

At the county level, the Town collaborates with BC to adapt to changes in processes, practices, and structures to reduce potential climate related impacts and leverage opportunities associated with climate change. These coordinated resilience efforts include inventory tracking, monitoring, project implementation, and public outreach.

At the regional level, the Town actively participates in the Compact, a collaborative initiative to foster sustainability and climate resilience on a regional scale. Participants in the Compact include local communities, regulatory agencies, and the counties of Broward, Miami-Dade, Monroe, and Palm Beach.

6.3 Sea Level Rise

Although Davie is an inland community located more than 6 miles from the coast, regional sea level rise still affects the Town through higher groundwater tables, drainage constraints, and greater flood risk from heavy rain. Sea level rise elevates coastal water levels and groundwater tables, which reduces the storage capacity of the soil and increases how much flooding the storms will cause. The increased coastal water level also reduces the conveyance performance of the canals and drainage network in moving stormwater toward the coast and the Everglades.

Development of cost-effective sea level rise adaptation strategies to ensure the sustainability of the Town’s water supply is critical to all ongoing planning efforts. A unified projection developed by the Compact in 2015 is illustrated in Figure 6.1. It shows a 6- to 10-inch increase in sea level in the near term, and a 14- to 26-inch rise by mid-century.

In December 2019, the Compact updated the sea level rise projection based on the NOAA 2017 Global and Regional Sea Level Rise Scenarios for the United States report. This update increased the projected magnitude of sea level rise. The revised projection is provided in Figure 6.2.

In 2024, the Compact conducted its 5-year review to assess the NOAA 2022 Sea Level Rise Technical Report and observed regional sea level trends. While the NOAA 2022 Report’s near-term sea level rise projections are lower than those in the NOAA 2017 Report, the Intermediate, Intermediate-High, and High scenarios from the NOAA 2022 Report remain within the Compact’s 2019 Projection and guidance planning range, especially from about 2030 onward. Figure 6.3 shows a comparison of NOAA’s 2017 and 2022 projections. Additionally, observed sea level rise at the Key West and Virginia Key tide gauges over the past decade has stayed within the Compact’s 2019 recommended planning range. Therefore, the Compact issued a statement in December 2024 affirming the continued applicability of the 2019 Regionally Unified Projection in Southeast Florida as a basis for resilience planning, design, and construction. The Compact plans to review and update the guidance as updated scientific data and modeling results emerge. This 2019 update continues to be used as the basis for planning throughout the region.

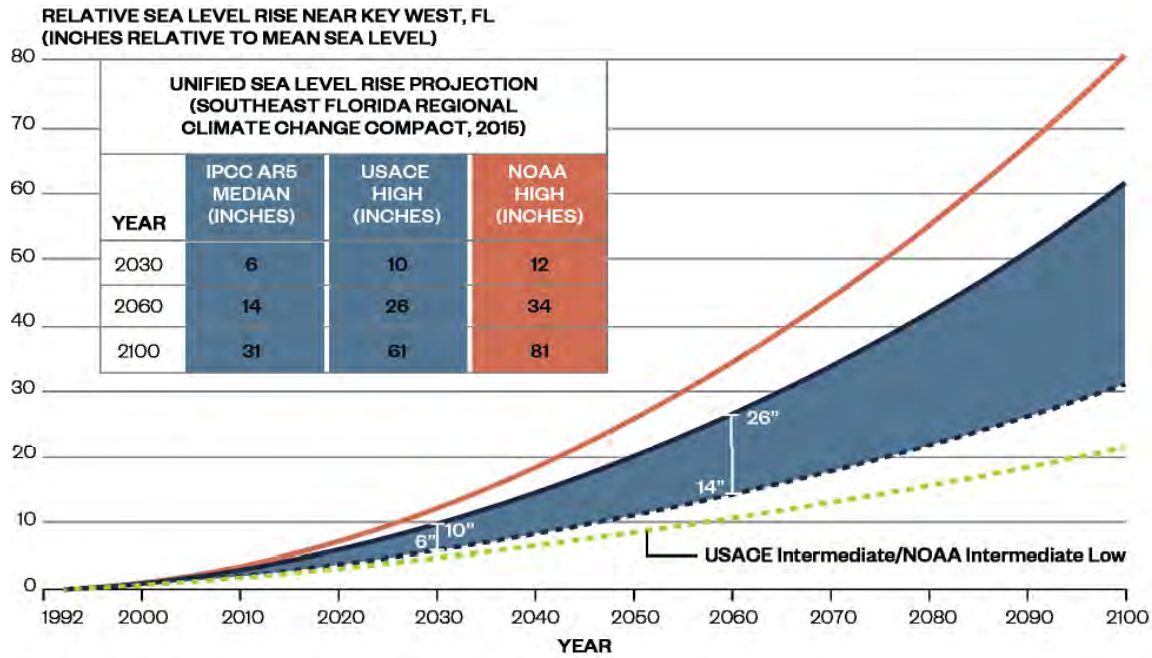


Figure 6.1 Sea Level Rise Projections (2015)

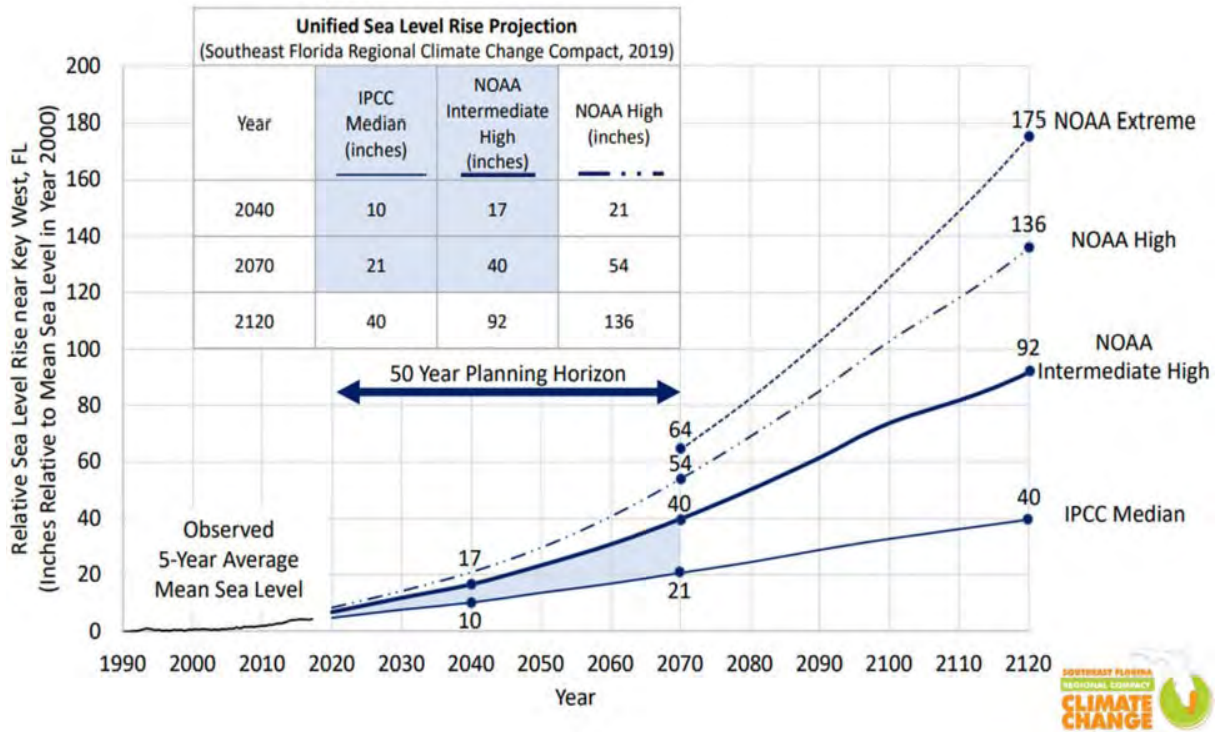
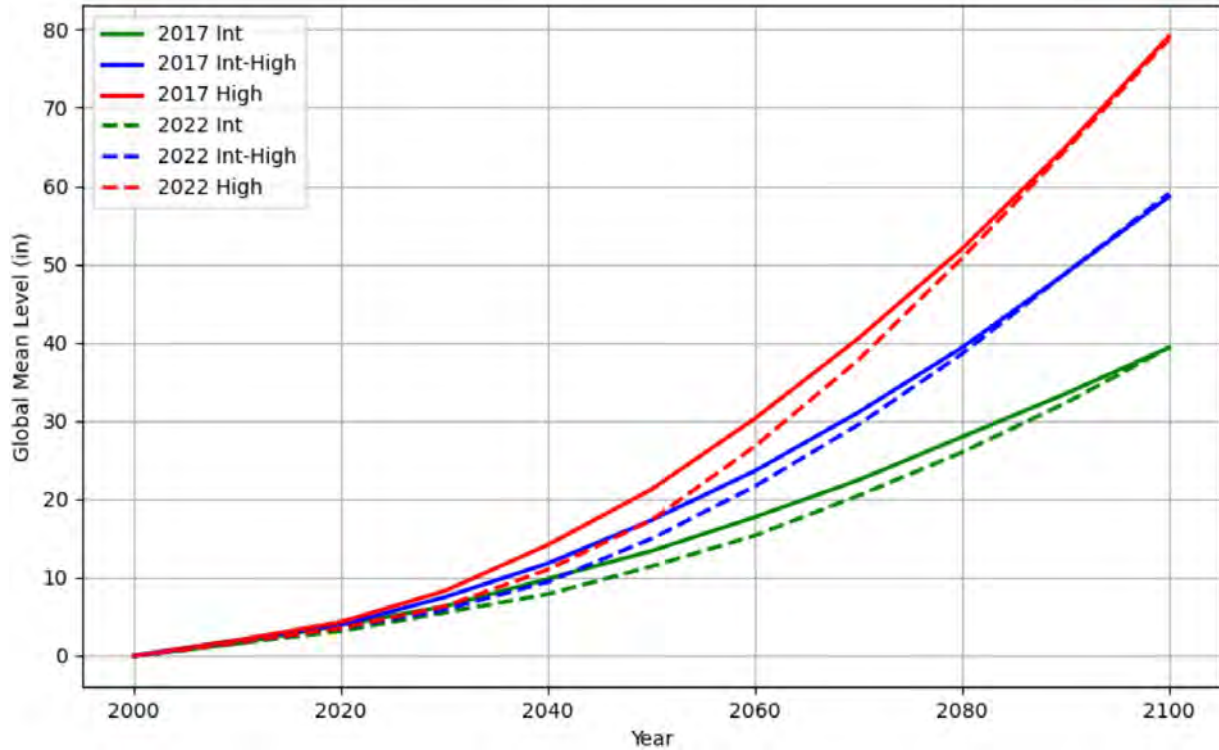


Figure 6.2 Sea Level Rise Projections (2019)



Source: Figure 1 of the Compact's 2024 Statement of Continued Use of the 2019 Southeast Florida Regionally Unified Sea Level Rise Projection.

Figure 6.3 Comparison of NOAA Sea Level Rise Projections – 2017 vs. 2022

In terms of infrastructure, every aspect that is underground or touches the ground will need to be assessed for its vulnerability and, if necessary, protected. This includes basic services, such as provision of drinking water, sewage treatment, electricity, and waste disposal. The Town's ongoing Vulnerability Assessment Project includes this analysis and adaptation planning.

6.4 Saltwater Intrusion

The Biscayne Aquifer is one of the Town's water supply. It is a shallow, surficial, highly transmissive aquifer. Coastal saltwater intrusion of the aquifer has occurred in eastern parts of BC. The extent of saltwater intrusion is measured by the depth and location of the 250 milligrams per liter (mg/L) chloride concentration toe. The mapping of this saltwater intrusion front is supported by local governments throughout the region, the United States Geologic Survey (USGS), and the SFWMD. The SFWMD's 250 mg/L Isochlor Line, as published in 2024, in BC is illustrated in Figure 6.4. It indicates that the saltwater intrusion front has largely remained steady, with some inland shifts observed.

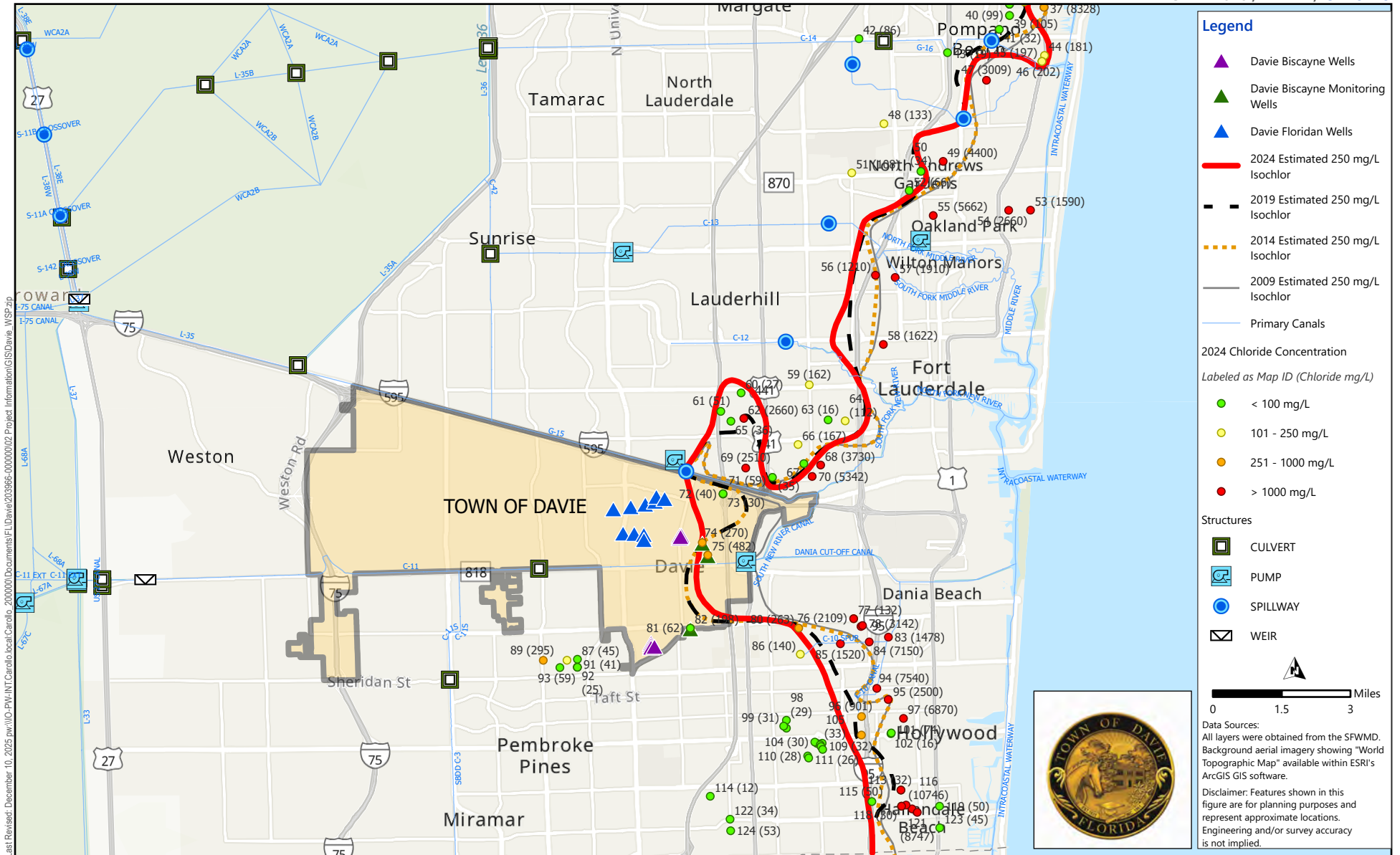


Figure 6.4 Locations of Saltwater Interface from 2009 to 2024 as Estimated by SFWMD
 TOWN OF DAVIE FLORIDA

At the toe of the saltwater front, chloride concentrations exceed drinking water standards of 250 mg/L and thus restrict and/ or require abandonment of wellheads located east of the saltwater intrusion line. The Town has two wells that are located east of the saltwater intrusion line. However, those wells are used for monitoring and have been east of the saltwater intrusion front since the 2009 approximation line. Table 6.2 is a summary of the Town’s monitoring wells.

Table 6.2 Town of Davie Biscayne Aquifer Monitoring Wells

| Well ID | Name | X-Coordinate (feet) | Y-Coordinate (Feet) | Water Use Type | 2024 Chloride Concentration (mg/L) | East of 2024 250 mg/L Isochlor Line |
|---------|---------------------------|---------------------|---------------------|----------------|------------------------------------|-------------------------------------|
| 137072 | MW-1 (Potters Park DW-1) | 911455 | 631337 | Monitor | 482 | Yes |
| 137073 | MW-4 (Veterans Park DW-4) | 910816 | 632765 | Monitor | 270 | Yes |
| 137074 | MW-2 (Stirling East DW-2) | 909472 | 622918 | Monitor | 198 | No |
| 137075 | MW-3 (Stirling West DW-3) | 909446 | 622918 | Monitor | 62 | No |

Source: Town of Davie WUP No. 06-001340-W September 29, 2020 and SFWMD’s DBHYDRO database.

It has been concluded that the inland movement of the saltwater front is primarily caused by historic lowering of the water table in western BC for the construction of regional drainage canals. Currently, surface water canals and salinity control structures are operated to maintain water levels that effectively limit further inland saltwater intrusion, and no regional water level declines have been observed. However, sea level rise is expected to expedite the inland movement of the saltwater front. Although the Town’s Biscayne Aquifer wellfields are located sufficiently west of the 250 mg/L Isochlor, the Town continues to monitor its movement and assess the potential impacts to the water supply.

6.5 Extreme Weather Events

Climate change may increase the frequency and severity of extreme weather events, which should be considered in comprehensive planning. Drought, water shortages, and reduced groundwater tables can accelerate saltwater intrusion and exacerbate water supply deficits. Conversely, more intense rainfall can lead to flooding, increased runoff, impacts to the natural systems, and more recharge potential for wellfields. Integrated water resource management strategies are essential to address these challenges, particularly those projects that can serve to provide additional long-term storage of stormwater runoff and redistribute excess rainfall during dry periods and drought. Regional surface water reservoirs and below ground aquifer storage and recovery systems (ASRs) are examples of potentially viable AWS projects and climate adaptation solutions.

6.6 Infrastructure Development

To ensure the long-term sustainability of critical facilities in the face of climate change, sea level rise and more frequent extreme weather events, it is important to diversify water supply sources, enhance treatment technologies, and develop adaptive design criteria for stormwater and wastewater infrastructure. Strategic infrastructure planning should incorporate these approaches and align with the GOPs of the Comprehensive Plan as well as the WSFWP to support long-term resilience and balanced future development.

Increases in groundwater levels, as a direct and indirect response to sea level rise, will increasingly strain drainage systems performance and are expected to exacerbate future flooding even during relatively mild storm events. These challenges will be amplified under future conditions, as more extreme rainfall events increase risk of damage to low-lying utility infrastructure and contribute to prolonged flooding. Proactively planning for the combined effects of storm events, high tides, and sea level rise on drainage systems functions and public infrastructure is essential, as is assessing viable water supplies and impacts to the natural systems from prolonged droughts.

Options that diversify water supply and protect existing resources will be fundamental. Potential approaches include changing treatment technologies, developing regional water storage such as the C-51 Reservoir, improving or relocating infrastructure in low lying areas, and enhancing operational flexibility. The Town's water supply planning efforts include water conservation and considerations of issues impacting water supply and demand including the Regional Water Availability (RWA) Rule, the C-51 Reservoir Project, the Ocean Outfall Program, and the RCAP.

The RWA Rule, adopted by the SFWMD on February 16, 2007, limits raw water withdrawals from the Biscayne Aquifer to the maximum quantity withdrawn during five consecutive years preceding April 2006. Its intent is to prevent increased allocations that could induce increased seepage from the canals, in support of the minimum flow and minimum water level (MFL) recovery strategies for the Everglades and the Northwest Fork of the Loxahatchee River. Municipalities needing additional water supplies must therefore pursue alternatives not reliant on Everglades recharge. These AWS solutions include recycling water, using reclaimed water to recharge the Biscayne Aquifer, or withdrawing water from the deeper Floridan Aquifer.

The RWA Rule limited the Town's Biscayne Aquifer withdrawal from its wellfields to 5.02 mgd on an annual average day basis. The Floridan Aquifer, as the Town's primary water supply, will provide the additional water needed to serve future increases in demand.

6.7 Lake Okeechobee Surface Water Allocation Limitations

The Lake Okeechobee Service Area Restricted Allocation Area (RAA) criteria limit surface water allocations from Lake Okeechobee and the Water Conservation Areas. In 2008, the SFWMD adopted these RAA criteria as part of the MFL recovery strategy for Lake Okeechobee. The criteria limit withdraws from Lake Okeechobee and the integrated conveyance systems hydraulically connected to the lake to base condition water uses that occurred between April 1, 2001 and January 1, 2008. Following the adoption of the RAA, all irrigation users in the Lake Okeechobee Service Area were required to renew their WUPs.

In 2007, the SFWMD also adopted the LEC RWA criteria, which prohibit increases in surface water and groundwater withdrawals from the North Palm Beach County/Loxahatchee River Watershed Waterbodies and Lower East Coast Everglades Waterbodies above base condition water uses permitted as of April 1, 2006. This includes connected canals that receive water from these water bodies. New direct surface water withdrawals from the Everglades, Loxahatchee River watersheds, and associated conveyance systems are prohibited. These criteria are part of the MFL recovery strategies for the Everglades and the Northwest Fork of the Loxahatchee River.

While the Town is not directly impacted by the Lake Okeechobee surface water allocation limits, it is directly impacted by the LEC RWA criteria as it applies to the Lower East Coast Everglades Waterbodies. These criteria impact the amount of permitted water quantities available to the Town from the Biscayne Aquifer.

In 2023, the U.S. Army Corps of Engineers (USACE) completed rehabilitation of the Herbert Hoover Dike and, in 2024, revised the Lake Okeechobee System Operating Manual (LOSOM) to increase storage volumes and improve water supply. The LOSOM is intended to replace the 2008 Lake Okeechobee Regulation Schedule (LORS08) and provides operational flexibility in managing Lake Okeechobee water levels, with the SFWMD providing the USACE with weekly operational guidance. The goals are to send more water south, reduce damaging discharges to the Calooshattee and St. Lucie estuaries, and improve water supply performance. However, the SFWMD’s analyses suggested that these improvements are insufficient for Lake Okeechobee to return to an MFL prevention strategy and Lake Okeechobee remains in recovery status. The Lake Okeechobee MFL recovery strategy was revised as part of the 2023-2024 LEC Plan Update, with consideration of the Herbert Hoover Dike repairs, a new lake regulation schedule, and additional storage projects. The recovery strategy’s capital projects component was revised, but the environmental enhancement, regulatory criteria, and water shortage components were not changed.

The SFWMD will continue to allocate water for existing and future reasonable-beneficial uses in accordance with its regulatory rules and criteria, as described in Section 3.2.1F 1-5 of the *Applicant’s Handbook for Water Use Permit Applications within the South Florida Water Management District* (Applicant’s Handbook; SFWMD 2022) and Chapter 40E-21 F.A.C.

6.8 Infrastructure Planned to Attenuate Damaging Peak Flow Events from Lake Okeechobee

Construction of additional storage systems (e.g., reservoirs, ASR systems) to capture wet season flows may increase water availability during dry conditions and attenuate damaging peak flow events from Lake Okeechobee. Four projects are currently planned in the Lake Okeechobee region of the LEC Planning Area, with their statuses summarized in Table 6.3.

Table 6.3 Water Resource Development Projects within the LEC’s Lake Okeechobee Planning Area

| LEC Region | Project | Status |
|-----------------|--|------------------------|
| Lake Okeechobee | CERP Lake Okeechobee Watershed Restoration Project (LOWRP) | Planning/ Construction |
| | USACE Herbert Hoover Dike Major Rehabilitation | Construction Complete |
| | Lake Okeechobee Component A Storage Reservoir (LOCAR) | Planning |
| | Central Everglades Planning Project (CEPP) A-2 Reservoir and Stormwater Treatment Area (STA) | Planning/ Construction |

Source: Table ES-2 of 2023-2024 LEC Plan Update.

To protect areas near the Town, infrastructure designed to attenuate damaging peak flows to surface water bodies and coastal ecosystems is being implemented in BC by the SFWMD and the USACE under the CERP. According to the 2023-2024 LEC Plan Update, this project is within the LEC Service Areas region and is in the planning and design phase.

The Broward County Water Preserve Areas (BCWPA) project is part of the CERP and was designed to restore the ecological health of the Everglades. Its two primary functions are:

- Reduce seepage loss from WCA-3A/3B to developed areas (i.e., the C-9 and C-11 basins).
- Capture, store, and distribute surface water runoff from the western C-11 Basin that has been discharges into WCA-3A/3B.

The following major infrastructure features will be constructed as part of the project.

- C-11 Impoundment – A 1,168-acre impoundment that is the first feature of the BCWPA project. As of June 2024, the USACE anticipated the final design to be completed by the end of FY2024 and land clearing to be initiated in March 2025. Its purpose includes:
 - » Capture and store stormwater runoff from the western C-11 Basin.
 - » Stop pumping of untreated runoff into the WCA-3A through the S-9 pump station.
 - » Reduce seepage from WCA-3A and WCA-3A/3B Seepage Management Area, thereby increasing groundwater recharge.
 - » Provide additional water source.
 - » Prevent saltwater intrusion into drinking water aquifers.
- WCA-3A/3B Seepage Management Area – A 4,353-acre seepage management area. As of June 2024, the USACE anticipated the design to be performed in FY2025 to FY2028 and construction to be completed by FY2032. Its purpose includes:
 - » Establish a buffer to reduce seepage from WCA-3A/3B.
 - » Connect the C-11 and C-9 impoundments via conveyance canal.
 - » Maintain flood protection.
- C-9 Impoundment – A 1,641-acre impoundment. As of June 2024, the USACE anticipated the design to be performed in FY2025 to FY2029 and construction to be completed by FY2035. Its purpose includes:
 - » Capture and store stormwater runoff from the C-9 Basin.
 - » Store C-11 impoundment overflow.
 - » Manage seepage.
 - » Provide releases for regional benefit.

These infrastructure features serve multiple purposes, including reducing seepage from WCA-3A, reducing phosphorus loading to WCA-3A, capturing stormwater otherwise lost to tide, and providing conveyance features for urban and natural system water deliveries. The preserve areas benefit federally listed threatened and endangered species, as well as many wading birds. This project also contributes to water supplies identified in the Everglades MFL recovery strategy.

The project received congressional authorization in the 2014 Water Resources Reform and Development Act (WRRDA). Initial construction contract was completed in November 2018 for the North Mitigation Area A Berm (MAAB) of the C-11 impoundment, and land clearing initiated in March 2025. Design efforts are being finalized for the C-11 impoundment, but has not been initiated for the WCA-3A/3B Seepage Management Area and C-9 impoundment.

The Town continues to monitor the status of environmental restoration projects in the LEC.

6.9 Use of Brackish Groundwater from the Floridan Aquifer

Raw water from Biscayne Aquifer is of high quality and raw water from the deeper Floridan Aquifer is brackish and requires RO treatment. The Town utilizes both the Biscayne and Floridan Aquifer systems for public water supply use under WUP No. 06-00134-W. It provides raw water supplies to the Town's WTPs, System III WTP and System V WTP.

The Town's System III WTP withdraws raw water from the Biscayne Aquifer and has a total permitted withdrawal of 1,830.8 MG per year. The Town's System V WTP withdraws raw water from the Floridan Aquifer and has a total permitted withdrawal of 5,413.3 MG per year. System III WTP has remained offline since June 2021, System V is the Town's sole source of treated water to its customers.

6.10 Local Supply and Service Agreements and Coordination

The Town maintains formal agreements with its potable water providers and bulk water customers and communicates and coordinates with them on a regular basis through a variety of methods.

In 1987, the Town signed an Agreement for Sale of Potable Water with the City of Fort Lauderdale to purchase potable water from Fort Lauderdale to serve Hacienda Village. This agreement was amended on October 19, 2022 and is for a period of 25 years. Resolution No. R-2022-196 was passed and adopted to approve the agreement.

In 1999, the Town signed a Bulk Water and Sewage User Agreement to provide water and wastewater service to the eastern portion of Tindall Hammock. The Town is committed to providing a maximum average flow of 200,000 gallons per day (gpd) per the agreement.

The Town ensures that adequate water supply is available to fulfill its obligations to its large water users by planning and projecting future demand in the area and by maintaining an open line of communication with the municipalities involved. The Town conducts individual meetings as issues arise which may be hosted by either party. Formal meetings are augmented by emails and phone contacts.

At this time, the current coordination activities between the Town and its large water users and water supplier are sufficient and additional activities will be scheduled as deemed necessary by either party.

SECTION 7 WATER SUPPLY CAPITAL IMPROVEMENTS

This section identifies the capital improvements required to build public water supply facilities to serve the existing and new development within the Town of Davie jurisdiction.

The Town’s overall Capital Improvement Program identifies capital improvement projects that are related to repair and replacement work needed to proactively maintain the LOS for the Town’s water distribution system. While the Town has sufficient existing water supply and treatment infrastructure in place, alternatives have been evaluated to transition System III into an HSPS while increasing capacity in System V. Section 7 of the 2020 Utilities Comprehensive Master Plan details this alternative.

7.1 Funding

The Town of Davie has historically supplemented its revenues from the following funding sources: bond proceeds (debt financing), operating reserves, the capital replacement account, contribution charges, and impact fees. The Town anticipates continuing the use of these revenue and funding sources over the next 5 years to implement the Capital Improvement Projects for repair and replacement of existing infrastructure.

7.2 Projects Reported in 2023-2024 LEC Plan Update

As reported to the 2023-2024 LEC Plan Update effort, the Town proposed three reclaimed water supply projects that could expand its reuse water service area. The statues and details of those projects are summarized in Table 7.1. There are no proposed potable water projects in the Town.

Table 7.1 Town of Davie Proposed Potable Water Projects in 2023-2024 LEC Plan Update

| Project Name | Project Description | Project Capacity (mgd) | Total Capital (\$M) | Status As of November 2025 |
|--|---|------------------------|---------------------|---|
| Reclaimed Water System Extension Bamford Sports Complex and along University Drive between SW 36th Street and SW 30th Street | Construct a reclaimed water main to Bamford Sports Complex and along University Drive between SW 36th Street and SW 30th Street adding up to 0.20 mgd of reclaimed water distribution capacity. | 0.2 | \$1.4 | Completed and operational since June 2024. |
| Reclaimed Water System Extension along SW 92nd Avenue from SW 36th Avenue to Griffin Road | Construct a reclaimed water main along SW 92nd Street from 36th Avenue to Griffin Road adding up to 1.00 mgd of reclaimed water distribution capacity. | 1.00 | \$2.30 | Not to proceed with construction. |
| Reclaimed Water System Extension along SW 30th Street from 75th Avenue to College Avenue | Construct a reclaimed water main along SW 30th Street from 75th Avenue to College Avenue adding up to 0.30 mgd of reclaimed water distribution capacity. | 0.30 | \$0.64 | Oh hold; construction was stopped before the College Avenue intersection. |
| Total Completed | | 0.2 | \$1.4 | |
| Total To Be Completed | | 0.3 | \$0.64 | |

Source: Table 8-2 of the 2023-2024 Lower East Coast Water Supply Plan Update

7.3 All Planned Projects

The Capital Improvement Program includes all treatment, supply, and distribution projects expected from 2025 to 2045. These projects will rehabilitate or replace equipment approaching its useful life, address performance issues, and keep pace with population growth and increasingly stringent regulatory requirements.

As part of its 2020 Utilities Master Plan, the Town conducted a vulnerability assessment of the water distribution system to analyze the reliability and redundancy of the network. It was found that the existing infrastructure is sufficient to meet the existing peak hour demand and approximately 87.4 percent of the pipes have some degree of redundancy and can maintain reliable supply in case of a break. The Town also evaluated the water distribution system performance for the 2025, 2030, and 2040 future scenarios. Improvement needs and schedule were determined based on the results. The detailed list of projects and explanation of the prioritization approach are discussed in Section 11 of the 2020 Utilities Comprehensive Master Plan.

To summarize this information, tables including the implementation year and estimated cost can be found below for each project type. Table 7.2 presents the projects focused on the treatment system and Table 7.3 contains the distribution system projects.

Table 7.2 Town of Davie Utility Capital Improvement Program – Potable Water Treatment Projects

| Project Description | Implementation Year | Total Estimated Project Cost |
|---|---------------------|------------------------------|
| System III | | |
| Replace/ repair High Service Pumps 1-7 and the venturi flow meter. | 2027 | \$795,000 |
| System V | | |
| Air Scrubber Towers-Replace pumps for trains 1 and 2, and scrubber blowdown day tank. | 2035 | \$520,000 |
| Chemical Feed Components-Replace storage tanks, sodium hypochlorite generation systems, and transfer pumps. | 2031 | \$237,000 |
| Degasifier Towers-Replace air stripping tower, transfer pump blower, and booster pump for Tower 1. | 2027 | \$238,000 |
| High Service Water Pump Station-Replace Pumps 1-3 and VFDs | 2031 | \$330,000 |
| Intermediate Pumping Station-Replace Pumps 1-4 | 2035 | \$600,000 |
| Lime Addition-Replace Lime slaker, repair lime silo, replace pump and day tanks. | 2027 | \$258,000 |
| Pre-Treatment-Replace day tanks, feed pumps, control systems and cartiage filters. | 2029 | \$331,000 |
| RO-Replace piping, membrane train, feed pump, and VFD for Skids 1-4. Replace recovery piping, valves and flowmeters. Repair tanks, recirumtion pump and cartridge filter. | 2029 | \$3,194,000 |
| Water Supply Wells – Rehab/ Replace Wells 1-5 | 2035 | \$17,500,000 |
| Total | | \$24,003,000 |

Source: Table 11.11 of the 2020 Town of Davie Utilities Comprehensive Master Plan.

Table 7.3 Town of Davie Utility Capital Improvement Program - Potable Water Distribution System Projects

| Project Title | Implementation Year | Total |
|---|---------------------|-----------|
| Replace 6-inch diameter pipes on SW 37th Street between Davie Road and SW 63rd Avenue with 12-inch diameter pipes. | 2030 | \$119,000 |
| Eliminate 8-inch bottleneck on Davie Road and Nova Drive intersection (southwest corner), use 12-inch pipe. | 2030 | \$10,200 |
| Install an 18-inch line on College Avenue, parallel to the existing 12-inch water main PWM5423. | 2025 | \$533,900 |
| Install a 12-inch line on Davie Road, parallel to the existing 10-inch water mains PWM1737, PWM5337, and PWM4481. | 2030 | \$257,500 |
| Replace 2-inch pipe with 6-inch water main. | 2025 | \$20,200 |
| Install a 12-inch line across SW 30th Avenue (anywhere between SW 75th Way and SW 73rd Way), parallel to the existing 8-inch water mains PWM2642 and PWM4977. | 2025 | \$26,000 |
| Install a 12-inch line on College Avenue, parallel to the existing 8-inch water mains PWM3632, PWM5449, and PWM5451. | 2025 | \$212,000 |
| Install auxiliary non-parallel 18-inch pipe. | 2025 | \$26,300 |

| Project Title | Implementation Year | Total |
|--|---------------------|--------------------|
| Water quality improvement/ loop connectivity in northwest boundary of the Town service area. | 2025 | \$873,800 |
| Treetops Park internal potable water distribution pipes. | 2040 | \$56,000 |
| Water quality improvement/ loop connectivity in northeast boundary of the Town service area. | 2040 | \$764,800 |
| Water quality improvement/ loop connectivity in service area east of Florida's Turnpike and south of Griffin Road. | 2030 | \$259,500 |
| Water quality improvement/ loop connectivity in scattered commercial areas in the southwest of the service area, west of University Drive. | 2040 | \$304,000 |
| Provide redundancy of service to Ferncrest Utilities and Hacienda Village. | 2025 | \$407,400 |
| Provide redundancy of service to the area east of the Florida's Turnpike and south of Griffin Road. | 2040 | \$1,666,900 |
| Total Distribution Project Costs | | \$5,537,500 |

Source: Table 11.2 of the 2020 Town of Davie Water Utilities Comprehensive Master Plan.

In its 5-Year Capital Improvement Plan covering FY2026 to FY2030, the Town has allocated annual budgets for the following maintenance projects from Table 7.2 and Table 7.3:

- RO Membrane Replacement:
 - » RO membranes have an average life of 5 years due to compaction from organics in the water.
- SCADA Upgrades:
 - » Upgrades of the hardware and software used by the treatment plants to meet cybersecurity requirements.
- WTP Chemical Feed System Pumps Replacements:
 - » Chemical feed systems are required for accurate dosing of treatment to produce chemically stable drinking water. Some of the chemicals are hazardous in nature and require frequent rehabilitation and repairs. Over time, pump replacements are needed due to system expansion and equipment redundancy.
- WTP Electrical/ Switchgear/ Generator Replacements:
 - » The electrical systems and devices at the WTPs are of varying degrees of age and condition. The Town will actively plan to replace or rehabilitate equipment before they fail (predictive maintenance). The Town also recognizes the need to upgrade to more efficient equipment in the future.
- WTP Pumps and Motors Replacements:
 - » The pumps and motors at the WTPs are of varying type, size, and age. The Town will actively replace or rehabilitate equipment before they fail (predictive maintenance).
- WTP Upgrades:
 - » The Town will perform general infrastructure repairs at the WTPs as needed.

SECTION 8 COMPREHENSIVE PLAN (RELATED AMENDMENTS)

This section includes an assessment of 2025 draft Comprehensive Plan GOPs and identifies any new or revised GOPs, within the capital improvement and infrastructure elements, needed to implement the work plan. For ease of identification, edits are tracked with ~~strikeout~~ (text deleted) and underline (text added).

8.1 Capital Improvements Element

The capital improvement element establishes a framework to support sustainable development, maintenance, and enhancement of Town facilities and infrastructure. As the Town continues to grow, it remains committed to providing high-quality services that address both current and future needs. This element is designed to guide the prioritization and the allocation of resources for capital improvement projects, supporting the Town’s goals of strengthening infrastructure and enhancing overall quality of life.

Necessary amendments to the capital improvement element of the draft Comprehensive Plan that are directly related to this WSFWP update have been identified and listed in Table 8.1. These amendments are being incorporated and adopted into the Comprehensive Plan. Other content will be amended as part of the Comprehensive Plan Update that is being performed by the Town concurrently with this Work Plan. Such content may be reviewed in Appendix K.

Table 8.1 Capital Improvement Element Changes

| Location within Draft Capital Improvements Element Document | Previous Content | Amended Content |
|---|---|---|
| Goal 1, Objective 1 | Policy 1-6(f): The operating expenses associated with each new capital improvement. The Town should not undertake projects which cannot be adequately operated and maintained. | Policy 1-6(f): The operating <u>and maintenance</u> expenses associated with <u>the entire useful life of</u> each new capital improvement. The Town should not undertake projects which cannot be adequately operated and maintained. |
| Goal 1, Objective 1 | None | <u>Policy 1-XX: The Town shall maintain an asset management system to track the condition and performance of utility assets, ensuring that service levels remain consistent with the adopted levels of service outlined in this Comprehensive Plan.</u> |
| Goal 1, Objective 3 | Policy 3-8: The Town will maintain water and sewer rate structures which are adequate to insure that this enterprise fund remains self-supporting, and accommodate the costs of operation, capital plant maintenance, debt service, depreciation, and system expansion other than that required by new development. | Policy 3-8: The Town will maintain water and sewer rate structures which are adequate to insure that this enterprise fund remains self-supporting, and accommodate the costs of operation, capital plant maintenance, debt service, depreciation, <u>system improvement</u> , and system expansion other than that required by new development. |

8.2 Infrastructure Element

The infrastructure element ensures the availability, reliability, and long-term sustainability of essential public services, including potable water, wastewater management, stormwater drainage, and infrastructure expansion. The GOPs of this element focus on maintaining these services while effectively planning for future growth.

Necessary amendments to the infrastructure element of the draft Comprehensive Plan that are directly related to this WSFWP update have been identified and listed in Table 8.2. These amendments are being incorporated and adopted into the Comprehensive Plan. Other content will be amended as part of the Comprehensive Plan Update that is being performed by the Town concurrently with this work plan. Such content may be reviewed in Appendix L.

Table 8.2 Infrastructure Element Changes

| Location within Draft Infrastructure Element Document | Previous Content | Amended Content |
|---|---|--|
| Goal 1, Objective 7 | Policy 7-1: The LOS Standard that is supported by and consistent with the Work Plan's data and analysis for potable water facilities is herein adopted to be 129 gpcd for the Town's service area. | Policy 7-1: The LOS Standard that is supported by and consistent with the <u>Town's Water Supply Facility Work Plan 2025 Update Report</u> 's data and analysis for potable water facilities is herein adopted to be 129 <u>94.8</u> gpcd for the Town's service area. |
| Goal 1, Objective 7 | Policy 7-3: The LOS Standard that is supported by and consistent with the City of Hollywood Water Supply Plan Potable Water Sub-Element – 2020 Update data and analysis for potable water facilities is herein adopted to be 108.6 gpcd. | Policy 7-3: The LOS Standard that is supported by and consistent with the City of Hollywood Water Supply Plan Potable Water Sub-Element <u>Facilities Work Plan – 2020 2025 Update</u> 's data and analysis for potable water facilities is herein adopted to be 108.6 <u>98.9</u> (gpcd). |
| Goal 1, Objective 7 | Policy 7-4: The LOS Standard that is supported by and consistent with the BC WSFWP – (2020 Work Plan) data and analysis for potable water facilities is herein adopted to be 127 gpcd. | Policy 7-4: The LOS Standard that is supported by and consistent with the BC WSFWP – (2020 <u>2025</u> Work Plan) data and analysis for potable water facilities is herein adopted to be 127 <u>150</u> gpcd. |
| Goal 1, Objective 7 | Policy 7-5: The LOS Standard that is supported by and consistent with the City of Fort Lauderdale WSFWP – 2019 Update data and analysis for potable water facilities is herein adopted to be 164 gpcd. | Policy 7-5: The LOS Standard that is supported by and consistent with the City of Fort Lauderdale WSFWP – 2019 <u>2025</u> Update data and analysis for potable water facilities is herein adopted to be 164 <u>155.9</u> gpcd. |
| Goal 1, Objective 7 | Policy 7-9: The Davie Utilities Department shall coordinate with developers and applicable water providers in all areas of the Town in the provision of adequate potable water services within the Davie service areas, with developers assuming the cost and construction requirements for extension of the system to accommodate development. | Policy 7-9: The Davie Utilities Department shall coordinate with developers and applicable water providers in all areas of the Town in the provision of adequate potable water services within the Davie service areas, with developers assuming the cost and construction requirements for extension of the system to accommodate development. <u>Concurrency with the Consumptive Use Permits shall be maintained.</u> |

| Location within Draft Infrastructure Element Document | Previous Content | Amended Content |
|---|---|---|
| Goal 1, Objective 7 | Policy 7-12: The Town's 10-Year WSFWP – 2020 Update, prepared by Stantec Consulting Services, Inc., is adopted by reference into the Comprehensive Plan and shall be updated as needed or within 18 months of an update to the SFWMD RWSP. | Policy 7-12: The Town's <u>Water Supply Facility Work Plan 2025 Update Report</u> 10-Year Water Supply Facilities Work Plan – 2020 Update , prepared by Stantec Consulting Services <u>Carollo Engineers, Inc.</u> , is adopted by reference into the Comprehensive Plan and shall be updated as needed or within eighteen months of an update to the SFWMD RWSP. |
| Goal 1, Objective 7 | None | <u>Policy 7-XX: The Town shall identify and assess point and nonpoint pollution sources to protect water supply quality.</u> |
| Goal 1, Objective 7 | None | <u>Policy 7-XX: At where it is feasible, the Town shall adopt the demand management strategies described in Chapter 3 of the 2023-24 Lower East Coast Water Supply Plan Update that was developed by the South Florida Water Management District. The Town shall coordinate with the South Florida Water Management District for strategies to reduce per capita water use.</u> |
| Goal 1, Objective 8 | <p>Policy 8-4: The following WSFWP are adopted by reference into the Comprehensive Plan and shall be updated as needed or within 18 months of an update to the SFWMD RWSP.</p> <ul style="list-style-type: none"> ▪ BC WSFWP (2020 Work Plan), BC, prepared by BC. ▪ City of Fort Lauderdale 10-Year WSFWP (2019 Update), City of Fort Lauderdale, prepared by Hazen and Sawyer. ▪ City of Hollywood Water Supply Plan Potable Water Sub-Element (2020 Update), City of Hollywood, prepared by Hazen and Sawyer. ▪ City of Sunrise 2020 10-Year WSFWP, City of Sunrise, prepared by Stantec Consulting Services, Inc. ▪ Tindall Hammock Irrigation and Soil Conservation District 10-Year WSFWP Update (2019, THISCD), prepared by GAI Consultants, Inc. | <p>Policy 8-4: The following WSFWPs are adopted by reference into the Comprehensive Plan and shall be updated as needed or within 18 months of an update to the SFWMD RWSP.</p> <ul style="list-style-type: none"> ▪ BC WSFWP (2020 <u>2025</u> Work Plan), BC, prepared by BC/ ▪ City of Fort Lauderdale 10-Year WSFWP (2019 <u>2025</u> Update), City of Fort Lauderdale, prepared by Hazen and Sawyer. ▪ City of Hollywood Water Supply Plan <u>Potable Water Sub-Element Facilities Work Plan</u> (2020<u>2025</u> Update), City of Hollywood, prepared by Hazen and Sawyer <u>Carollo Engineers, Inc.</u> ▪ City of Sunrise 2020 10-Year WSFWP, City of Sunrise, prepared by Stantec Consulting Services, Inc. ▪ Tindall Hammock Irrigation and Soil Conservation District 10-Year WSFWP Update (2019, THISCD), prepared by GAI Consultants, Inc. |

| Location within Draft Infrastructure Element Document | Previous Content | Amended Content |
|---|--|--|
| Goal 1, Objective 10 | Policy 10-1: Develop and implement a water conservation education program to educate residents, businesses, and industries on the importance of water conservation. The program shall include such measures as pamphlets, web pages, and providing time and materials at Town Hall and at school and community events. | Policy 10-1: Develop and implement a water conservation education program to educate residents, businesses, and industries on the importance of water conservation. The program shall include such measures as pamphlets, web pages, and providing time and materials at Town Hall and at school and community events. <u>The Town shall coordinate and collaborate with the South Florida Water Management District when possible.</u> |
| Goal 1, Objective 10 | Policy 10-10: The Town shall encourage and promote the use of innovative and alternative technologies to augment water resources including; conventional water irrigation piping systems, constructed wetlands, ASR, groundwater recharge and indirect reuse systems. | Policy 10-10: The Town shall encourage and promote the use of innovative and alternative technologies to augment water resources including; conventional <u>advanced water irrigation piping systems technology,</u> constructed wetlands, ASR, groundwater recharge and indirect reuse systems. |
| Goal 1, Objective 10 | Policy 10-11: The Town shall apply for water Savings Incentive Program (SIP) funds to provide residents with opportunities for replacement appliances that support water conservation. | Policy 10-11: The Town shall <u>continue to participate in the Broward Water Partnership Conservation Program to promote and implement water conservation measures and inform residents of available County conservation incentives.</u> apply for <u>This program includes</u> water SIP funds to provide residents with opportunities for replacement appliances that support water conservation. |
| Goal 1, Objective 10 | Policy 10-13: The Town will adopt Florida-friendly landscape design requirement into the Land Development Code consistent with those developed by the SFWMD and IFAS. | Policy 10-13: The Town will adopt Florida-friendly landscape design requirement into the Land Development Code consistent with <u>the guidance in Section 373.185 of the Florida Statutes and those the principles</u> developed by the SFWMD and IFAS. |
| Goal 1, Objective 10 | None | <u>Policy 10-XX: The Town shall continue to support and enforce compliance with Ordinance Section 25-32(5) to mandate year-round landscape irrigation restrictions.</u> |
| Goal 1, Objective 10 | None | <u>Policy 10-XX: The Town shall pursue grants, loans, cost-share, and other funding opportunities from federal, state, and private sources that may be available for water conservation projects.</u> |
| Goal 1, Objective 10 | None | <u>Policy 10-XX: The Town shall continue to participate in Broward County's NatureScope program to perform irrigation system evaluations and provide efficiency advice to large water users.</u> |

| Location within Draft Infrastructure Element Document | Previous Content | Amended Content |
|---|------------------|--|
| Goal 1, Objective 10 | None | <u>Policy 10-XX: The Town shall evaluate whether mandated water conservation and reuse measures are appropriate.</u> |

Abbreviations: SIP – Savings Incentive Program; IFAS – Institute of Food and Agricultural Sciences

SECTION 9 SUMMARY AND CONCLUSION

Local governments are mandated by Florida Legislature to submit a WSFWP to ensure linkage between the RWSP and their individual comprehensive plans. The WSFWP is to address infrastructure and conservation requirements, needed capital improvements, and intergovernmental and water supplier coordination. It is required that the WSFWP be updated every 5 years, or within 18 months after the Governing Board adoption of an updated RWSP so that the local plan reflects the changes of the regional plan.

This WSFWP has been prepared for the Town of Davie. The purpose of this WSFWP is to assess the Town’s current water sources and existing facilities and evaluate their adequacy to meet the projected future raw and treated water demands. The WSFWP development will facilitate the required coordination efforts for water supply and land use planning between the Town’s Planning and Zoning Department and Department of Public Utilities, the SFWMD, BCWWS, and other water service providers within the Town's jurisdiction.

9.1 Davie Service Area

The Town of Davie, located in southeastern BC, spans roughly 35 square miles. The Town's provides water service to approximately one-third of its geographic area. Sunrise Utilities provides water to approximately two-thirds of the Town’s area while small sections of the town are served by BC, Hollywood, and Ferncrest Utilities as well. Table 9.1 shows the area each utility serves within the Town of Davie. The Town of Davie has no plans to provide raw or finished water to any retail or wholesale customer outside of its existing water service areas.

Table 9.1 Geographic Size of Water Utility Service Areas in Square Miles

| Water Utility Serving the Geographic Area | Area Within Town of Davie (square miles) | Total Served from Town's WTP by Water Service Area (square miles) |
|--|--|---|
| Davie Utilities (Town WTP) to Eastern Town of Davie Customers | 11.67 | 11.37 |
| Ferncrest Utilities (Town WTP) to Tindall Hammock Customers | 1.49 | 0.31 |
| BCWWS (Hollywood WTP) to BCWWS District 3A Customers | 0.17 | 0.00 |
| HLWD-DPU (Hollywood WTP) to Town of Davie Customers | 0.22 | 0.00 |
| Sunrise Utilities (Sunrise WTP) to Western Town of Davie Customers | 21.25 | 0.00 |
| Total | 34.80 | 11.68 |

Sourced from the Town of Davie Utilities Reference GIS shapefile.

9.2 Existing Potable Water Facilities

9.2.1 Raw Water Allocation

The Town of Davie obtains its raw water from the Biscayne and Floridan Aquifers. The Town’s WUP No. 06-000134-W allows for an annual average daily withdrawal of 5.02 mgd from the Biscayne Aquifer and 14.83 mgd from the Floridan Aquifer. The permitted annual and monthly withdrawal limits are shown in Table 9.2.

Table 9.2 GCUP Biscayne and Floridan Wellfield Maximum Withdrawal

| Aquifer | Equivalent Annual Average Day (mgd) | Maximum Monthly Allocation (mgm) |
|----------------------------|-------------------------------------|----------------------------------|
| Biscayne Aquifer Wellfield | 5.02 | 164.8 |
| Floridan Aquifer Wellfield | 14.83 | 487.2 |
| Total | 19.85 | 652.0 |

Source: Town of Davie Water Use Permit No. 06-00134-W.

9.2.2 Facilities

The Town's WTPs utilizes lime softening (LS) and RO treatment processes. System III WTP has a treatment capacity of 4 mgd and System V WTP has a treatment capacity of 8 mgd. The Town has 6.5 MG of total finished water storage capacity, across 3 GSTs. The water distribution system consists of approximately 165 miles of water main pipe, ranging from 2-inch to 24-inch diameter.

System III WTP was shut down in June 2021 and remained offline, water production was shifted to System V WTP. The Town would like to expand System V WTP’s capacity to replace the loss of the System III WTP and assume the processing of its allocation. To support this replacement, a transfer System III WTP’s raw water allocation to System V WTP will be required. This request will be addressed in a separate submittal in the near future. In addition, the treatment technology at System V WTP is capable of processing PFAS, which System III WTP is incapable of and is essential for satisfying PFAS limits.

9.3 Reuse Water System and Water Conservation Program

The reuse water system was developed to comply with state legislation aimed at eliminating the use of ocean outfalls for wastewater disposal and promotes the beneficial reuse of treated effluent. The Town's reuse water distribution system has a design capacity of 2.7 mgd. Recent expansion projects are extending the system to Broward College Central Campus, Bamford Park, and other locations. The estimated total reuse demand is 3.189 mgd, and the System IV WRF has a permitted treatment capacity of 3.5 mgd, which is adequate to meet projected needs.

The Town has made significant progress to comply with OOL, with 2.997 mgd of connected reuse capacity, exceeding the 1.1 mgd requirement. Further expansion is planned at Davie Golf Course and potential connections with NSU and Broward College. The town also passed an ordinance mandating all-year, 2-day-a-week landscape irrigation restrictions.

The Town of Davie is committed to water conservation, with the average water use decreased from 129 gpcd in 2013-2017 to 114 gpcd in 2018-2022. Various conservation efforts, such as implementing a reuse water system, plumbing fixture replacement programs, and public education, have contributed to this reduction. The Town actively promotes water conservation through public education, incentive programs, and collaboration with BC. The Town also supports and enforces compliance with ordinance mandating year-round landscape irrigation restrictions.

9.4 Data and Analysis

9.4.1 Population and Demand Projections

The population in the Town of Davie is expected to grow modestly throughout the forecast period. The projected population for the period 2025 through 2045 is summarized along with the water demand projection in Table 9.3. The projected demand from 2025 through 2045 is expected to stay within the treatment plant's firm capacity. The change in demands through 2045 compared to the WTPs firm capacity are shown in Figure 9.1.

Table 9.3 Total Forecasted Average Daily Demand from 2025 to 2045

| Year | Total Population | Demand Factor (gpcd) | Population-Dependent Demand (mgd) | Large User Demand (mgd) | Non-Revenue Water (mgd) | Total Average Annual Demand (mgd) |
|------|------------------|----------------------|-----------------------------------|-------------------------|-------------------------|-----------------------------------|
| 2025 | 35,153 | 94.8 | 3.33 | 0.30 | 0.09 | 3.72 |
| 2030 | 37,073 | 94.8 | 3.51 | 0.30 | 0.09 | 3.90 |
| 2035 | 42,289 | 94.8 | 4.01 | 0.30 | 0.09 | 4.40 |
| 2040 | 42,936 | 94.8 | 4.07 | 0.30 | 0.09 | 4.46 |
| 2045 | 43,843 | 94.8 | 4.15 | 0.30 | 0.09 | 4.54 |

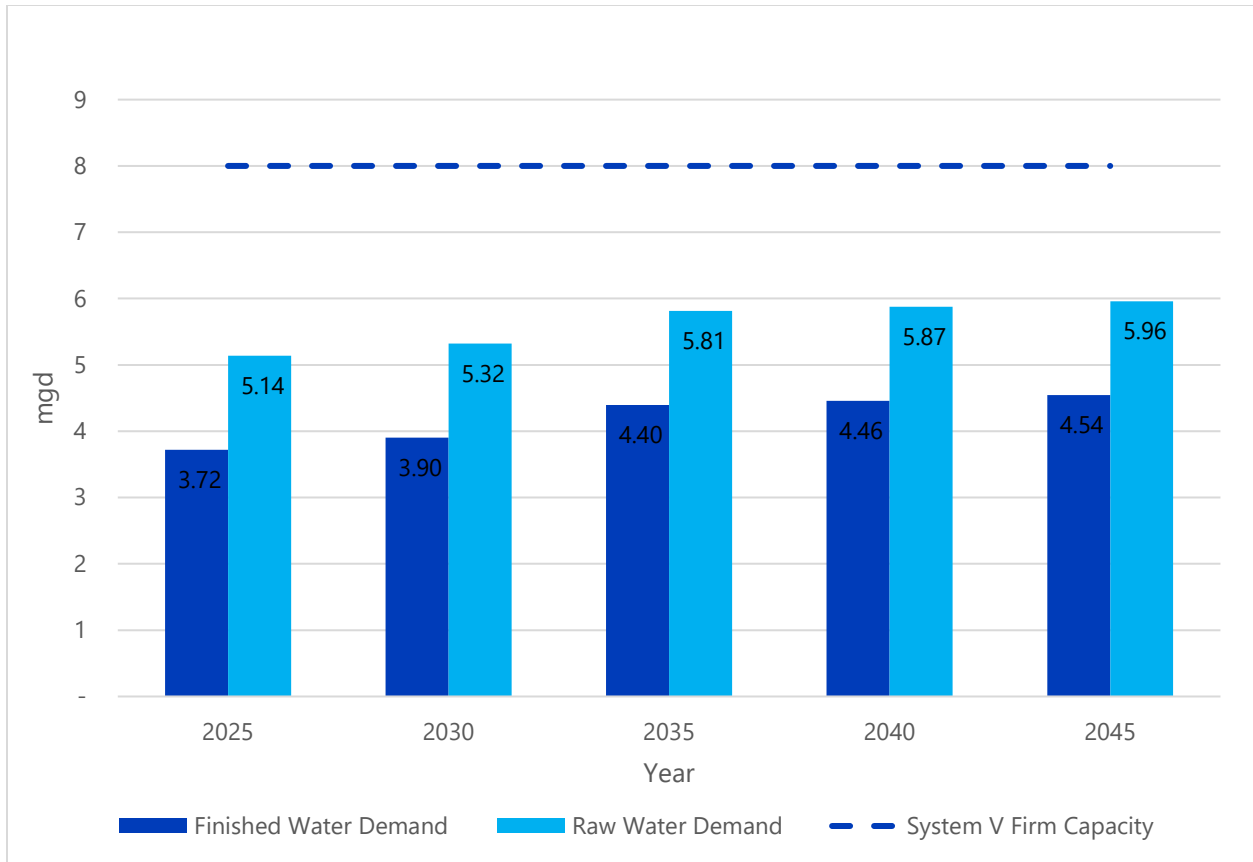


Figure 9.1 Comparison of Finished and Raw Water Demand Forecast to Treatment Capacity

9.5 Regional Issues and Intergovernmental Coordination Activities

The Town is aware of the regional issues that are impacting or have the potential to impact water supply, water demand, and utility infrastructure. Climate change, sea level rise, saltwater intrusion, extreme weather events, and infrastructure development are all monitored for impacts to the Town. The Town of Davie adopted the Climate Action Pledge affirming its support of the Compact and the RCAP including the 17 water supply recommendations made in 2022. Although Davie is inland, sea level rise affects it through higher groundwater tables and increased flood risk. The Town monitors saltwater intrusion, with some monitoring wells located east of the saltwater intrusion line. The Town also considers Lake Okeechobee surface water allocation limitations, infrastructure to attenuate peak flow events, and the use of brackish groundwater. It maintains and coordinates agreements with potable water providers and bulk water customers. The Town ensures adequate water supply by planning, projecting future demand, and maintaining open communication with involved municipalities.

9.6 Water Supply Capital Improvements

The Town's Water Supply Capital Improvements Program includes projects to rehabilitate or replace equipment approaching its useful life, address performance issues, and keep pace with population growth and increasingly stringent regulatory requirements.

9.7 Comprehensive Plan

The Comprehensive Plan is being updated with information that will support this updated WSFWP. Components included as part of the Comprehensive Plan update include the Capital Improvements and Infrastructures Elements. The GOPs for each component have been updated and identified to reflect the WSFWP. The full list of existing and proposed GOPs for each component are included as part of Appendices K and L.

9.8 Conclusions

The Town of Davie has sufficient existing water supply and treatment infrastructure to meet projected demands through 2045. The other utilities serving the Town of Davie also have sufficient supply and infrastructure to continue meeting projected demands through 2045. The WSFWP identifies capital improvements required to maintain the Town's water supply facilities and ensure reliable service to existing and new development within the Town's jurisdiction.

APPENDIX A

CITY OF SUNRISE 10-YEAR WATER SUPPLY FACILITIES WORK PLAN – 2020 UPDATE



10-Year Water Supply Facilities Work Plan –
2020 Update

January 16, 2020

**(May 04, 2020 - SFWMD Comments
Incorporated)**

Prepared for: City of Sunrise

Prepared by: Stantec Consulting Services, Inc.

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1.0 CHAPTER 1- INTRODUCTION

The State of Florida has enacted legislation to strengthen the linkage between growth and water availability based on specific demands identified in the water supply planning process. This Ten-Year Water Supply Facilities Work Plan (Work Plan) has been prepared for the City of Sunrise (City), located within Broward County (County). It has been prepared in response to the requirements for local governments to incorporate the Work Plan into the Comprehensive Plan. Local governments are required to revise the “Affected Elements” of their Comprehensive Plan within 18 months after the date their Regional Water Supply Plan is adopted along with a submittal for Comprehensive Plan Amendments for review by the appropriate reviewing agencies.

1.1 BACKGROUND

Beginning in 2002 and continuing through passage of the Community Planning Act in 2011 the State of Florida enacted legislation to address the State’s water supply needs. The Florida Legislature enacted bills during the 2002, 2004, 2005, 2011, 2012, 2015, and 2016 sessions to address the state’s water supply needs. These bills, particularly Senate Bills 360 and 444 (2005 legislative session) significantly changed Chapters 163 and 373 of the Florida Statutes (F.S.) by strengthening the statutory links between the regional water supply plans (RWSPs) prepared by the water management districts and the comprehensive plans prepared by local governments. In addition, these bills established the basis for improving coordination between Regional Water Supply Planning and local land use planning.

The Rule 9J-5, Minimum Criteria for Review of Local Government Comprehensive Plans and Plan Amendments, Evaluation and Appraisal Reports, Land Development Regulations and Determinations of Compliance, Florida Administrative Code (FAC) was repealed in 2011 as part of the changes to Chapter 163, F.S.

The 2018 Lower East Coast Water Supply Plan Update (2018 LECWSP Update) was prepared by the South Florida Water Management District (SFWMD) and approved by the District’s Governing Board on November 8, 2018. Therefore, local governments within the Lower East Coast Region are required to amend their comprehensive plans and include an updated Ten-Year Water Supply Facilities Work Plan and related planning elements by May 8, 2020.

As a result, local governments located within an area that has a Regional Water Supply Needs and Sources Plan, must prepare a Ten-Year Water Supply Facilities Work Plan (Work Plan) that ensures linkage between the Regional Water Supply Plan and their individual comprehensive plans. Each Work Plan is required to address infrastructure, conservation, capital improvements, and intergovernmental coordination in addition to water supplier coordination.

Please see **Appendix A**; Growth Policy; County and Municipal Planning; Land Development Regulation, Chapter 163, F.S. Related to Water Supply Planning, provides a summary of regulatory requirements that impact local governments and their water supply planning efforts.



The 2018 LECWSP Update identifies regional water supply issues that continue to influence the water supply planning efforts, the regional water supply planning issues that impact the City of Sunrise along with City's efforts to address these issues are listed below:

- Climate change – The City of Sunrise along with its municipal neighbors understands the need for water utilities and local governments to begin to formalize a coordinated approach to integrate water supply and climate change considerations and work to provide relevant updates to Ten-Year Water Supply Facilities Work Plan and enhance Goals, Objective and Policies (GOPs) of its comprehensive plan.
- Regional Water Availability (RWA) Rule February 6, 2007 – The RWA limits the water withdrawals from Biscayne Aquifer to the maximum quantity during five consecutive years preceding April 2006. Subsequently, the City's Water Use Permit limited the City's Biscayne Aquifer withdrawal to 29.09 MGD on an annual average day basis. Demands in excess of this amount would need to be met by conservation and alternative water supplies.
- Construction of additional storage systems – The C-51 Reservoir project is intending to capture stormwater in wet season and release it during the dry season to recharge the Biscayne Aquifer. The City of Sunrise is one of the participating utilities that has executed agreement with Palm Beach Aggregates (PBA) who owns and operates the construction of the C-51 Reservoir project. Additionally, the City of Sunrise has constructed two Floridan wells and are into permitting phase to be able to re-purpose these wells as Aquifer Storage and Recovery (ASR) wells.
- Expanded use of reclaimed water to meet future water supply demands - In 2011 and 2012, the City performed a feasibility assessment in terms of offsetting non-potable groundwater withdrawals to increase the availability of the Biscayne Aquifer for potable water supply purposes. The City completed 0.99 MGD of reuse facility at Southwest WRF in 2010. The Construction of the first phase of the 4 MGD Reuse facility at the Sawgrass WWTP was completed in 2019.
- Planning and wellfield management to prevent undesirable changes in Floridan Aquifer water - According to the 2018 LECWSP Update, public water supply utilities in the LEC Planning Area are proposing substantial increases in FAS development over the planning horizon. Increased utilization of the FAS will tend to increase the risk of water quality degradation. The City has recognized the risks of changes in water quality and quantity in FAS since construction of Floridan well at Melaleuca site. The City's WUP has allocation at Park City but considering close proximity to the Town of Davie's Floridan wells, the City proactively shifted the two Floridan wells and constructed these wells at the Sawgrass Corporate Parkway. Additionally, the City has plans to convert these wells to ASR wells if feasible.

The City of Sunrise has adopted policies in its comprehensive plan to promote greater water conservation, including discouragement of the use of potable water for irrigation, continuous monitoring of water use within limiting conditions of the consumptive use permit, adopting a level of service consistent with the SFWMD's LEC Water Supply Plan, collaborative projects with neighboring utilities for sharing strained water natural resources, and discouraging excessive water used for construction purposes. The City has replaced many of its plant and system meters to improve water accounting. The City continues to participate in collaborative programs and partnerships with the SFWMD, Broward County and other local utilities for ensuring best management of the regional water supplies, such as service on the C-51 Reservoir Working Groups, the Broward County Conservation Pays program, Broward County's



Naturescape Irrigation Service program, the Southeast Florida Utilities Council, and the National Water Reuse Association and participates in the Broward County Water Matters Day, the City's Earth Day, the Climate Change Summits and other conservation events.

1.2 PURPOSE

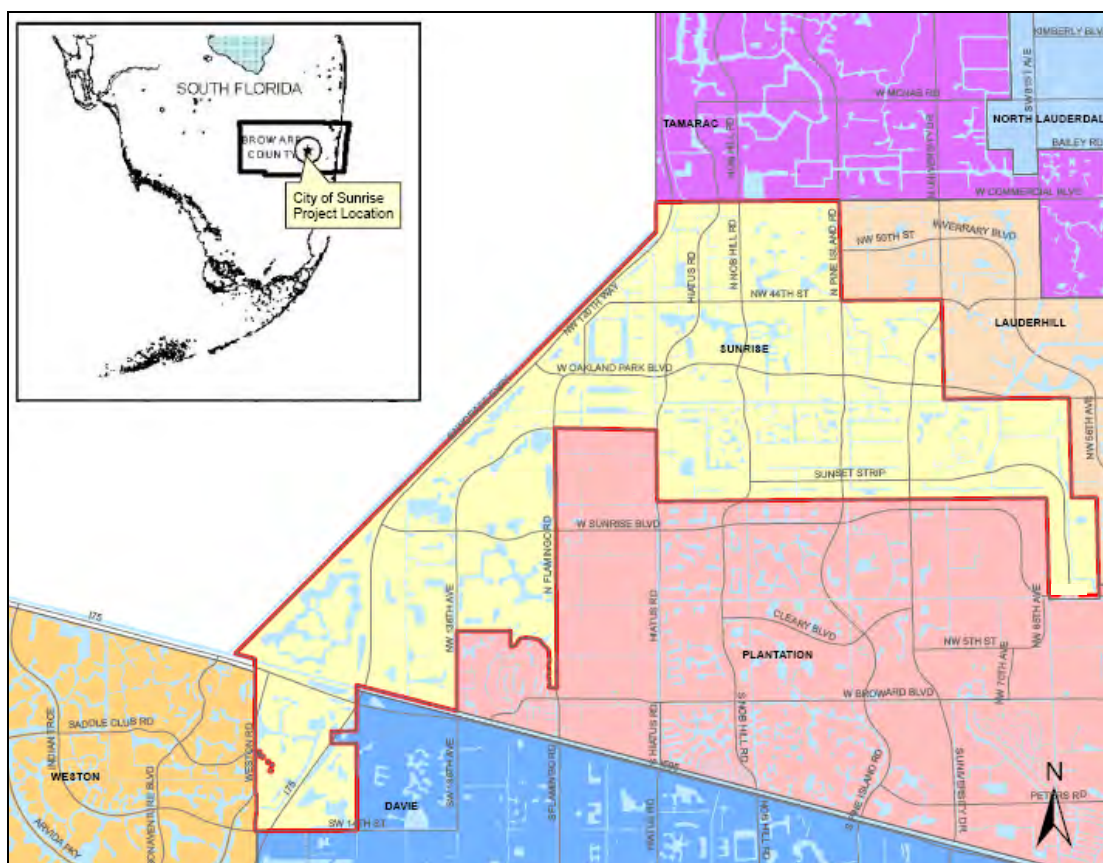
The purpose of this Work Plan is to assess the City's current water sources and associated facilities and evaluate their adequacy to meet the projected raw and treated water demands and to develop and adopt a Comprehensive Plan amendment that must include updates to the Work Plan [as outlined in Section 163.3177(6)(c)3., F.S.], and be consistent with the water resource and water supply development projects listed in the 2018 LECWSP Update. The Work Plan must also cover at least a 10-year planning period and identify alternative and traditional water supply development as well as conservation and reuse projects needed to meet the City's projected future demands. The Work Plan will outline alternative water supply sources required to meet projected shortfalls and will present an implementation plan that will guide the City's efforts to develop and maintain sustainable water sources for its overall service area. The work plan will identify the major capital improvements needed for alternative water supply needs and will be incorporated into the City's five-year Capital Improvements Plan (CIP). Development of this Work Plan required coordination between the City's Community Development Department and Utility Department, the South Florida Water Management District (SFWMD), and each of the water receiving local governments in the City's service area (City of Sunrise, Town of Davie, City of Weston, and Town of Southwest Ranches). As required, it is anticipated that this Work Plan will be updated every five years, or within 18 months of a revision to the LECWSP Update.



2.0 CHAPTER 2- WATER SERVICE AREA

2.1 INTRODUCTION

The City of Sunrise, which is located in western Broward County, was incorporated in 1961. As development grew in the area, private water systems located inside and outside the City Limits were acquired and assembled to become part of the regional water service area. Over time, the water service area expanded to encompass an area of more than 67 square miles. The City’s municipal boundary map is shown in **Figure 2-1**.



(Source: City of Sunrise, 2014 WSFWP)

Figure 2-1. City of Sunrise Location Map

2.2 WATER SERVICE AREA

The Utility provides water service to approximately 227,700 people, and as described below, serves jurisdictions outside of the City of Sunrise municipal boundary. The City’s Utility service area is bounded



by Plantation and Lauderhill utility service areas to the east and south, the Tamarac service area to the north and the Davie, Cooper City and Pembroke Pines service areas to the south. The western boundary of the service area adjoins the South Florida Water Management District (SFWMD) Water Conservation Areas 2B and 3A. The extent of the existing utility service area is shown in **Figure 2-2**. The City of Sunrise municipal limits does not have any areas that are on domestic self-supply system.

2.3 SERVICE WITHIN OTHER LOCAL GOVERNMENT JURISDICTIONS

The City of Sunrise's Utility currently is the sole water service purveyor for the Cities of Weston and Sunrise. It also serves approximately 40 percent of the area encompassed by the Town of Southwest Ranches, roughly 60 percent of the area of Town of Davie and four individual homes in unincorporated Broward County, as listed in **Appendix G**.

The City is responsible for planning, financing, constructing, operating and maintaining the water utilities and public water supply systems that serve the areas shown within **Figure 2-2** and will continue to have total responsibility over the withdrawal, treatment and distribution of potable water within this area. Currently, a portion of the Southwest Ranches area uses private wells and septic systems. This area could potentially become part of the City's future retail service area. **Figure 2-3** shows the potential Future Service Area.

2.4 PRIVATE SUPPLIERS

Non-municipal water service providers are required to have Water Use Irrigation Permits, Major General Water Use Irrigation Permits, Individual Permits, or Major Water Use Permits issued by SFWMD. Permits are issued to allow users to withdraw a specified amount of water, either from the ground, canals, lakes or rivers. This water is typically used to irrigate golf courses, crops, nurseries, residential landscaping or for industrial uses.

Individual users withdrawing Biscayne Aquifer water within the City are identified in **Figure 2-4**. The City of Sunrise Utility does not have any involvement in the planning, financing, construction or operation of the facilities of SFWMD permittees or self-supplied users except for the City owned golf course (The Bridges at Springtree Golf Course) and municipal green space. The City of Sunrise's water utility is responsible for obtaining the City's Bridges at Springtree Golf Course water use permit which withdraws water from two onsite canals.

Appendix B includes an inventory list of potable and non-potable water service providers in addition to self-supplied individuals that are mapped in **Figure 2-4**.

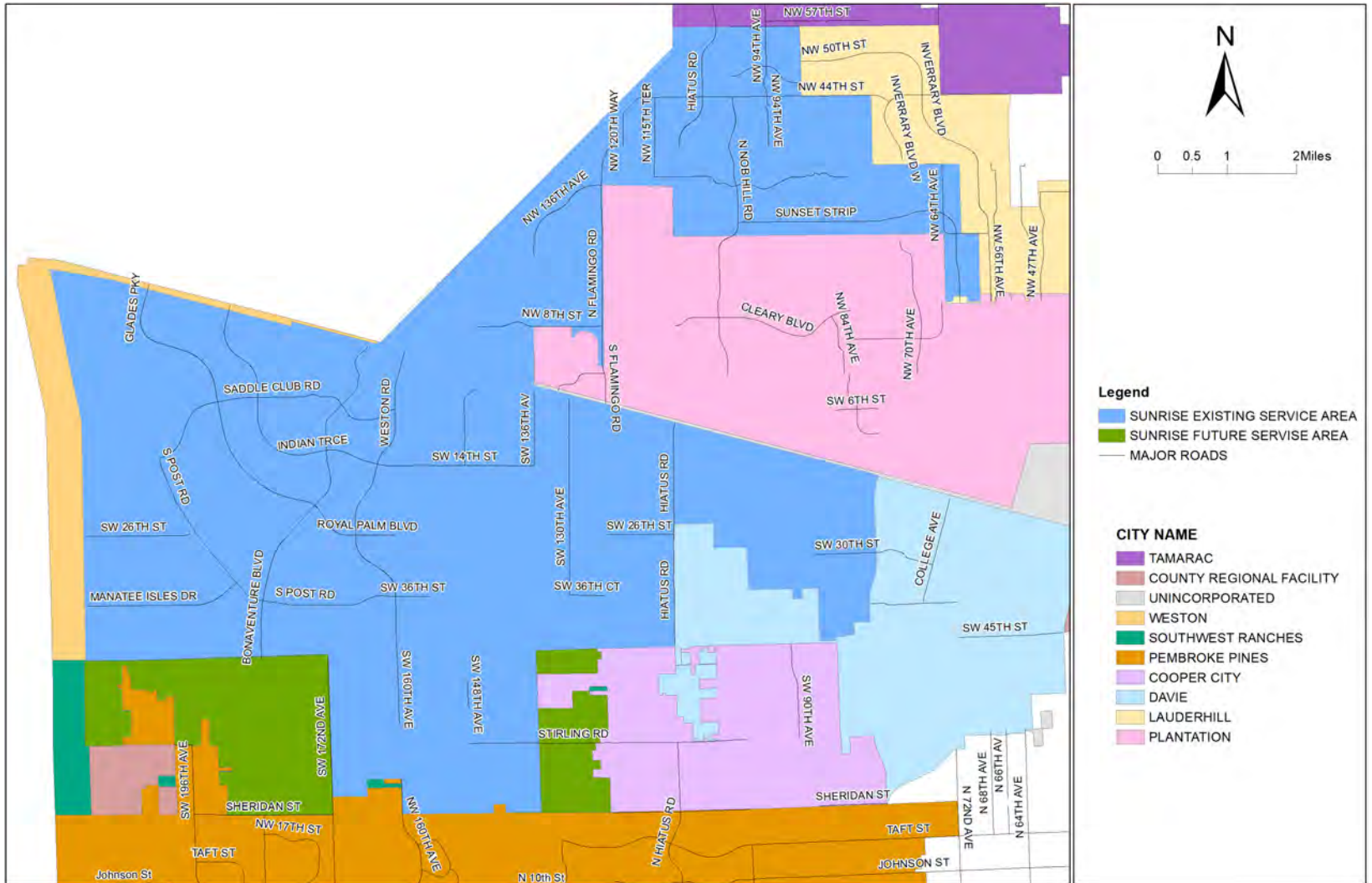
The City of Sunrise and City of Weston municipal limits does not have any areas that are on domestic self-supply system. There are five individual users in Town of Davie and three individual users in Town of Southwest Ranches that are within the existing service area and are on domestic self-supply system.



Additionally, there are eleven individual users in Town of Southwest Ranches that are considered to be in the future service area which are on domestic self-supply system.

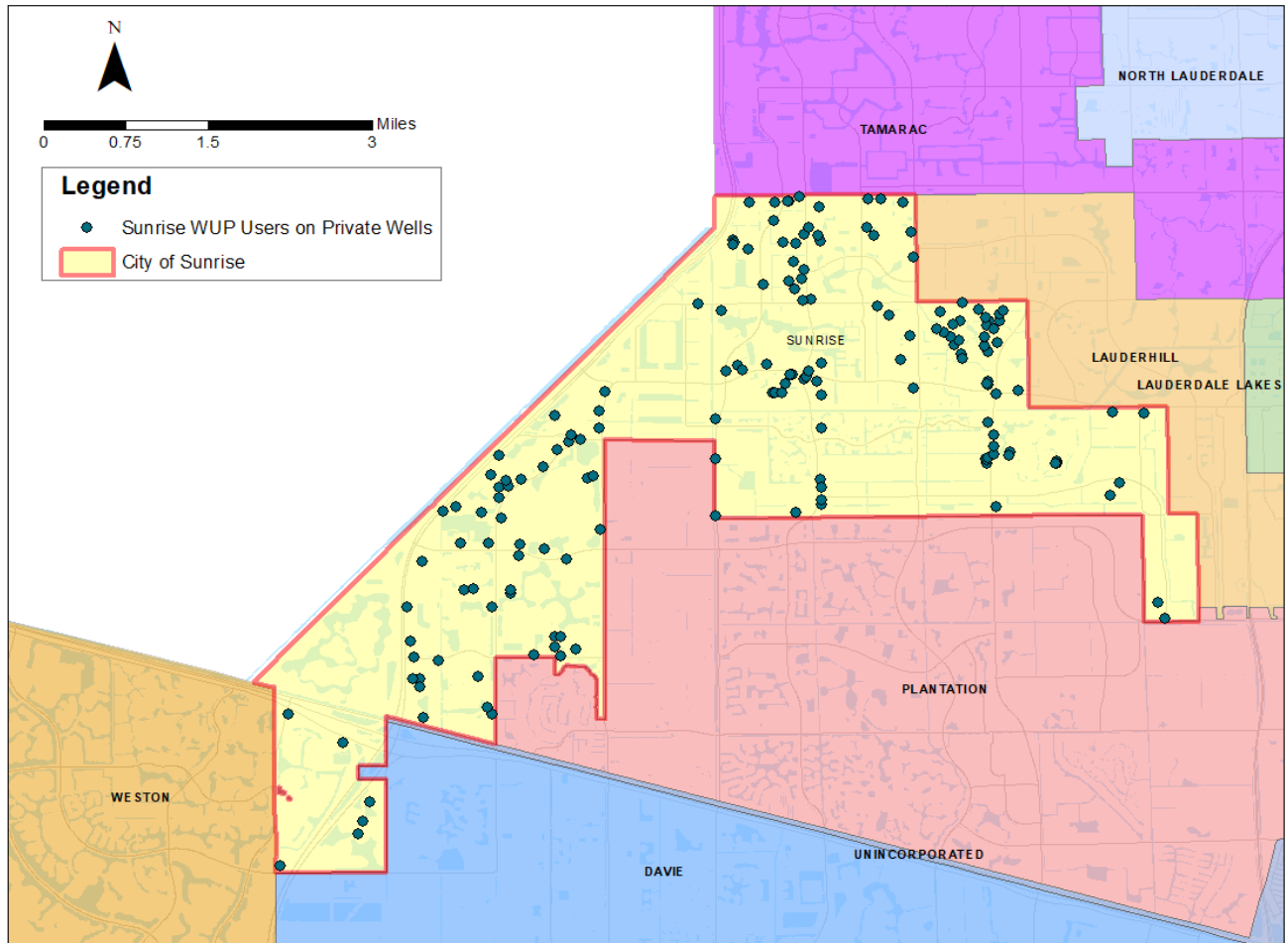
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(Source: City of Sunrise, 2014 WSWFP)

Figure 2-3. Potential Future Service Area



(Source: City of Sunrise, 2014 WSFWP)

Figure 2-4. Potable and Non-Potable Users within City of Sunrise

3.0 CHAPTER 3 – EXISTING WATER SUPPLY, TREATMENT, STORAGE AND TRANSMISSION, AND DISTRIBUTION FACILITIES

3.1 INTRODUCTION

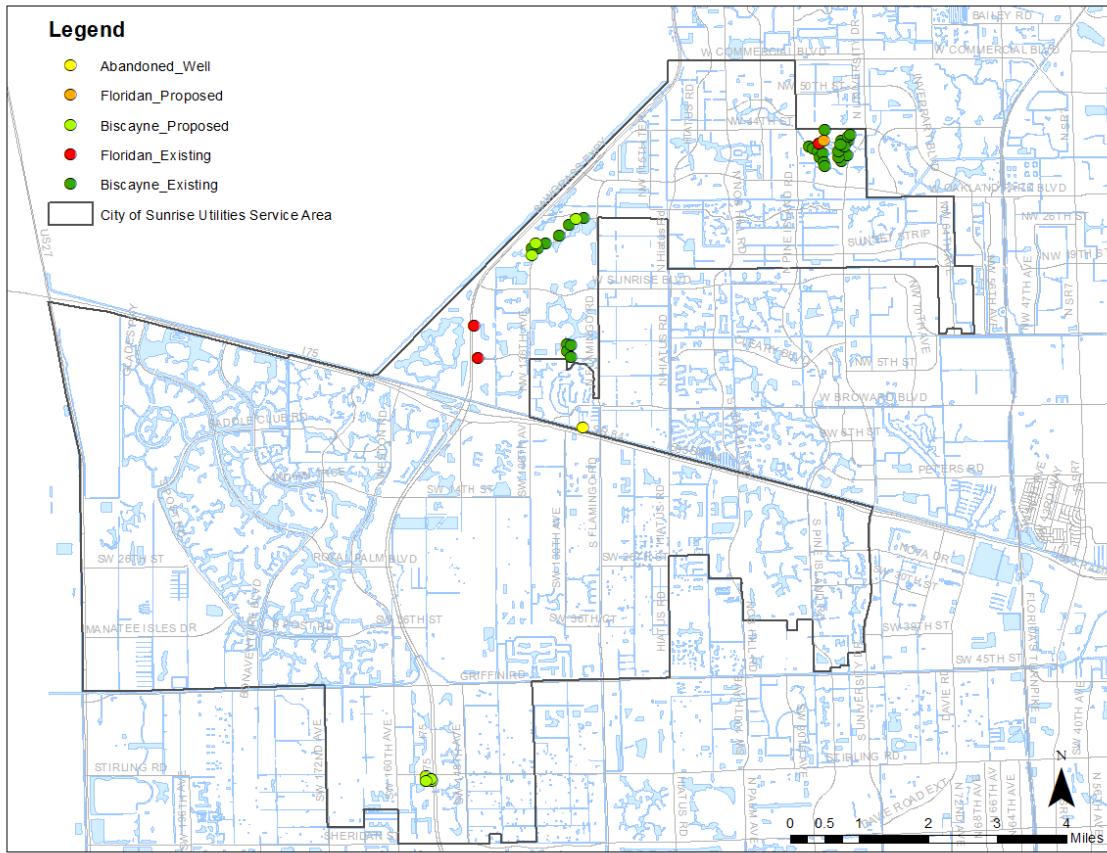
This section will provide an overview of the City’s water supply system, water treatment facilities, and transmission and distribution system.

The City of Sunrise water supply system includes four active wellfields, three water treatment plants, one active remote storage and re-pump facility, and one active Floridan Reverse Osmosis (RO) water treatment process with Floridan supply well (formerly known as Aquifer Storage and Recovery (ASR) well). The Utility’s water transmission and distribution system includes approximately 750 miles of water mains ranging in size from 8 to 48 inches in diameter. The City currently has emergency interconnections with the City of Lauderhill, the Town of Davie, the City of Plantation, the City of Pembroke Pines and Cooper City.

3.2 WATER SUPPLY FACILITIES

The City of Sunrise Utilities water supply system withdraws from the Biscayne and Floridan Aquifers. The Biscayne Aquifer facilities have a constructed capacity of 60 MGD with a permitted water use allocation of 29.09 MGD and the Floridan Aquifer facilities have a capacity of 2 MGD with a permitted water use allocation of 10.98 MGD. The City currently operates the following four wellfields: Springtree, Sawgrass (Arena), Sawgrass (Flamingo Park), and Southwest. Melaleuca and Park City wellfields have been decommissioned. The Biscayne and Floridan well field locations are shown in **Figure 3-1**. The Sawgrass and Springtree facilities and wellfields each supply about 97 percent of the entire system demand, while the remaining 3 percent is provided by the Southwest facility. **Table 3-1** presents the capacity of the Biscayne wellfields and **Table 3-2** presents the capacity of the Floridan wellfields that supply each facility. City of Sunrise well description is provided in **Appendix F**.





(Source: City of Sunrise, 2014 WSFWP; SFWMD Geospatial Open Data Website, 2019)

Figure 3-1. Biscayne and Floridan Wellfield Locations

Table 3-1. Biscayne Wellfield Capacity

| Wellfield Location | WP Served | Total Installed Capacity (MGD) | Total Installed Firm Capacity (MGD) |
|--------------------|------------|--------------------------------|-------------------------------------|
| Springtree | Springtree | 24 | 22 |
| Sawgrass (Arena) | Sawgrass | 18 | 15 |
| Flamingo Park | Sawgrass | 15 | 11 |
| Southwest | Southwest | 3 | 2 |
| TOTAL | | 60 | 50 |

(Source: City of Sunrise, 2019)



Table 3-2. Floridan Wellfield Capacity

| Wellfield Location | WTP Served | Total* Installed Capacity (MGD) | Total Installed Firm Capacity (MGD) |
|--------------------|------------|---------------------------------|-------------------------------------|
| Springtree | Springtree | 2 | 0 |
| Sawgrass | Sawgrass | 6 | 3 |
| Melaleuca | Sawgrass | 3 | 0 |
| TOTAL | | 11 | 3 |

*Melaleuca is currently not in service.
 (Source: City of Sunrise, 2019)

3.2.1 Springtree Wellfield

3.2.1.1 Biscayne Aquifer Wells

The Springtree wellfield is located at 8350 Springtree Drive on the City's Bridges at Springtree Golf Course. The wellfield consists of a total of 25 Biscayne production wells with 18 wells in operation and 7 wells that have been abandoned. This Biscayne Aquifer wellfield has a total installed pump capacity of 24 MGD.

3.2.1.2 Floridan Aquifer Wells

The Springtree wellfield also consists of one Floridan/ASR well with a total raw water capacity of 2.0 MGD. This well supplies raw water to the Springtree Reverse Osmosis (RO) Water Treatment Plant (WTP).

3.2.2 Sawgrass Arena Wellfield

3.2.2.1 Biscayne Aquifer Wells

The Sawgrass wellfield is located adjacent to the BB&T Center at One Panther Parkway in Sunrise, west of NW 136th Avenue and east of the Sawgrass Expressway (State Road 869). This wellfield was constructed in 1998 and is comprised of six Biscayne wells with a total pump capacity of 18 MGD. This wellfield supplies raw water to the Sawgrass WTP.

3.2.2.2 Floridan Aquifer Wells

Two additional Floridan wells were constructed in 2013 in the Sawgrass Corporate Park. These wells are located west of International Parkway and east of Sawgrass Expressway (State Road 869). One well is located in the median of NW 8th Street while the other is located adjacent to 1340 Concord Terrace, Sunrise and south of Sunrise Boulevard. The City is in process of installing raw water mains from the wells to the treatment plant. The wells are planned to be equipped with wellheads.



3.2.3 Sawgrass Flamingo Park Wellfield

The Sawgrass Flamingo Park wellfield is located at 12855 NW 8th Street, Sunrise. The wellfield consists of four existing wells with a total raw water capacity of 15 MGD. These wells add flow to the Sawgrass WTP.

3.2.4 Sawgrass Melaleuca Wellfield

The Melaleuca wellfield is located at 12630 SW 2nd Street, Plantation. The Melaleuca wellfield has been abandoned for 19 years. There is also a Floridan aquifer well at this site that is not in use and is currently not equipped.

3.2.5 Park City Wellfield

3.2.5.1 Biscayne Aquifer Wells

The Park City wellfield was located at SW 21st Street and Pine Island Road and was abandoned in 2012. This site consisted of seven (7) Biscayne Aquifer wells. The wellfield served the Park City Water Treatment Plant until 2002. The water treatment plant site was demolished in 2012.

3.2.5.2 Floridan Aquifer Wells

Park City wellfield has Floridan allocation of 4.09 MGD. No Floridan well currently exists at this site.

3.2.6 Southwest Wellfield

The Southwest wellfield is located at 15400 Watermill Road in Davie, south of Stirling Road, west of Interstate I-75 on the South West Water Treatment Plant site. The wellfield consists of three Biscayne Aquifer wells with a total raw water capacity of 3 MGD.

3.2.7 Consumptive Use Permit Conditions

The SFWMD regulates the volume of water that can be withdrawn from surface and groundwater through the use of a Consumptive Use Permit (CUP) pursuant to Part II of Chapter 373 of the Florida Statutes. The last CUP issued to the City by the SFWMD was in May 2008. The City is closely working with the SFWMD on alternative water supply projects in conjunction with the renewal of the permit. The last Permit No 06-00120-W included the Springtree, Sawgrass (Arena), Southwest, and Flamingo Park wellfields and allows a combined average withdrawal of 29.09 MGD from the four wellfields and a maximum month withdrawal allocation of 999.30 Million Gallons per Month (MGM). In addition to a system-wide maximum day allocation, the CUP also identifies a maximum day withdrawal for each wellfield as described in **Table 3-3**.



Table 3-3. CUP Biscayne and Floridan Wellfield Maximum Withdrawal

| Wellfield Locations | Equivalent Annual Average Day (MGD) | Maximum Monthly Allocation (MGM) |
|-------------------------------|-------------------------------------|----------------------------------|
| Biscayne Wellfields | | |
| Sawgrass Arena (only) | 6.00 | 206.10 |
| Sawgrass Flamingo Park (only) | 11.31 | 388.50 |
| Springtree | 10.70 | 367.60 |
| Park City (decommissioned) | - | |
| Southwest Facilities | 1.08 | 37.10 |
| Total | 29.09 | 999.30 |
| Floridan Wellfields | | |
| Sawgrass RO | 4.39 | 150.8 |
| Springtree RO | 2.50 | 85.9 |
| Park City RO | 4.09 | 140.5 |
| Total | 10.98 | 377.20 |

*Limited to minimize an adjacent wetland impact
 (Source: City of Sunrise Consumptive Use Permit No. 06-00120-W)

3.3 WATER TREATMENT FACILITIES

The City of Sunrise currently operates three water treatment plants (WTPs) with a total permitted design treatment capacity of 51.5 MGD. The Springtree, Sawgrass, and the Southwest Utilities WTPs are currently active, while the Park City WTP has been put out of service in 2003 and later demolished in 2012. **Figure 3-2** shows the location of the active WTPs. **Table 3-4** includes the treatment facilities design capacity, treatment facilities permitted capacity and system wide average day treated water supply in 2018, from each active facility.

3.3.1 Springtree Water Treatment Plant

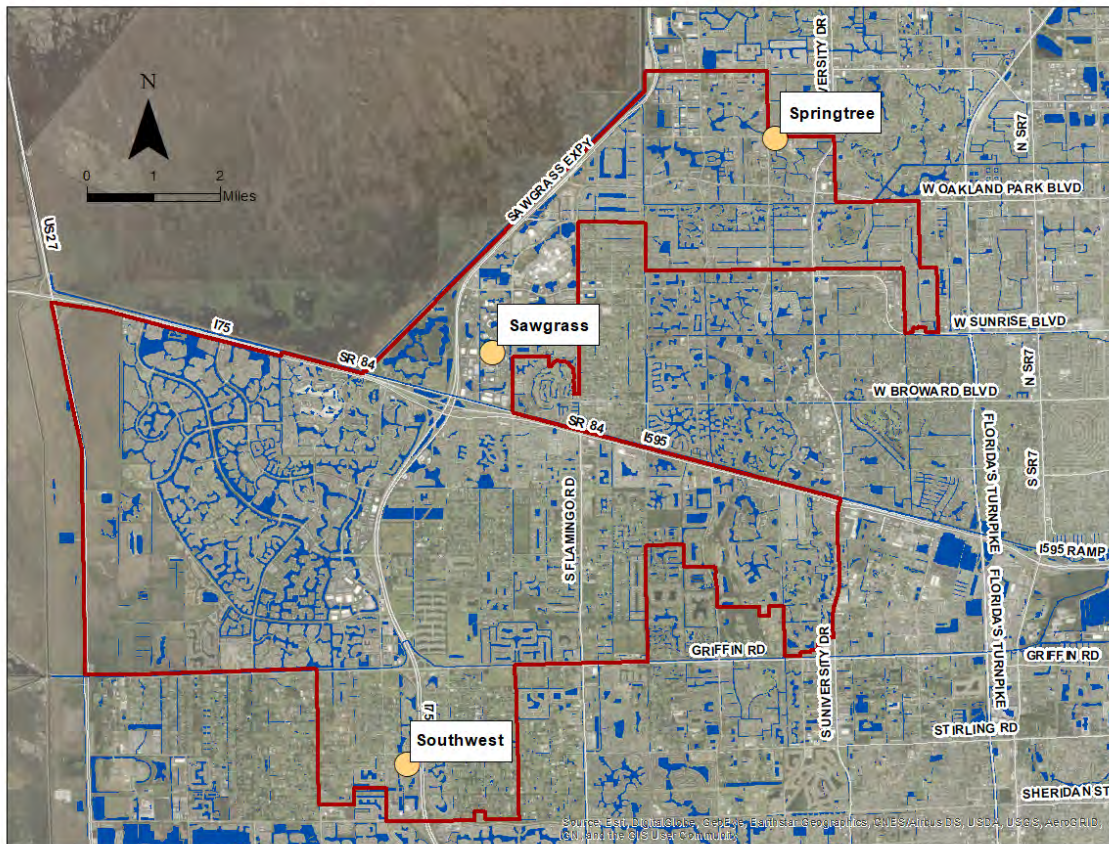
The Springtree WTP is located on a 20.6-acre site at 4350 Springtree Drive in Sunrise, located south of NW 44th Street and east of Springtree Drive. The water treatment facility includes a conventional lime-softening treatment facility and a reverse osmosis process. This facility has a total design and permitted treatment capacity of 25.5 MGD. Lime sludge residuals from the softening process are pumped to a lime sludge recovery process where a percentage of water is recycled back to the lime softening units, conserving additional water.

3.3.2 Sawgrass Water Treatment Plant

The Sawgrass WTP, located at 14150 NW 8th street in Sunrise, within the Sawgrass Corporate Park, was constructed in 2000 and expanded in 2003. The plant uses nanofiltration membranes as the primary treatment process with post treatment degasification and disinfection. The plant has been re-rated to a permitted treatment capacity of 24 MGD equaling its hydraulic capacity.



The concentrate produced from the membrane softening process is pumped to an industrial injection well, located on site.



(Source: City of Sunrise, 2019)

Figure 3-2. Water Treatment Plants Locations

Table 3-4. Water Treatment Facility Capacity

| | Springtree WTP (MGD) | Sawgrass WTP (MGD) | Southwest WTP (MGD) | System Total (MGD) |
|---------------------------------------|----------------------|--------------------|---------------------|--------------------|
| Biscayne Treatment Permitted Capacity | 24.0 | 24.0 | 2.0 | 50.0 |
| Floridan Treatment Permitted Capacity | 1.5 | - | - | 1.50 |
| Treatment Capacity (Permitted) MGD | 25.5 | 24.0 | 2.0 | 51.5 |
| Ave Day Treated Water Supplied MGD | 11.8 | 14.19 | 1.04 | 27.03 |

(Source: City of Sunrise, 2019)



3.3.3 Southwest Water Treatment Plant

The Southwest WTP was built in 1997 and is located at 15400 Watermill Road in Davie, and near the intersection of Interstate 75 and Stirling Road. The water treatment facility is a conventional lime-softening treatment plant with a treatment capacity of approximately 2 MGD. The residual handling systems for this facility consist of one wash water recovery basin (Sav-All Tank) and two sludge lagoons.

3.4 WATER STORAGE FACILITIES

The three water treatment plants each have two ground water storage tanks designed to buffer the water production process from the water distribution system. In addition to the water treatment plant storage, the City maintains one offsite storage facility. This offsite facility is comprised of ground storage tank, re-chlorination system and high service pump that assist with meeting peak hourly flow and fire flow requirements. **Table 3-5** lists the storage capacity at each location and **Figure 3-3** shows the location of the storage tanks.

Table 3-5. Storage Capacity

| Facility | Capacity (MGD) |
|-----------------------|----------------|
| Sawgrass | 10.0 |
| Springtree | 9.0 |
| South West Utilities | 1.5 |
| Weston (Indian Trace) | 2.0 |
| Melaleuca* | 0.0 |
| Bonaventure* | 0.0 |
| Total | 22.5 |

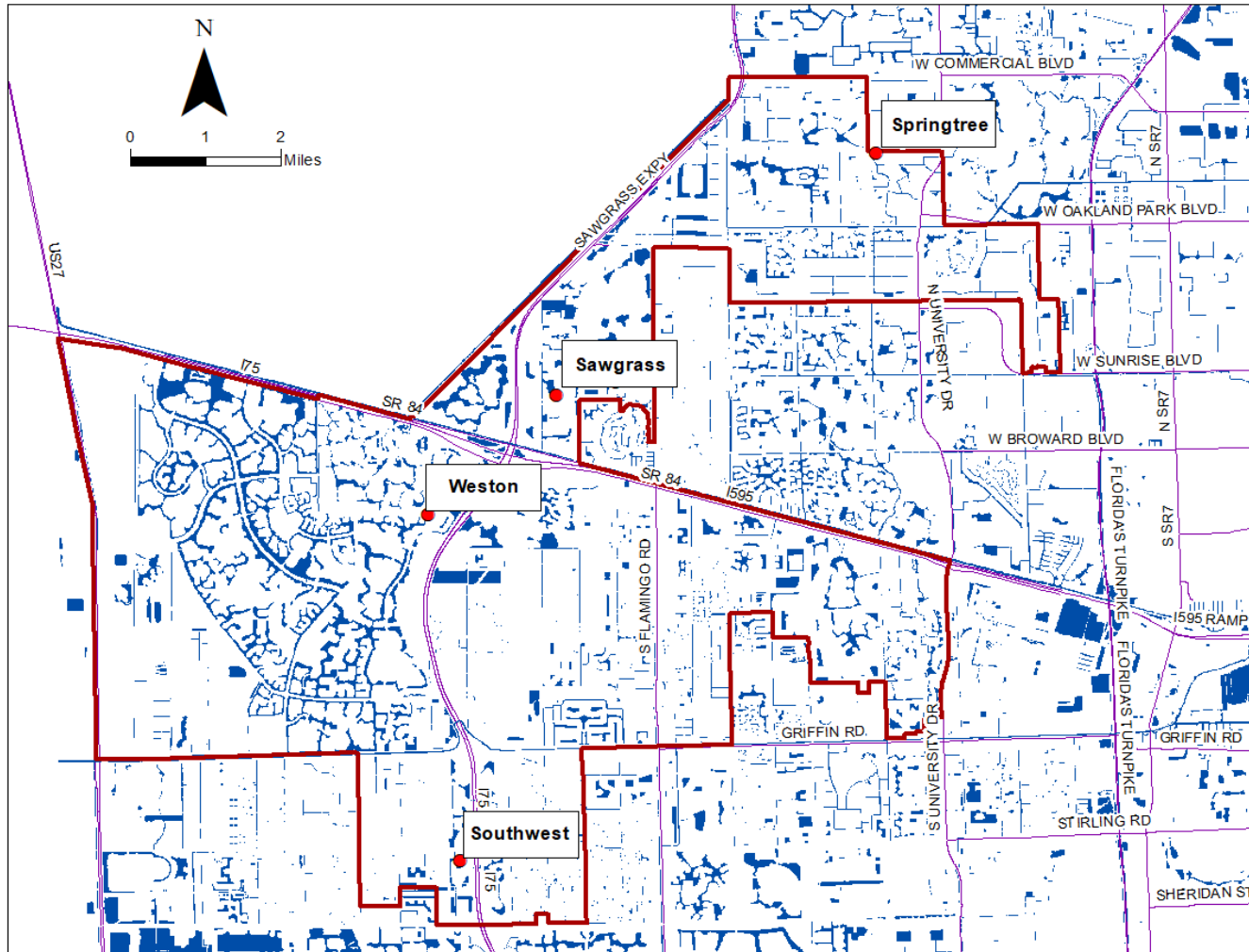
*Out of Service
(Source: City of Sunrise, 2019)

3.5 WATER TRANSMISSION AND DISTRIBUTION SYSTEM

A transmission network of 30- and 24-inch mains runs from the Springtree high service pumps located in the northern part of the City, and south to the Sawgrass WTP facility. The transmission network then branches east and west along I-75 and I-595. No lines larger than 24 inches extend south of the Weston (Indian Trace) storage re-pump facility. The area south of Weston (Indian Trace) is served by mains 16 inches and smaller. **Figure 3-4** illustrates the location of transmission mains.

The City maintains water supply system interconnections for emergency with the City of Lauderdale, City of Plantation, Town of Davie, City of Pembroke Pines and Cooper City. **Appendix C** includes the details of the system interconnections.

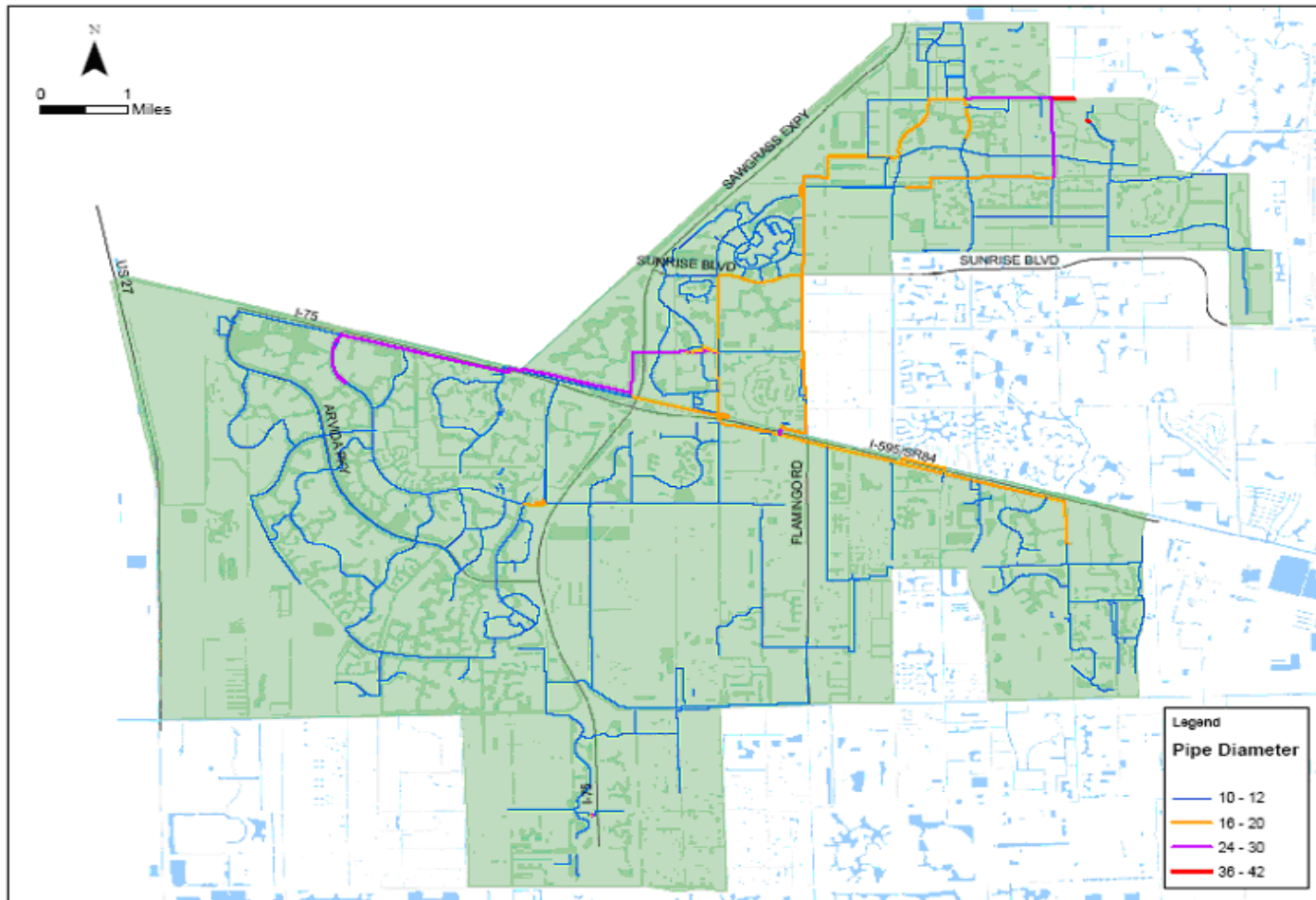




(Source: City of Sunrise, 2019)

Figure 3-3. Storage Locations





(Source: City of Sunrise, 2019)

Figure 3-4. Transmission System (Source: City of Sunrise, 2019)



4.0 CHAPTER 4 – POPULATION DATA AND ANALYSIS

4.1 INTRODUCTION

This section evaluates historic and future population projections within the City of Sunrise's regional utility Service Area. The development of these population projections is based upon collaborative efforts between the City of Sunrise, the City of Weston, the Town of Davie and the Town of Southwest Ranches. The population projections have been rounded to the nearest hundred.

4.2 HISTORIC POPULATION DATA

Population within the City of Sunrise Utilities water service area has increased by 7.7% in the last decade. Between 2010 and 2018 growth was experienced in western communities in Broward County such as the City of Weston, the Town of Davie, and the City of Sunrise. **Table 4-1** presents the estimated historical population within the Utility service area.

Table 4-1. City of Sunrise Service Area Historic Population

| Year | Population |
|------|------------|
| 2010 | 211,400 |
| 2011 | 213,600 |
| 2012 | 215,800 |
| 2013 | 217,900 |
| 2014 | 220,100 |
| 2015 | 223,300 |
| 2016 | 224,100 |
| 2017 | 225,900 |
| 2018 | 227,700 |

Note: ¹ Historic population data is estimated by an interpolation using LEC WSP 2013 for year 2010 and PFAM 2017 data for year 2020 obtained from Broward County Planning and Development Management Division

4.3 EXISTING AND FUTURE POPULATION DATA

Population projections developed by Broward County are used here. The County predicts population growth with the Broward County Population Forecasting and Allocation Model (BCPFAM) which, in this application, uses the 2016 Bureau of Economics and Business Research (BEBR) data as a base and projects future population at 5-year intervals by applying the Cohort-Survival Methodology. Population projections are further refined based on the City and County review.

The Broward County Population Forecasting Model methodology projects population by assuming that future population is equal to present population plus births, minus deaths, and takes into account net migration. This assumption is applied to various segments of the population based on age, gender, race and ethnicity. Domestic migration rates are obtained from the United States Department of the Treasury's Internal Revenue Service (IRS) and the United States Immigration and Naturalization Service (INS) records and both are used to estimate



international migration. The model methodology has been approved by the State of Florida Department of Community Affairs.

Broward County allocates the population forecast model results into the County's Traffic Analysis Zones (TAZ). TAZ areas provide a small geographic area that allows for allocation flexibility in addition to being the accepted method for transportation and water supply planning. Unlike municipal boundaries, TAZ boundaries are usually bounded by a major roadway or natural features and are relatively consistent in size. Population projections are further allocated by municipality based on the results gathered from the BCPFM and the review of roundtable panel discussions with the City and County officials.

4.4 POPULATION PROJECTIONS

This Water Supply Facility Work Plan uses the Broward County Traffic Analysis Zone (TAZ) model results dated from June 2017 as the basis for its population projections. The existing and future water service area boundaries were juxtaposed with the TAZ areas and the population was calculated based on the intersecting area. In addition, linear interpolation was applied to project intermediate year populations that were not included in the TAZ projections. A review was conducted to identify, assess and incorporate any pending or anticipated zoning and land use changes, as well as significant development projects that could result in additional population and additional water supply demand.

Meetings were held with the Planning Departments of the local governments serviced by the City of Sunrise Water Utility. Following is the summary of intergovernmental coordination:

- The Town of Southwest Ranches indicated that they do not anticipate any major land use changes impacting future population projections. There are two major development under construction, but these do not impact the zoning.
- The Town of Davie does not expect 'The Commons' to be developed at this time. The Town does not anticipate any major land use changes impacting future population projections besides those shown in Table 4-2.
- The City of Weston has Bonaventure west golf course already under development (as Botaniko, a 126 single family home development) and accounted for in the Broward County PFAM 2017. There was a proposal for Bonaventure Resort and Spa re-development for the east portion of the golf course, this proposal was not approved by the Commission. The City of Weston does not anticipate any major land use changes impacting future population projections besides those shown in Table 4-2.
- The City of Sunrise expects new developments listed in Table 4-2 either developed, underway or proposed within its entire service area. Meeting minutes for the intergovernmental coordination carried out in developing this Work Plan are shown in **Appendix E**.



To correlate the City’s planned developments with the 2018 LECWSP Update population data, the portion of the City’s population falling in each TAZ for each year of the PFAM data set were assessed. From year to year in the 5-year PFAM increments, the population proportions by TAZ change very little (generally less than 5% variability for the proportions). The City’s 2018 LECWSP Update service area population data was then distributed to each TAZ to compare the 2018 LECWSP Update growth by TAZ to the City’s planned developments. Next, for each of the TAZs where the City has identified projects, the 2020-2040 population growth was compared to the City’s new development list:

- The City’s new development totals 41,984 people (**Table 4-2**)
- The total LEC projected growth in Sunrise is 20,296 (2020-2040)
- The LEC data for the TAZs where the City has identified new developments includes projected growth of 13,761.

The Broward County PFAM modeling work assigns an upper limit to population for each TAZ, where planned developments that exceed the existing upper limit for the TAZ are redistributed to adjacent TAZs. Therefore, a conservative approach was used to estimate the difference between the 2018 LECWSP Update data and the City’s planned developments by subtracting all of the 2018 LECWSP Update projected growth for the Sunrise service area from the growth estimated from the City’s planned development results in additional growth of 21,655 between 2020 and 2040. To complete this analysis, the difference between the growth identified in the 2018 LECWSP Update and the City’s planned developments was redistributed into the population forecast.

Table 4-2. New Development and Redevelopment Projects

| TAZ | Project Name | Population per TAZ | Municipality |
|-----|---|--------------------|-----------------|
| 468 | 1.Sureway Moving & Storage 2.Pan American 3.T-Mobile Everglades MSO 4. Commercial Blvd | 68 | City of Sunrise |
| 469 | 1. Jafco Respite Center 2. West Commercial Landings | 91 | City of Sunrise |
| 471 | 1.Springtree Villas 2.Springtree Center - Walgreens 3.Dollar General at Forum Plaza 4.BJ's Redevelopment | 6,222 | City of Sunrise |
| 472 | 1.PINE PLAZA 5.73 AC 2.Skyline Professional Building | 2,348 | City of Sunrise |
| 474 | 1.Frusciante | 1,215 | City of Sunrise |
| 478 | 1. SGM Total expansion 64,000 gpd 2. METROPICA | 7227 | City of Sunrise |
| 479 | 1.BB&T Arena 2. Confidential Development | 11,393 | City of Sunrise |
| 481 | 1.WESTERRA 278 gpm 2. Racal Milgo System 1/Sunrise Industrial Park 3.Sawgrass Pointe III | 7,489 | City of Sunrise |



10-YEAR WATER SUPPLY FACILITIES WORK PLAN – 2020 UPDATE

| TAZ | Project Name | Population per TAZ | Municipality |
|------------|--|---------------------------|---------------------|
| 492 | 1.Sunset Square Plaza (With O'Reilly Autoparts) | 8 | City of Sunrise |
| 493 | 1.Sunrise Country Club | 2,916 | City of Sunrise |
| 494 | 1.Race Trac | 15 | City of Sunrise |
| 561 | 1.595 Corporate Park of Commerce 2. Caseyco 3. Sierra Ranch 15600 gpd | 308 | Town of Davie |
| 562 | 1. Fieldstone Shops of Davie, fka Tuscan Villas | 29 | Town of Davie |
| 563 | 1. Miele-Simonson Estates 2. Flamingo Ranch Estates 3. Han-Mi Baptist Church 4. Kingdom Halls of Davie | 58 | Town of Davie |
| 564 | 1. Westridge II 2. North Star Estates | 30 | Town of Davie |
| 566 | 1. Commercial & Restaurant Development F | 114 | Town of Davie |
| 569 | 1. Pine Island Office Centre | 27 | Town of Davie |
| 572 | 1. Artis Senior Living 15120 gpd | 163 | Town of Davie |
| 573 | 1. Casuarinas 2. ADDILYN 4,800 GPD | 91 | Town of Davie |
| 574 | 1. Fire Station# 86 at Shenandoah- Town of Davie | 8 | Town of Davie |
| | 2. CSG Sunwest Building E | 57 | City of Sunrise |
| 575 | 1. Westgate Square | 18 | City of Sunrise |
| 576 | 1. Comm. Dev. & Blatt & Weston - Sunrise Por | 57 | City of Sunrise |
| 577 | 1. Botaniko FKA Weston Estates- Bonaventure 2. Bonaventure Resort & Spa Redevelopment (Proposed) | 314 | City of Weston |
| 580 | 1. Church of God | 13 | City of Weston |
| 583 | 1. St. Katharine Drexel Church Multipurpose Bldg | 32 | City of Weston |
| 584 | 1. Paul Lutheran Church - Additional 2. On Fire Communications - Office Building | 9 | City of Weston |
| 591 | 1. Vista Lakes Lot 9 2. Silver Springs Ranches, lot 1 3. Live Oak Estates - Septic Tanks (3 homes) | 20 | Town of Davie |
| 592 | 1. Leto Estates #4 | 20 | Town of Davie |
| 593 | 1. Stone Brook Estates 2. Grand Oaks Estates, Davie 3. Hicks Estat 4. Oakhollowes 5. Oak PARK 6600 gpd | 121 | Town of Davie |
| 596 | 1. Temple View Estates FKA Shotgun Estates East 2. 18:555 ELDRIDGE PARK 3. TEMPLE VISTA 5400 gpd 4. Millstone Ranches 9000 gpd LS 362 | 213 | Town of Davie |
| 597 | 1. The Palace | 308 | City of Weston |
| 601 | 1. Landmark Ranch Estates | 50 | Town of SW Ranches |
| 602 | 1. Martin Square (AKA Weston Road Shopping Cntr) | 8 | Town of Davie |
| 603 | 1. Residential Developments Adjacent to Dykes Rd | 130 | Town of SW Ranches |
| 604 | 1. Health Care Group - Regency P-B 2. Regency Office Park | 7 | Town of Davie |
| 605 | 1. Estates of Sunshine Ranches 2. Master's Academy | 128 | Town of SW Ranches |



| TAZ | Project Name | Population per TAZ | Municipality |
|--------------|--|--------------------|--------------------|
| 890 | 1.Windmill Lake Estates AKA Windmill Ranch Estates 2.City of Weston EOC | 57 | Town of Weston |
| 891 | 1.Cleveland Clinic Expansion | 648 | City of Weston |
| 911 | 1.Meadow View Estates | 8 | Town of SW Ranches |
| 937 | 1.Artesia Pods N, T & S | 296 | City of Sunrise |
| 952 | 1.Fairway Isles Revised Site Plan - PC Fees paid 2005. | 212 | City of Sunrise |
| TOTAL | | 42,544 | |

(Source: City of Sunrise, 2019)

Approximately one half of the Town of Southwest Ranches is currently on private wells and is not expected to be on municipal water supply in the near future, as that decision will be driven by customer/ resident’s discretion. Projected population per TAZ is presented in **Appendix D**.

Table 4-3. City of Sunrise Service Area Population Projections

| YEAR | 2020 | 2025 | 2030 | 2040 | Service Area |
|-------------------|----------------|----------------|----------------|----------------|--------------|
| Weston | 66,700 | 68,400 | 69,700 | 69,600 | Existing |
| Davie | 62,100 | 63,300 | 65,000 | 68,000 | Existing |
| Sunrise | 100,000 | 103,800 | 107,400 | 126,000 | Existing |
| SW Ranches | 2,400 | 2,400 | 2,500 | 2,500 | Existing |
| SW Ranches | - | - | - | 7,100 | Future* |
| Total | 231,300 | 238,000 | 244,600 | 273,100 | |

*The potential future service area in SW Ranches is derived from Broward County PFAM 2017 and populations were applied to Sunrise Utilities Service Area starting in 2040.
(Source: Computed by Stantec, 2019)

4.5 VERIFICATION OF POPULATION PROJECTIONS

Population projections computed for this work plan were shared and agreed upon with these local governments served by the City of Sunrise water Utility as part of the intergovernmental coordination carried out to develop this Water Supply Facility Work Plan. The minutes for these meetings are found in **Appendix E**.

These population projections were also compared with the projections for the City’s service area in the SFWMD’s 2018 LECWSP Update, see **Table 4-4**. Population estimates included in the 2018 LECWSP Update used 2017 BEBR data while the population projections presented in this work plan are based on the published Broward County Population Forecasting Model 2017 which used 2016 BEBR data. The variation is in the range of 0% to 8% in 2040. This variation is a result of many new developments planned within the City service area.



**Table 4-4. 2018 LECWSP Update Population Projections for Sunrise Utility
Water Service Area**

| Year | 2020 | 2030 | 2040 |
|-------------------|-------------|-------------|-------------|
| Population | 231,288 | 244,619 | 251,584 |

(Source: 2018 LECWSP Update)

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5.0 CHAPTER 5 – WATER DEMAND

5.1 INTRODUCTION

The treated and raw water needs of the City of Sunrise Utilities Water Service Area in the future are presented in this section. The projected demand is based upon the population projections presented in the previous section.

5.2 HISTORIC WATER USE

The average system-wide potable water production recorded at the beginning of year 2011 was 23.8 MGD and this value was approximately 22.45 MGD in 2018 which represents a decrease of 5.6 percent in the past 8 years. System wide historic raw and treated water data are represented in **Table 5-1**. The total pumpage and maximum month pumpage (shown in column A and B) represents historic reported raw water withdrawals to the South Florida Water Management District. The pumpage data is derived from the sum of flow meters at individual water supply wells. The raw water total, average month and maximum month data (shown in column C, D and E) are obtained from the master meter within the plant. There is a minor discrepancy (3%) between the total flow from individual flow meters and master meter at the plant. The maximum to average month ratio (column F) and treated to raw water ratio (column G) are calculated using the data from plant master meter.

Table 5-1. System Wide Historic Raw and Treated Water Records

| | Raw Water | | | | | | | Treated Water | | | |
|------|----------------------------|--------------------------------|-------------|-----------------|-----------------|-----------------------|---------------------|---------------|-----------------|-----------------|-----------------------|
| | A | B | C | D | E | F | G | H | I | J | K |
| | Total (mgy) - Pumpage data | Max Month (mgm) - Pumpage data | Total (mgy) | Avg Month (mgm) | Max Month (mgm) | Max Month / Avg Ratio | Treated / Raw Ratio | Total (mgy) | Avg Month (mgm) | Max Month (mgm) | Max Month / Avg Ratio |
| 2011 | 9779 | | 9802 | 817 | 953 | 1.17 | 0.89 | 8683 | 724 | 826 | 1.14 |
| 2012 | | | 9276 | 773 | 850 | 1.10 | 0.87 | 8067 | 672 | 744 | 1.11 |
| 2013 | 9060 | | 9072 | 756 | 877 | 1.16 | 0.90 | 8172 | 681 | 761 | 1.12 |
| 2014 | 8792 | 829 | 9008 | 751 | 847 | 1.13 | 0.93 | 8336 | 695 | 801 | 1.15 |
| 2015 | 9193 | 836 | 9495 | 791 | 884 | 1.12 | 0.91 | 8621 | 718 | 803 | 1.12 |
| 2016 | 9008 | 824 | 9072 | 756 | 855 | 1.13 | 0.91 | 8260 | 688 | 773 | 1.12 |
| 2017 | 8853 | 790 | 8889 | 741 | 820 | 1.11 | 0.92 | 8152 | 679 | 733 | 1.08 |
| 2018 | 9120 | 826 | 9122 | 760 | 826 | 1.09 | 0.90 | 8196 | 683 | 743 | 1.09 |

(Source: City of Sunrise, 2019)

Based on historic seasonal treated water demands from year 2011 to 2018, the maximum month demand is 1.08 to 1.14 times the average month demand. Usually, the maximum month occurs between March and May and the minimum month demand usually occurs between September and October.



Historic facility wide peak factors for treated water to raw water, maximum day raw water to average day raw water, and maximum month raw water to average month raw water for the past 8 years is shown in **Table 5-2**. As seen in **Table 5-2**, the system-wide treatment efficiency (product water as a percentage of raw water for the entire Utility System) is approximately 87 to 92%.

(Remaining Section Intentionally Left Blank)



Table 5-2. Historic Peak Factors

| Date | Springtree WTP | | | Springtree WTP (RO) | | | Southwest WTP | | | Sawgrass WTP | | | System Totals | | |
|------|--------------------|-------------------|------------------------------|---------------------|-------------------|------------------------------|--------------------|--------------------|------------------------------|--------------------|-------------------|------------------------------|--------------------|-------------------|------------------------------|
| | Treated /Raw Ratio | Max/Avg Day Ratio | Max/Avg Month Peaking Factor | Treated /Raw Ratio | Max/Avg Day Ratio | Max/Avg Month Peaking Factor | Treated /Raw Ratio | Max/Av g Day Ratio | Max/Avg Month Peaking Factor | Treated /Raw Ratio | Max/Avg Day Ratio | Max/Avg Month Peaking Factor | Treated/ Raw Ratio | Max/Avg Day Ratio | Max/Avg Month Peaking Factor |
| 2011 | 0.92 | 1.39 | 1.09 | | | | 1.03 | 1.22 | 1.08 | 0.85 | 1.48 | 1.24 | 0.89 | 1.34 | 1.17 |
| 2012 | 0.89 | 1.06 | 1.06 | | | | 0.97 | 1.27 | 1.14 | 0.85 | 1.37 | 1.20 | 0.87 | 1.23 | 1.10 |
| 2013 | 0.96 | 1.17 | 1.05 | | | | 0.97 | 1.14 | 1.06 | 0.85 | 1.57 | 1.27 | 0.90 | 1.34 | 1.16 |
| 2014 | 1.00 | 1.14 | 1.06 | 0.76 | 5.26 | 3.38 | 0.96 | 1.14 | 1.10 | 0.85 | 1.43 | 1.11 | 0.93 | 1.23 | 1.13 |
| 2015 | 1.00 | 1.04 | 1.15 | 0.75 | 1.59 | 1.40 | 0.93 | 1.23 | 1.06 | 0.85 | 1.49 | 1.09 | 0.91 | 1.21 | 1.12 |
| 2016 | 1.00 | 1.14 | 1.17 | 0.75 | 1.72 | 1.58 | 0.92 | 1.82 | 1.07 | 0.86 | 1.43 | 1.09 | 0.91 | 1.28 | 1.13 |
| 2017 | 1.00 | 1.20 | 1.04 | 0.73 | 3.67 | 2.79 | 1.32 | 3.67 | 2.79 | 0.85 | 1.37 | 1.10 | 0.92 | 1.28 | 1.11 |
| 2018 | 0.98 | 1.70 | 1.16 | 0.79 | 3.38 | 3.11 | 0.91 | 21.68 | 12.02 | 0.85 | 1.43 | 1.09 | 0.90 | 1.34 | 1.09 |

(Source: City of Sunrise, 2019)

5.3 PER CAPITA USAGE

Based on the total water metered to customers, and the estimated historic population the treated water leaving the plants, the per capita usage computed for the past five years (2014-2018) was 102 gallons per capita per day (gpcd) of treated water at the plant. This is comparable to the per capita usage rate of 93 gpcd at customer connection shown in the Consumptive Use Permit (CUP) application for C-51 Reservoir Project. The per capita usage rate of 102 gpcd treated at the plant is within 3.5% of the SFWMD 2018 LECWSP Update data, which shows a treated water per capita rate of 98 gpcd for the City of Sunrise Utility Water Service Area. The City's updated Comprehensive Plan will show the level of service at 102 gpcd treated water at the plant. Section 5.5 Water Demand Projection Methodology describes and shows the per capita use rate for each local government where water service is provided by the City of Sunrise.

5.4 WATER LOSS

Losses considered in the City of Sunrise Water Utility system were of two types, treatment loss and distribution loss. As seen in **Table 5-2**, the system wide treatment loss is at an average of approximately 9% over the past few years. System-wide treatment losses are comprised of losses from three treatment processes; lime softening, reverse osmosis, and nano filtration. Lime softening process offers the lowest loss. These losses are increased for the Sunrise Water Utility as use of alternative water sources such as Floridan brackish water increased, which also increases the need for additional capacity from these alternate treatment processes.

The distribution system losses were computed based on the amount of treated water leaving the plant and the amount of water metered to the customers. The customer water usage was computed from the billing database. While computing the distribution loss, flushing for bacterial clearance and chlorine residual maintenance was assumed 5%. **Table 5-3** shows the system wide transmission and distribution water loss data.

Table 5-3. System Wide Transmission and Distribution Loss

| Year | Total Treated | Plant Water Use | Metered to Customers | Total Real and Apparent Water Loss* | Total Real Loss | Total Apparent Loss | Total Losses |
|------|---------------|-----------------|----------------------|-------------------------------------|-----------------|---------------------|--------------|
| | MGY | MGY | MGY | MGY | % | % | % |
| 2014 | 8266 | 742 | 7242 | 1024 | 11.94 | 0.45 | 12.39 |
| 2015 | 8621 | 873 | 7782 | 839 | 9.23 | 0.51 | 9.74 |
| 2016 | 8260 | 812 | 7560 | 701 | 7.99 | 0.49 | 8.48 |
| 2017 | 8152 | 841 | 7480 | 671 | 7.72 | 0.52 | 8.20 |
| 2018 | 8196 | 926 | 7208 | 741 | 8.48 | 0.57 | 9.00 |

* Total losses were computed as a total real and apparent water losses. Total real water losses associated with leakage from distribution mains, storage tanks, service connection, etc. Apparent water losses include billing errors, meter inaccuracies, and illegal water consumptions which was assumed in the range of 5% system wide.
(Source: City of Sunrise, 2019)



5.5 WATER DEMAND PROJECTION METHODOLOGY

The forecasting of future water demands for the Sunrise Water Utility Service Area is based on population and per capita water demand projections.

The system-wide demand projections were based on 102 gpcd applied to population forecast for each time horizon until 2040.

Water demand projections were based on population projections and per capita demands. The service area wide demand forecasting was completed by multiplying the per capita water use of 102 gpcd by population forecast data for the entire service area for the years 2020, 2030, 2035, and 2040. Billing data of year 2017 was received to determine percent split by local government to compute demand by local government. Demand per capita per individual local government within the City of Sunrise utility service area was calculated using the 2017 demand split and population split by local government. The per capita demand by local government is shown in Table 5-4. **Table 5-5** shows demand projections for each municipality serviced by the City of Sunrise utilities for years 2020, 2030, 2035, and 2040.

Table 5-4. Water Demand Projection for Each Municipality within the City's Service Area

| Municipality | Weston | Davie | Sunrise | SW Ranches | System wide |
|-------------------|--------|-------|---------|------------|-------------|
| Per Capita (gpcd) | 127 | 85 | 98 | 68 | 102 |

(Source: Computed by Stantec, 2019)

Table 5-5. Annual Average Day Demand Projections (gallons per day)

| City | 2020 | 2025 | 2030 | 2040 | Service Area |
|--------------------|-------------------|-------------------|-------------------|-------------------|--------------|
| City of Weston | 8,455,000 | 8,666,400 | 8,830,300 | 8,901,200 | Existing |
| Town of Davie | 5,243,200 | 5,347,500 | 5,502,300 | 5,832,600 | Existing |
| City of Sunrise | 9,729,600 | 10,102,500 | 10,450,900 | 12,474,400 | Existing |
| Town of SW Ranches | 163,700 | 165,600 | 169,300 | 169,800 | Existing |
| Town of SW Ranches | | | | 479,700 | Future* |
| Total** | 23,591,500 | 24,282,000 | 24,952,800 | 27,857,700 | |

* The potential future service area in SW Ranches is derived from Broward County TAZ population projections.

** These demand numbers are rounded to the nearest hundred for individual local governments.

(Source: Computed by Stantec, 2019)



6.0 CHAPTER 6 - WATER SUPPLY FACILITIES WORK PLAN

Our analysis accounts for systemwide demand needs through 2040. A phased incremental approach for keeping pace with demands is usually considered. As explained in this section, demands will be met through traditional and alternative water supplies with existing and planned treatment additions, distribution and storage facilities. In addition, as described in this section, the City will continue to implement several conservation measures, including a reclaimed water system.

The planning for future water sources, treatment, and distribution system improvements for the City of Sunrise Water Utility are presented in this section. The population projections presented in Section 4 and the finished water demands presented in Section 5 were used as the basis for this Water Supply Facilities Work Plan. The projects listed within this Plan are all coordinated with the SFWMD.

6.1 TRADITIONAL WATER SUPPLY PROJECTS

The majority of the anticipated water demand through 2040 will be met by the traditional water supply (Biscayne aquifer), treatment and distribution systems.

The last traditional water supply source project was completed in 2008: Four Biscayne aquifer wells were added to the City's Flamingo Park wellfield with service to the Sawgrass WTP, and a pumping capacity of 15 MGD. The City has submitted the CUP application for C-51 Reservoir project future allocation. This application is under review by the SFWMD.

6.2 ALTERNATIVE WATER SUPPLY DEMANDS

The City of Sunrise currently does not anticipate water demands to exceed supply until year approximately 2040, although plans and designs are underway for a number of alternate water supply projects to stay ahead of the anticipated demands. The City also constructed and commissioned a low pressure 1.5 MGD reverse osmosis (RO) plant at the Springtree Water Treatment Plant facility in April 2014 and completed an interconnect with the Town of Davie in November 2015. Ion exchange is added to provide additional buffering capacity, but results in some additional supply capability.

The future demands will exceed Biscayne aquifer allocation which is fixed at 29.09 MGD based on CUP application, and that alternate water supplies from both the C-51 Reservoir Project and substitution credits from wastewater reuse will address these needs, depending on the success with implementing each alternative.

Table 6-1 illustrates the Plan by which the City meets future demands by alternative water supply source category. This table shows the planned growth using the Broward County population projections and the



average system wide per capita demands equal to 102 gpcd. **Table 6-1** shows yearly demand projections as a function of population forecast and water use rate of 102 gpcd. These demand projections are treated water at the plant prior to purveying to the customers. The recently submitted WUP application has table 3-9 which shows the systemwide Annual Average Finished Demand at the customer point of connection rather than at the treatment plant. **Figure 6-1** shows the City of Sunrise's Water Supply Plan in response to the future demand projections. Permitted raw water allocations for Surficial Aquifer System (SAS) and Floridan Aquifer System (FAS) are shown based on the City existing CUP.

(Remaining Section Intentionally Left Blank)

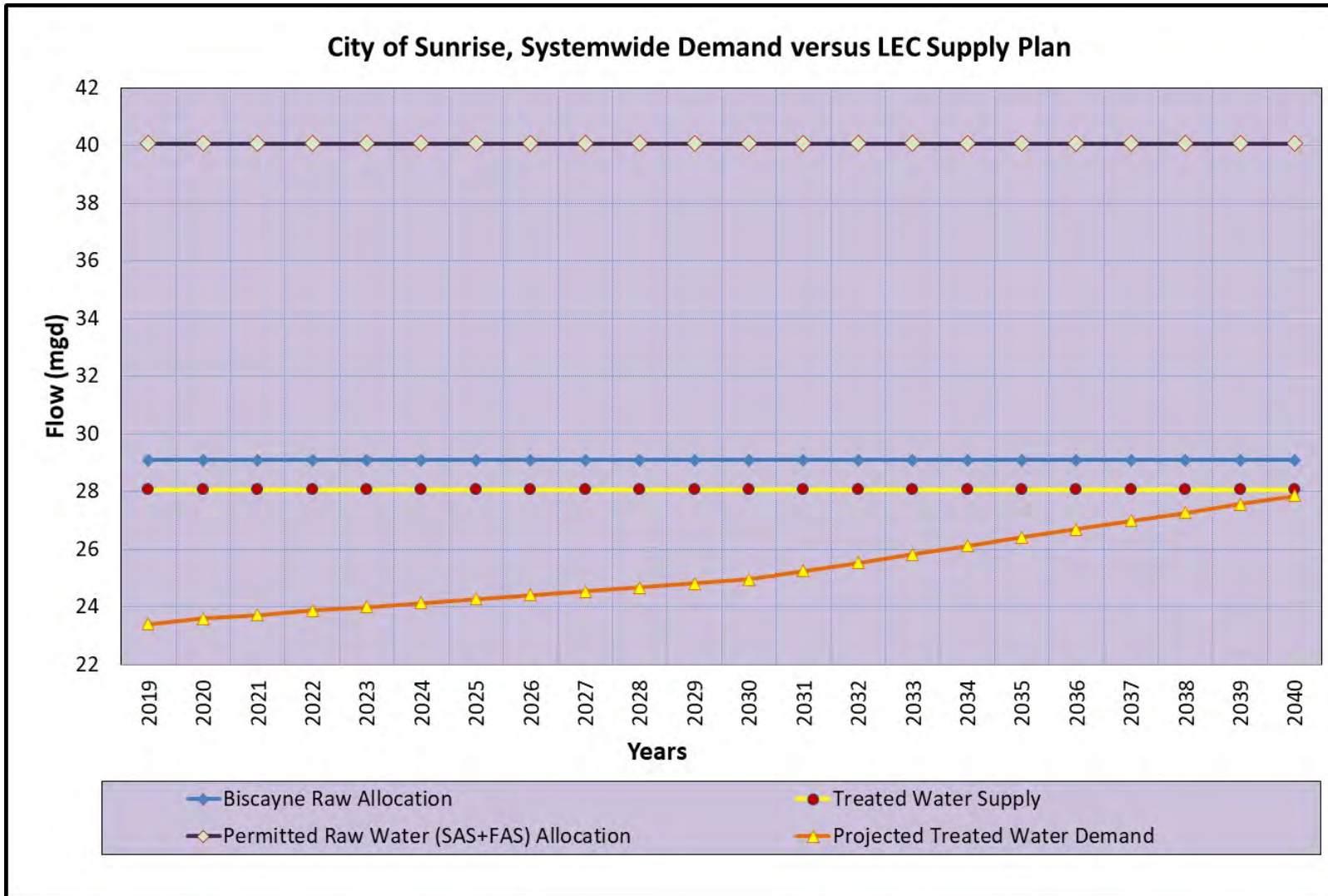


Table 6-1. Sunrise Utilities Finished Water Demand by Source Category

| A | B | C | D | E | F | G | H | I | J | |
|------|-------------------------|---|---|-----------------------------------|---|-------------------------------|--|---|---|-------|
| Date | Population to be Served | Projected Treated Average Day based on 2017 BCTAZ Population Projection | Biscayne Treated Water Average Equivalent | Floridan Aquifer RO Treated Water | Sawgrass Ion Exchange Treated Water Savings | Total available Treated Water | Treated Water Deficit per year to be Supplied by Alternative Water | Biscayne Raw Water Permitted Allocation | Floridan Raw Water Permitted Allocation | |
| | | (MGD) | (MGD) | (MGD) | (MGD) | (MGD) | (MGD) | (MGD) | (MGD) | (MGD) |
| | | $C = B \times 102\text{gpcd}$ | | | | $G = D+E+F$ | $H=C-G$ | | | |
| 2019 | 229,500 | 23.41 | 26.14 | 1.5 | 0.42 | 28.06 | -4.7 | 29.09 | 10.98 | |
| 2020 | 231,300 | 23.59 | 26.14 | 1.5 | 0.42 | 28.06 | -4.5 | 29.09 | 10.98 | |
| 2021 | 232,600 | 23.73 | 26.14 | 1.5 | 0.42 | 28.06 | -4.3 | 29.09 | 10.98 | |
| 2022 | 234,000 | 23.87 | 26.14 | 1.5 | 0.42 | 28.06 | -4.2 | 29.09 | 10.98 | |
| 2023 | 235,300 | 24.00 | 26.14 | 1.5 | 0.42 | 28.06 | -4.1 | 29.09 | 10.98 | |
| 2024 | 236,600 | 24.13 | 26.14 | 1.5 | 0.42 | 28.06 | -3.9 | 29.09 | 10.98 | |
| 2025 | 238,000 | 24.28 | 26.14 | 1.5 | 0.42 | 28.06 | -3.8 | 29.09 | 10.98 | |
| 2026 | 239,300 | 24.41 | 26.14 | 1.5 | 0.42 | 28.06 | -3.7 | 29.09 | 10.98 | |
| 2027 | 240,600 | 24.54 | 26.14 | 1.5 | 0.42 | 28.06 | -3.5 | 29.09 | 10.98 | |
| 2028 | 242,000 | 24.68 | 26.14 | 1.5 | 0.42 | 28.06 | -3.4 | 29.09 | 10.98 | |
| 2029 | 243,300 | 24.82 | 26.14 | 1.5 | 0.42 | 28.06 | -3.2 | 29.09 | 10.98 | |
| 2030 | 244,600 | 24.95 | 26.14 | 1.5 | 0.42 | 28.06 | -3.1 | 29.09 | 10.98 | |
| 2031 | 247,500 | 25.25 | 26.14 | 1.5 | 0.42 | 28.06 | -2.8 | 29.09 | 10.98 | |
| 2032 | 250,300 | 25.53 | 26.14 | 1.5 | 0.42 | 28.06 | -2.5 | 29.09 | 10.98 | |
| 2033 | 253,200 | 25.83 | 26.14 | 1.5 | 0.42 | 28.06 | -2.2 | 29.09 | 10.98 | |
| 2034 | 256,000 | 26.11 | 26.14 | 1.5 | 0.42 | 28.06 | -1.9 | 29.09 | 10.98 | |
| 2035 | 258,900 | 26.41 | 26.14 | 1.5 | 0.42 | 28.06 | -1.7 | 29.09 | 10.98 | |
| 2036 | 261,700 | 26.69 | 26.14 | 1.5 | 0.42 | 28.06 | -1.4 | 29.09 | 10.98 | |
| 2037 | 264,600 | 26.99 | 26.14 | 1.5 | 0.42 | 28.06 | -1.1 | 29.09 | 10.98 | |
| 2038 | 267,400 | 27.27 | 26.14 | 1.5 | 0.42 | 28.06 | -0.8 | 29.09 | 10.98 | |
| 2039 | 270,300 | 27.57 | 26.14 | 1.5 | 0.42 | 28.06 | -0.5 | 29.09 | 10.98 | |
| 2040 | 273,100 | 27.86 | 26.14 | 1.5 | 0.42 | 28.06 | -0.2 | 29.09 | 10.98 | |

(Source: Computed by Stantec, 2019)





(Source: Computed by Stantec, 2019)

Figure 6-1. City of Sunrise Demand Versus 2018 LECWSP Update (102 gpcd)



6.3 ALTERNATIVE WATER SUPPLY PROJECTS

The City recently completed the construction of 3 MGD ion exchange facility to save additional raw water and improve the finished water quality at the Sawgrass WTP. The Sunrise Water Utility has completed a few and has planned several alternate water supply projects for phased delivery. The Sunrise Water Utility remains an active participant in the implementation of the C-51 Reservoir Project and has completed and moved forward with a wastewater reuse program with projects at its Southwest and Sawgrass WWTPs. There are private wells for irrigation within the City's municipal boundary. By installing a reuse facility and pipeline within the local government area, the City would look to replace the irrigation permits and thereby terminate or reduce the allocation of existing users and claim an applicable offset credit. By extending the reuse pipeline, the City may also have an opportunity to offset potable water use for irrigation with reclaim water there by reducing the per capita. The City has planned multiple phases of reuse distribution piping projects originating from the Sawgrass WWTP site in its capital improvement plan. The City has finalized the modeling for offset quantification and has not initiated the WUP application for changes related to reclaim water use.

The City has an array of projects underway for the purpose of supplementing its traditional water supply with alternate water supplies. Since 2008, the City has implemented a 2.0 MGD of Floridan Aquifer supply capacity at the Springtree Facility, with a plant capable of producing 1.5 MGD of finished water from the reverse osmosis treatment system. During peak month conditions, the total of the City's existing Biscayne Aquifer allocation and existing Floridan Aquifer supply and treatment infrastructure will be exceeded within the next 5 to 10 years. After implementation and confirming success of the C-51 Reservoir Project, the City will compare the actual costs of the C-51 Reservoir Project and Floridan Aquifer supplies and will increase their alternative water supply facilities accordingly. Also, the City has completed a potable water emergency interconnect with the Town of Davie (connecting with their Floridan aquifer supply source) that could provide a back-up for demand spikes. Other individual AWS project statuses are described below:

6.3.1 Sawgrass Recovery Increase – Conservation Project I

This project was part of the WSFP-2008 and completed on schedule. The City's Sawgrass nanofiltration water plant was constructed and fully operational in 2002. Since that time, the plant was operating at 75 percent recovery. As part of the facility plan development, the City planned to increase the recovery of the plant closer to 82 percent to reduce the water lost through the concentrate reject stream. This process change was initiated by the City operations staff on February 18, 2010. The increase in recovery results in addition of approximately 1 MGD of potable water from the same raw water allocation. Treatment of 17.31 MGD of raw water, as limited by the CUP, at 75 percent recovery, results in approximately 13 MGD of treated water. Increasing the recovery to 85 percent increases the available treated water to 14 MGD, an additional 1 MGD of treated water. This project was completed on March 30, 2010.

6.3.2 Sawgrass WTP – Conservation Project II

The City pilot tested recovery of nanofiltration concentrate blend with Floridan Aquifer raw water.



Recovery Blend Pilot Project

The City commenced a recovery blend pilot project in November 2008 with a project cost of \$497,000. The intent of the pilot project was to investigate the opportunity for additional treatment of the nano-filtration concentrate with a blend of highly brackish Floridan water using reverse osmosis technology in an effort to capture additional water from the waste stream prior to deep well injection. This process was envisioned to extract up to an additional 2 MGD from the reject stream for potable use. The RO pilot system study was completed in December 2009. The result of the study determined that the blending of brackish water with nano-membrane reject caused premature fouling and required excessive cleaning of the RO membrane treatment unit. These operational challenges were determined to be too significant for this process to be implemented at full scale, compared to other alternatives.

Ion Exchange Project

The City explored the potential for an alternative conservation project using ion exchange treatment of Biscayne raw water with the goal to save an additional raw water. On February 25, 2011 the City authorized design engineers to conduct bench scale testing and develop the Basis of Design (BODR) for the ion exchange project. In April 2011, design engineers reported that due to high iron content in the raw water from the Sawgrass wellfields, a pretreatment step was necessary prior to the ion exchange process. In 2017, the City decided to initiate design of the Sawgrass ion exchange project proposed in 2011, but limiting capacity to half the capacity of the originally envisioned two phased, 6 MGD build out capacity. This project provides ion exchange of a 3 MGD side stream that will blend with membrane softened water, which aims to reduce the cost to approximately \$7 million. This project is being constructed and undergoing testing in December 2019. The project provides enhanced water quality by retaining sufficient hardness and alkalinity in the treated water to improve treated water stability. It also offers the additional benefit of reducing raw water losses at this facility (about 15% of source water is lost through membrane softening) since the ion exchange technology wastes only a small quantity of raw water. It is estimated about 0.4 MGD of finished water will be conserved by this project.

6.3.3 Sawgrass Reverse Osmosis (RO) (Phase I, II, and III)

Floridan Test Wells and RO Treatment Projects

The City installed two (2) Floridan test wells within the Sawgrass International Corporate Park, which were completed in March 2013. After installation, the City confirmed reasonable water quality in 2013 to support use of these wells.

Although the City completed design of a reverse osmosis treatment project (3 MGD) on February 25, 2011, the City postponed construction of this expansion since demands reduced and other alternatives appeared to present more cost effective and beneficial potentials (such as the Sawgrass Ion Exchange and the C-51 Reservoir Project).

6.3.4 Sawgrass WTP ASR

The two Floridan Test Wells installed in the Sawgrass International Corporate Park in 2012-13 have the potential to be developed into raw water ASR wells to augment the existing Biscayne



aquifer supply to this facility. Seasonal use would mean recharge during the wet season and withdrawal during the dry season to help meet peak demands. The City is evaluating ASR cycle testing of the Southern Floridan test well, SGF-1 initially to determine performance characteristics. Depending on the results of the cycle testing, the City may consider whether developing an ASR system consisting of one or more of these Floridan wells which can serve this beneficial use as an expanded source available during times of drought.

A project is currently underway which includes a raw water transfer pipeline, ASR pumping systems, control and monitoring systems, and wellhead to convert Floridan well SGF-1 to an ASR well along with associated systems. The raw water main project is currently under construction and is expected to be completed by mid-2020. The wellhead project is under permitting and is expected to be advertised in early-2020

6.3.5 Springtree WTP RO – Phase I

The City supplemented its alternate water supply needs by using the existing ASR well at the Springtree water treatment plant. As part of permit modifications, the City now has Floridan water withdrawal allocation of 2 MGD via the ASR well. The design and bidding of a skid mounted unit was completed in March 2012. This project was completed in April 2014. The ASR to Floridan conversion and RO skid project supplied 1.5 MGD of treated water on an annual average day basis. Due to unfavorable water quality in the well, the RO is currently not in service.

6.3.6 Park City RO – Phase I & Phase II

The City commenced the Park City regional wellfield project, consisting of aquifer testing, on September 19, 2008 with an authorization to design consultants for the design package. The design was completed and in the bidding phase when in October of 2010, the SFWMD allocated Floridan water to the Town of Davie in the vicinity of the Nova educational complex. The SFWMD staff report (for the permit approval) estimated an additional drawdown of 20 (+) feet on the Sunrise Park City Regional Wellfield.

The City became concerned that the combined drawdown from the Davie wells with the City of Sunrise's proposed Park City Floridan wells would have caused the water quality to deteriorate, and such risk was too high to justify the capital investment by city of Sunrise. Thus, the City does not intend to move forward with this project as indicated in Exhibit 12 of the WUP and WSFP–2008.

6.3.7 C-51 Reservoir Project

The C-51 Reservoir Project is a regional water supply project currently being developed privately with intentions for transfer to a water control authority and operation by the South Florida Water Management District through capacity allocation agreements and water use permit allocations. Active participants in this regional project are currently considering the demands and potential opportunity for longer term permit issuances of longer than 20 years for supplementing traditional Biscayne aquifer allocations, and the additional water supply would come from captured and re-directed stormwater that would otherwise be pumped to tide. The City remains an active participant in the development and implementation of the C-51 Reservoir Project. Preliminary



investigations into the benefits and costs for this project to assist with addressing its long-term water supply demands appear to be attractive. The City has a Capacity Allocation Agreement with Palm Beach Aggregates, LLC – developer of the C-51 Reservoir Project in Palm Beach County for 5 MGD of C-51 Reservoir Phase 1 storage and has submitted an application for Water Use Permit renewal in order to secure a C-51 Reservoir Project offset to the SFWMD. The application is currently under review by SFWMD.

6.3.8 Southwest WRF – Phase I

The City completed rehabilitation improvements, increased the permitted capacity from 0.45 MGD to 0.99 MGD and added a 0.99 MGD tertiary treatment process for irrigational quality (IQ) reuse in June 2016. This project increased capacity by 0.54 MGD in addition to adding tertiary treatment. The City rehabilitated two of the four existing infiltration basins (ponds) at the Southwest WWTP in a project completed between April 30, 2010 and December 20, 2010.

The size of the upgrade is limited by the ability to percolate water through the infiltration basins. Phase II of the project as indicated in Exhibit 12 of the WUP will not be carried out due to limitation of infiltration rates through existing basins. The upgraded 0.99 MGD plant has been operational since June 2016 producing high level disinfected wastewater which is disposed of via the existing percolation ponds.

6.3.9 Sawgrass Water Reclamation Facility (WRF) - Phase I

The existing Sawgrass Wastewater Treatment plant is permitted for a capacity of 20 MGD on an annual average day basis. The City planned and has moved forward with facility improvements for addition of a 2 MGD HLD tertiary facility to produce irrigational quality (IQ) reuse water. This project includes tertiary treatment, storage and high service pumping facilities. Offsite distribution of IQ water is under construction for completion by 2020. The treatment process has a peak capacity of 4 MGD and was completed in early 2019.

6.4 ALTERNATIVE WATER SUPPLY DEVELOPMENT SCHEDULE

The City of Sunrise Water Utility has planned several alternative water supply projects within its 5 year Capital Improvement Plan and 10 year Water Supply Plan. The City has Capacity Allocation Agreement with Palm Beach Aggregates, LLC and has an application for Water Use Permit renewal in order to secure a C-51 Reservoir Project offset.

Based on data presented in **Figure 6-1**, the City has sufficient capacity in the system to meet the average day demands for approximately the next ten years and no new infrastructure project to meet the future supply need over ten years is anticipated.



6.5 CONSERVATION PROGRAMS

Recognizing that water conservation preserves both the natural resources as well as capital resources; the City of Sunrise is committed to continuing and expanding on successful track record of conservation. The following conservation programs are underway:

6.5.1 Water Conservation Public Education Program

The City's water conservation public education program is highly engaged in the community and:

- Promotes conservation under its Good and Green initiative. The City of Sunrise shares water conservation tips for customers on the City's website and in the *Good and Green* email newsletter which goes out to over 2,000 community members.
- Water conservation education flyers are stocked at the City Hall information kiosk, posters are hung at each Utility Payment Center, and post are made via our social media platforms. Provides a means by which customers can conduct a home water audit from the City's website. The website has a typeable Water Audit Form pdf and computes the usage rate for the customer. This assists with helping to target one's conservation efforts;
- Distributes conservation information in water billings;
- Produces conservation education articles for the City's monthly magazine;
- Promotes conservation through school outreach programs and career fair events;
- Participates in the FSAWWA's Drop Savers Water Conservation Poster Contest by engaging all schools who will participate throughout the entire water service area;
- Promotes water conservation at community events including: Broward County Water Matters Day, City of Sunrise Earth Day, Schools Career Days, National Night Out, Sunrise Cultural Festival, Sunrise Arts & Crafts Festival, and the Sunrise Back to School Roundup. Toilet leak detection tablets, and toilet tank bags are given out at these events along with print material to promote water conservation.
- The City hosts "Gardening For Wildlife" Workshops to educate residents.

6.5.2 An Outdoor Water Use Conservation Program

The City of Sunrise has an outdoor water use conservation program that includes:

- Limited Irrigation Hours – The City of Sunrise Code of Ordinances, Article III, Section 15-85 Year round restrictions on landscape irrigation supports the all-year, 2-day-a-week landscape irrigation restrictions imposed by the SFWMD and the Broward County Environmental Protection and Growth Management Department (EPGMD), as defined in Subsection 373.069(2)(e) of the Florida Statutes (F.S.). Landscape irrigation from 9 a.m. to 4 p.m. has been eliminated except for low-volume systems and low-volume self-canceling nozzle hand watering (Broward County, Florida, Code of Ordinances, Part II, Chapter 36, Section 55).



- The Broward County NatureScape Irrigation Service Program – The City of Sunrise participates in the program whereby customers are encouraged to embrace Florida-friendly landscaping practices that conserve water, reduce runoff of fertilizers, and minimize need for pesticides. One goal of the program is reduced water consumption through efficient irrigation and environmentally friendly landscaping while targeting large properties such as parks, schools, and residential complexes. This program involves significant funding and marketing efforts to promote water conservation by City customers and should result in reduced water demands and costs in return. In 2019, the City of Sunrise participated in the pilot program for the Residential Irrigation Rebate Program with 55 applicants, 17 site visits and evaluations and 10 residential properties received rebates to upgrade their irrigation systems. The City signed a new agreement in 2020 with the County to implement the Residential Irrigation Rebate Program fully.
 - The City of Sunrise uses Florida-friendly landscape principles for public works projects such as median strips, parks, and utility common areas. The City of Sunrise Code of Ordinances, Article VIII: Functional Landscaping supports the use of Florida-friendly landscaping principles by encouraging the circuiting of irrigation systems for low and high-water use areas and allowing relaxation of irrigation overlap requirements for use of Florida-friendly landscaping or native plant material.
- Plant it Forward Program: The City of Sunrise offers a residential beautification and increase tree canopy program with an approved budget of \$40,000 per year (program launched in 2020). Sunrise has been a Tree City, USA since 1988 and continues to meet annual requirements, and celebrates Arbor Day in conjunction with our Sunrise Earth Day Festival.
- "Be a Butterfly Hero" campaign: The City of Sunrise promotes Florida-Friendly Landscaping through this campaign. The City hosts "Gardening For Wildlife" Workshops to educate residents. In 2019, a total of 1,193 plants and trees were given to the community at City events and workshops. In addition, 150 "Trees for Wildlife" seedlings were distributed at events throughout the year.
- Rain Sensor Overrides - The City of Sunrise Code of Ordinances, Article VIII, Section 16-163(b): Irrigation System requires irrigation controllers to be switched to manual operation during periods of increased rainfall and automatic lawn sprinklers to include a rain sensor device to override the irrigation cycle of the sprinkler system once adequate rainfall has occurred. This ordinance also requires that sprinkler heads irrigating high water demand landscaped areas be on a separate zone from plantings requiring less water and non-potable water is required when determined available for irrigation purposes.
- Automatic Flushing Devices - The City of Sunrise has installed automatic water flushing devices at 20 hydrants throughout the City's water distribution system to improve water quality while saving approximately 10 million gallons of water per year. Emergency Interconnects - The City of Sunrise has emergency interconnections with the City of Lauderhill, City of Plantation, Town of Davie, City of Pembroke Pines, and Cooper City.



6.5.3 Water Conservation Based Rate Structure

The City of Sunrise has been proactive with its rate structures and has incentivized residents to pursue conservation.

- The City of Sunrise uses an increasing block rate structure for residential customers to encourage potable water conservation. In addition to the monthly base charge, residential water rates are \$4.09 per 1,000 gallons used up to 30,000 gallons and \$5.18 per 1,000 gallons used over 30,000 gallons. The commercial water rate is \$4.32 per 1,000 gallons.
- The City is currently working with a financial consultant to develop additional blocks for and further refine the City's rates to include approximately five tiers and continue to promote conservation.

6.5.4 Water Loss Reduction Program

The City of Sunrise takes pride in its water loss reduction program. The SFWMD requires that utilities monitor unaccounted-for water (UFW), also known as non-revenue water (NRW) losses, in their distribution systems. The goal is to be less than 10 percent. Losses above this level prompt a mandatory leak detection program.

The City, from 2010 to 2018, applied considerable efforts toward renewing and replacing several of its wells and well head equipment (including meters) at its Springtree Water Treatment Plant and wellfield, and is continuing to apply these same efforts at the Southwest Water Treatment Plant to update and improve accuracy of measurement of well water pumped to these facilities. Additionally, in-plant meters have been replaced at the Sawgrass Water Treatment Plant.

Since 2013, the City has been evaluating several different advanced metering infrastructure (AMI) platforms and has even installed four separate pilot systems to evaluate advertised capabilities of fixed and cellular networked AMI endpoints and associated software. The City is currently completing business case analyses of and preparing to initiate a meter replacement program through a request for proposal process, which would improve the City's accounting of water and allow customers the capability to monitor and further conserve use on their own.

Finally, during this fiscal year, the City of Sunrise has purchased leak detection equipment (sounding devices and correlators) and plans to purchase 20 to 30 additional digital loggers in order to better identify and resolve existing leaks within the City's water distribution system. The City will dedicate three staff members to train, equip and report on progress made in the identification of leaks between the treatment plants and meter points so as to reduce leakage from mains and service lines. These efforts are being taken in addition to implementing one to two community water system replacements (renewing the communities with the oldest or most deteriorated mains where operations staff has the most repeat visits for leak repairs or main and service failures) per year in the City's 5-year Capital Improvement Program. Through these comprehensive leak reduction efforts, the City has been able to reliably reduce its unaccounted-for water under 10% from previous levels which were approaching 15%, but with expectations of reducing these even further as these programs progress and build additional expertise and achievements through increased efficiency of operations.



6.5.5 An Indoor Water Conservation Program

The City of Sunrise has a vibrant indoor water conservation program that includes:

- Broward Water Partnership’s Water Conservation and Incentives Program, Conservation Pays – The City of Sunrise is one of 17 city and water utilities comprising the Broward Water Partnership. The City’s participation commenced in October 2011 and continues today. This program involves significant funding and marketing efforts to promote water conservation by customers results in reduced water demands and costs in return. This popular program was recently expanded to include multifamily housing units, not-for-profit agencies, and commercial buildings, as well as single-family homes. Qualifying Sunrise utility customers are encouraged to take advantage of the following benefits:
 - Toilet rebates: Eligible utility customers may replace old toilets that use more than 1.6 gallons of water per flush (gpf) with a WaterSense® certified, high-efficiency toilet (HET) that uses 1.28 gpf or less. WaterSense® dual-flush toilets must also use 1.28 gpf or less for both flush options. Up to two rebates may be provided for up to \$100 each, or the cost of the HET, whichever is less. To date, over 3,700 toilet rebates been provided and the City routinely authorizes HET installations that may exceed the budgeted annual funding by transferring from other budgeted funds to cover these expenses, because this conservation is in such high demand by our customers and so important to the Utility and the City leadership.
 - Low-flow faucet aerators, shower heads, and restaurant pre-rinse spray valves: This incentives program entails free yearly distribution of low-flow faucets, low-flow aerators, and low-flow showerheads to residential customers, and low-flow pre-rinse spray valves to commercial customers. This initiative will save water by replacing inefficient plumbing fixtures with high-efficiency fixtures.
- Ultra-Low Volume Plumbing - The City of Sunrise has adopted Florida Building Code: Plumbing Section, Chapter 4, which requires the adoption of ultra-low volume plumbing fixtures in all new construction. Plumbing fixtures shall be 80 pounds per square inch (psi) pressure; toilets, 1.6 gpf; shower heads, 2.5 gallons per minute (gpm); and faucets, 2.2 gpm at 60 psi.
- Water Conservation Tips - these are shared with the public on the City’s website and via other methods presented in 1. Water Conservation Public Education Program. These water conservation tips include:
 - Looking for labels on appliances or equipment with the WaterSense™ label.
 - Fixing a leak.
 - Shortening your showers.
 - Going low-flow as stated previously.
 - Turning off the tap while brushing your teeth.



- Testing your toilet tank for any leaks.
- Washing only when you have a full load.
- Throwing tissues in the trash rather than the toilet.
- Picking plants that require low water or are drought tolerant.
- Using water-saving drip irrigation for your landscaping.
- Watering your lawn in the early morning.

The City of Sunrise has been able to reduce the water usage rate of 127 gallons per capita per day in 2008 to 102 gallons per capita per day. This implies a drop in water use rate of 19.6% over last 12 years, majority of which could be resulting from conservation. While conservation is a major factor in the reduction of water usage rate, there are various other factors such as abundant rainfall, lack of consecutive dry seasons, conservation rate structure, increase in water rates, land use changes and so forth.

Table 6.2 below provides an analysis of the existing water conservation efforts and the applicable policies and programs of the SFWMD, Broward County and 2018 LECWSP Update.

Table 6-2. Conservation Programs Level of Participation and Outcomes

| Specific District and County Policies or Goals | City of Sunrise Participation Analysis | City of Sunrise Participation Outcome | Recent Updates or Improvements Needed |
|--|---|---|---|
| <p>Education, Outreach and Marketing – Required by Conservation Goals of the SFWMD, Broward County & 2018 LECWSP Update</p> | <p>The reach of the City of Sunrise conservation education and outreach programs is vast. The City reaches customers through the City's website, the utility bill inserts, the <i>Good and Green</i> email newsletter which goes out to over 2,000 community members, social media posts, and through in-person engagement at community events.</p> | <p>It is not feasible to quantify water savings achieved from water conservation education and outreach programs. However; some noteworthy signs of program effectiveness include:</p> <p>As the water conservation knowledge of customers improves, they are much more likely to then participate conservation rebates and other programs offered by the utility. The City of Sunrise is the leading City in Broward County with the largest number of rebates claimed in the Conservation Pays program.</p> | <p>The City is satisfied with the current level of conservation outreach and education programs and they are in line with the local and regional goals; however, the City has recently invested in expanding the City's sustainability efforts and continued or additional outreach and education will be conducted. The Sustainability Action Plan adopted in 2019 called for supporting increased awareness of sustainable concepts through community outreach and identification of opportunities for improvement.</p> |



10-YEAR WATER SUPPLY FACILITIES WORK PLAN – 2020 UPDATE

| Specific District and County Policies or Goals | City of Sunrise Participation Analysis | City of Sunrise Participation Outcome | Recent Updates or Improvements Needed |
|--|---|--|---|
| | | <p>With effective education and outreach, customers are more likely to make better decisions on their own water usage. In the past 12 years, the City has experienced a reduction in per capita consumption from 127 gpcd to 102 gpcd (a 19.6% reduction). The schools outreach and education further promote greater household participation in a water utility’s conservation strategy.</p> | |
| <p>Cost Share Funding Programs – Required by Conservation Goals of the SFWMD, Broward County & 2018 LECWSP Update</p> | <p>The City actively participates, promotes and funds Cost Share programs such as: Conservation Pays for toilets rebates and other conservation tools, NatureScape Irrigation Service Program for free irrigation system evaluation and upgrade rebates, the “Plant it Forward Program” to provide free trees and the “Be a Butterfly Hero” which provides free plants and garden planting materials. In past Broward County Water Matters Day events, the City has given out 55 gallon Rain Barrel collectors. Overall, the City spends approximately \$115,000 per year on these Cost Share Funding programs.</p> | <p>The City of Sunrise is the leading City in Broward County with the largest number of rebates claimed in the Conservation Pays program. Broward County estimates that City of Sunrise utility customers have saved over 523 million gallons of water from fiscal year 2012 through 2019.</p> <p>The NatureScape irrigation evaluations result in an average of 20% irrigation water savings per location.</p> <p>As with water conservation education and outreach efforts, some of the cost share funding programs resulting water savings are difficult to quantify so a full count of water savings is not available.</p> | <p>The City is satisfied with the current level of cost share programs and they are in line with the local and regional goals and programs. A recent expansion of these efforts came from the Sustainability Action Plan adopted in 2019 which called for a 10% reduction in potable water consumption by 2022 in the City owned facilities such as governmental operations facilities and City parks. The City has been actively retrofitting water fixtures to achieve this goal.</p> |
| <p>Mobile Irrigation labs – Required by Conservation Goals of the SFWMD, Broward County & 2018 LECWSP Update</p> | <p>The City participates in the local Irrigation Lab from Broward County called NatureScape Irrigation Service (NIS) Program. It offers free irrigation system evaluations and upgrade rebates.</p> | <p>The NatureScape irrigation evaluations result in an average of 20% irrigation water savings per location, however, cumulative water savings for this program are not feasible to quantify.</p> | <p>The City currently participates in the Mobile Irrigation Labs program promoted by the District and County and the City’s participation satisfies the local and regional goals for this program.</p> |



| Specific District and County Policies or Goals | City of Sunrise Participation Analysis | City of Sunrise Participation Outcome | Recent Updates or Improvements Needed |
|---|---|---|--|
| | | | <p>In 2019, the City of Sunrise participated in the NIS pilot program for residential units with 55 applicants, 17 site visits and evaluations and 10 residential properties received rebates to upgrade their irrigation systems. The City signed a new agreement in 2020 with the County to implement the Residential Irrigation Rebate Program fully.</p> |
| <p>Consumptive Use Permit (CUP) Requirements</p> | <p>The City of Sunrise has implemented all necessary programs, protocols, provisions and reporting required to meet all CUP conditions related to water conservation and water accountability. These include: Average Day Flows compliance, adoption of rules 40E-21 and 40E-24 into The City of Sunrise Code of Ordinances, Article III, Section 15-84 & 15-85, calibration of raw water meters, reporting of monthly withdrawals, reporting of water loss and continued leak detection program, implementation water use conservation plan, development of alternative water supply and wastewater reuse.</p> | <p>The City of Sunrise complies with all CUP conditions for water conservation and water accountability.</p> <p>The City of Sunrise has developed a Standard Water Conservation Plan which complies with the requirements of the District. The requirements per the District's Applicant's Handbook include:</p> <ol style="list-style-type: none"> 1) A water conservation public education program 2) An outdoor water use conservation program 3) The selection of a rate structure designed to promote the efficient use of water by providing economic incentives 4) A water loss reduction program, if water losses exceed 10% 5) An indoor water conservation program | <p>No improvements or updates are required since all CUP conditions are met and continue to be met through established programs, protocols, provisions and reports.</p> <p>Updates will be made in the future as required by updates to the CUP conditions or State, regional or local policies and goals change</p> |



6.6 REUSE PROGRAMS

City completed a reuse feasibility study in 2009 which determined that approximately 2.0 MGD of reuse was feasible in the vicinity of the Sawgrass and Springtree WWTP. In 2011 and 2012, the City performed another feasibility assessment in terms of offsetting non-potable groundwater withdrawals to increase the availability of the Biscayne Aquifer for potable water supply purposes. The City completed 0.99 MGD of reuse facility at Southwest WRF in 2010. The Construction of the first phase of the 4 MGD Reuse facility at the Sawgrass WWTP was completed in 2019. The reuse program is targeting large users with private irrigation wells or pumps near the City's Biscayne Aquifer wellfields.

6.7 INTERGOVERNMENTAL COORDINATION

In preparation of this document, coordinated with a number of governmental agencies, hence that the findings and conclusions of this Plan are the result of information exchange and an understanding of the implications associated with this Plan. Specifically, staff from the City's Planning and Utilities Department met with the South Florida Water Management District, Broward County, the Town of Davie, the City of Weston and the Town of Southwest Ranches. Through these meetings, we jointly developed the population projections and water demand projections upon which this Plan is based; furthermore, we established the basis for continued communication as future growth occurs.

6.7.1 Ongoing Coordination Activities with All Water Service Receiving Local Governments

The City of Sunrise has actively participated in Broward County's Water Advisory Board by having Assistant Deputy Mayor Neil C. Kerch be an alternate board member. The Deputy Mayor and Utilities Director actively participate in the board meetings. The Utilities Director also serves as a member of the Boards Technical Advisory Committee. The purpose of the board is to advise and make recommendations to the Broward County Board of County Commissioners in matters relating to the development, use and management of water resources within Broward County which may include, but are not limited to, water supply, water conservation, ground water recharge, reuse of wastewater effluent, and stormwater management.

Additionally, the City of Sunrise Utilities staff is actively engaged in local professional groups such as The Southeast Florida Utility Council (SEFLUC) which provides a communications, networking, and support structure for member utilities for matters related to water supply and wastewater management services. The City of Sunrise's Assistant Director served on the board as Chairperson in 2014, and the City of Sunrise's Plant Operations Engineer served on the board as Chairperson in 2017. SEFLUC is heavily involved in matters related to regional water management issues such as legislation, projects funding, and planning. During the 2017-2018 Lower East Coast Plan development efforts, SEFLUC hosted meetings with the SFWMD staff for



coordination and membership input. Other professional groups related to water supply include Florida Water Environment Association (FWEA) and WaterReuse Florida.

6.7.2 Needs for Additional Coordination Activities

The above-mentioned local planning and professional groups serve as additional means of continued coordination with all local governments receiving water from the City. Based on the most recent coordination meetings for this update, no pending issues were identified between the City of Sunrise and the local governments receiving water from City. Therefore, no additional coordination activities are identified at this time other than the continuous engagement as described above. In the most recent coordination meetings, the consensus of the local government representatives was that the most recent data and data projections, current and future plans, policies and goals were discussed and all parties had an agreement and common understanding of these items and no further discussions were required unless changes in the items discussed arose in the future.

6.7.3 Coordination with LEC Plan Update

The City of Sunrise actively participates in LEC Plan Updates and provides information and coordination as requested by the District. In the most recent coordination meetings, no pending issues were identified between the parties involved.

6.7.4 Information on Memoranda of Understanding, Bulk Service Agreements and Contracts

Following is a summary of the agreements between the City of Sunrise and the municipalities that are within its service area.

City of Weston – The City provides water service to the City of Weston ("Weston") on both a wholesale and retail basis. The City of Weston does not provide utility service within its corporate boundaries. With respect to wholesale service, the City provides water and wastewater service to the Indian Trace Community Development District (the "ITCDD"), a community development district located solely within the corporate boundaries of Weston. The ITCDD receives wholesale service from the City pursuant to the Bulk Sale of Water and Sewer Services Agreement dated October 29, 1980, as amended (the "ITCDD Agreement"). The ITCDD Agreement was entered into for a term of thirty (30) years and is set to expire on June 30, 2023, with such agreement being automatically renewed for an additional term of thirty (30) years unless ITCDD notifies the City five years in advance of its intent to not renew the agreement.

The City also provides retail service to the remainder of Weston. This service area was previously served by the Bonaventure Utilities Corporation water and wastewater utility system (the "Bonaventure System"), a privately-owned system. The City purchased the Bonaventure System in 1976. At the time of purchase, the service area was located in unincorporated Broward County; subsequent to the purchase, the City of Weston annexed the service area into its city limits. Since the City owned the Bonaventure System and provided retail utility service to such customers prior to such annexation, the City has the authority to provide utility service within the City of Weston. The parties do not have a franchise agreement or any other similar agreement



that allows the City to operate this component of the utility in the municipal boundaries of the City of Weston.

Town of Davie – the City provides water and wastewater service to the western portion of the Town of Davie ("Davie") on a retail basis. Pursuant to the terms and conditions of a Settlement in the Civil Cases between Davie and the City dated May 6, 1987 (the "Davie Agreement"), the City was granted the right to provide water and wastewater service within a portion of the corporate limits of Davie. The Agreement does not contain a date of expiration and it is assumed by the City that it has a perpetual right to provide utility service to this portion of the Town of Davie. Subsequent to the execution of the Davie Agreement, the parties have entered into a series of amendments to such agreement which allowed the City to expand its water and wastewater service area located within the Town of Davie. Each amendment essentially identified the additional service area and customer base that the City would be authorized to serve. As part of this authorization to provide service within Davie, the City purchased the South Broward Utility, Inc. water and wastewater system (the "SBU System") a portion of which system was located in the Town Davie and a portion of which was located in unincorporated Broward County which later became the Town of Southwest Ranches.

Town of Southwest Ranches – the City provides water service to the Town of Southwest Ranches on a retail basis. At the time of purchase of the SBU System, the service area was located in unincorporated Broward County; subsequent to the purchase, the Town of Southwest Ranches became incorporated. Since the City owned the SBU System and provided retail water service to such customers prior to the incorporation of this area by the Town of Southwest Ranches, the City has the authority to provide water service to the Town of Southwest Ranches. The parties do not have a franchise agreement or any other similar agreement that allows the City to provide water service in the municipal boundaries of Southwest Ranches.

Park City – the City purchased the privately owned Pine Island Utilities Corporation water and wastewater system in 1974. The area served by such system was referred to as Park City and was located at the time of acquisition by the City in unincorporated Broward County. Since the acquisition of this utility system, the Town of Davie has annexed the Park City service area into its corporate limits; however, the City still provides utility service for this service area.

6.8 CAPITAL IMPROVEMENT ELEMENT

The City has initiated development of a reuse water system that will initially target large users in the western portions of the utility service area. The City intends to apply for the water to retire existing CUPs and substitute them with reuse water. The retired CUPs could be transferred to the City's Biscayne wells with a substitution credit (volumes for credit is to be determined as part of the application process) that results in alternative water supply for the City without impacting the regional system. The City has completed construction of 1 MGD of reuse water at Southwest WWTP as well as completed the construction of 4 MGD of reuse facility at Sawgrass WWTP.

The City also anticipates participating in the C-51 Reservoir Project for additional alternative water supply. The schedule for construction and commissioning the first phase of the reservoir is



dependent on factor outside the control of the City, but likely to occur within the 10-year planning horizon.

The City is financially prepared to develop it reuse water system and participate in C-51 Reservoir Project as the demands materialize.

6.9 GOALS, OBJECTIVES, POLICIES

6.9.1 Existing Goals Objectives and Policies

The following are the existing goals, objectives and policies compiled from the City's 2018 Comprehensive Plan and are in support of the City's Ten-Year Water Supply Facilities Work Plan. New additions to the GOPs are shown with an underlined format while deletions are shown with a strike through format in the text below.

PLANNING AND INTERGOVERNMENTAL COORDINATION

- The City of Sunrise shall adopt and implement the Ten-Year Water Supply Facilities Work Plan to increase the coordination between land use and future water supply planning within 18 months of the adoption of the Lower East Coast (LEC) Water Supply Plan, as required by Chapter 163, Florida Statutes. (Future Land Use Element, Policy 14.1.2).
- The City of Sunrise will provide immediate and ongoing coordination with the South Florida Water Management District (SFWMD) to ensure that the City's plans, requirements and related actions contained in the Ten-Year Water Supply Facilities Work Plan are consistent with the Lower East Coast (LEC) Regional Water Supply Plan (Intergovernmental Coordination Element, Policy 1.1.19).
- The City of Sunrise shall coordinate the Comprehensive Plan and its implementation with the State, the South Florida Regional Planning Council (SFRPC), Broward County and adjacent municipalities, as well as the School Board of Broward County (SBBC), the South Florida Water Management District (SFWMD), and all applicable special districts, as needed (Intergovernmental Coordination Element, Objective 1.1).
- The City of Sunrise will review reports and plans prepared by the South Florida Water Management District (SFWMD), the Broward County Solid Waste Disposal District (BCSWDD) and the Central Broward Water Control District (CBWCD), and identify potential conflicts with the City's adopted Comprehensive Plan (Intergovernmental Coordination Element, Policy 1.1.12).
- The City of Sunrise, in cooperation with the appropriate federal, state, county and other local governmental agencies, shall encourage the appropriate coordinated level of service (LOS) facilities and services. The City of Sunrise shall continue to provide utility services to governments with which the City has executed agreements and will continue to exchange information with surrounding local governments regarding relative items



affecting the standing of such service agreements (Intergovernmental Coordination Element, Objective 1.2; Policy 1.2.4).

- Where appropriate and feasible, the City of Sunrise's Ten-Year Water Supply Facilities Plan shall include ongoing collaborative approaches with other local governments for long term alternative water supply source use and water treatment technology. The City of Sunrise will hold annual meetings with local governments in the City's Water Service Area and the South Florida Water Management District (SFWMD) to discuss forecasted populations, service area expansions, review of land use changes that increase water supply demand, and review the implementation of conservation reuse programs and alternative water supplies. (Infrastructure Element, Policy 1.1.12; Intergovernmental Coordination Element, Policy 1.1.21).
- The City of Sunrise will continue to provide centralized wastewater, solid waste, drainage and potable water facilities and services to meet existing and projected demands identified in this plan; as such the City will not permit septic tanks and potable wells. (Infrastructure Element, Goal 2).
- The City of Sunrise shall ensure and identify the consistency of local level of service (LOS) standards by contacting all local governments in which water service is provided and obtain current information, including: populations, LOS, service areas, and water supply facilities, and evaluate if future modification to either the service agreement or LOS standards should be included in subsequent Comprehensive Plan amendments. (Intergovernmental Coordination Element, Policy 1.2.5).
- The City of Sunrise shall negotiate or renew inter-local agreements with local governments in which water is supplied, ensuring contractual agreement of the adopted level of service (LOS) standards, service area, populations and time periods for services provided. (Intergovernmental Coordination Element, Policy 1.2.6).
- The City of Sunrise shall participate in updates to the Broward County Population Forecast and Allocation Model (PFAM), prepared by Broward County, to ensure projections accurately reflect existing and anticipated development within the City. City staff will provide information relating to land use, housing, and building permits to the appropriate person(s) in order to enable the County to develop coordinated and consistent population projections. (Intergovernmental Coordination Element, Policy 1.4.2)
- Upon adoption of the Broward County Population Forecast and Allocation Model (PFAM) into the Broward County Land Use Plan (BCLUP), the City of Sunrise shall review the final projections to ensure the population estimates and projections, prepared by Broward County, accurately reflect existing and/or anticipated future development within the City. (Intergovernmental Coordination Element, Policy 1.4.3)
- The City of Sunrise shall continue to review proposed comprehensive plan amendments of adjacent municipalities and Unincorporated Broward County which may affect the anticipated needs for wastewater and/or potable water services. (Intergovernmental Coordination Element, Policy 1.4.6)



- The City of Sunrise shall review the level of service (LOS) standards adopted, or amended, by all adjacent local governments that receive water from the City. (Intergovernmental Coordination Element, Policy 1.2.7).
- Concurrency Management System: Public facilities and services will be available at a level of service (LOS) established within the City of Sunrise Comprehensive Plan concurrent with impacts of development (Concurrency Management System). (Future Land Use Element, Objective 10.4).
- The City shall administer a Concurrency Management System to effectively manage new growth and to ascertain whether necessary facilities identified within the Capital Improvement Element are being constructed in accordance with the schedules therein and to measure the development capacity of such facilities in a given area at a given time. This review of public facilities shall cover at least a five (5) year period. (Future Land Use Element, Policy 10.4.1).
- To ensure that the necessary facilities and services are available concurrent with the impacts of development, the City shall continue to implement, and amend as necessary, the City of Sunrise Code of Ordinances. (Future Land Use Element, Policy 10.4.3).
- Amendments to the City of Sunrise Future Land Use Map proposing industrial uses that could result in contamination of the aquifer shall be discouraged within wellfield protection zones of influence (as identified by the Broward County Wellfield Protection Ordinance). (Future Land Use Element, Policy 14.1.4).
- Provide immediate and ongoing coordination of water supply planning and land use planning activities of the City of Sunrise with municipalities receiving water from the City and provide water to ensure that the water needs of the City's residents and other municipalities within the City's Water Service Area are met. (Future Land Use Element, Objective 14.5).
- Maintain consistency between the demand calculations in the City of Sunrise's Ten-Year Water Supply Facilities Work Plan and the population projections contained in the Future Land Use Element. (Future Land Use Element, Policy 14.5.1).
- Provide ongoing monitoring of water demands and applications related to future land use plan amendments located within the City's Water Service Area as defined in the City of Sunrise's Ten-Year Water Supply Facilities Work Plan. (Future Land Use Element, Policy 14.5.2).
- The City of Sunrise shall provide timely amendments to its Code of Ordinances in order to encourage water conservation through a tiered water and wastewater fee structure, which effectively discourages the use of water for all but essential needs by increasing the rates for abnormally high usages by types of use (i.e. business, residential, landscaping, etc.). (Future Land Use Element, Policy 14.5.3).
- The City of Sunrise will provide the South Florida Water Management District (SFWMD) with all required reports based on the Ten-Year Water Supply Facilities Plan, including on



the status of the development of new alternative water supply facilities. (Intergovernmental Coordination Element, Policy 1.1.20).

- Aquifer protection through responsible land use and activity. To protect aquifers and groundwater resources and prevent pollution the City will discourage septic tanks and potable wells. (Infrastructure Element Objective 3.2, Policy 3.2.1).

LEVEL OF SERVICE

- Levels of Service (LOS) and Concurrency Management: The City of Sunrise shall implement procedures to ensure that at the time a development order or permit is issued, adequate facility capacity is available or will be available when needed to serve the development prior to issuance of a building permit. (Infrastructure Element, Objective 1.1).
- The following level of service (LOS) standards are hereby adopted and shall be used as the basis for determining the availability of facility capacity and the demand generated by a development:

FACILITY

LEVEL OF SERVICE (LOS) STANDARD

Potable Water Annual average daily flow shall not exceed 90 percent (90%) of design capacity of the combined treatment plants The system shall maintain the capacity to produce and deliver ~~427~~ 102 gallons per person per day. (Infrastructure Element, Policy 1.1.1)

Wastewater Annual average daily flow shall not exceed 90 percent (90%) of design capacity of each treatment plant. The system shall maintain the capacity to collect, treat and dispose of ~~440~~ 93 gallons per person per day (Infrastructure Element, Policy 1.1.1).

- The City of Sunrise hereby adopts by reference the ~~10-Year~~ Water Supply Facilities Work Plan, prepared by Stantec Consulting Services, Inc., dated January ~~2015~~ 2020, for a planning period of not less than 10 years. The 10-Year Water Supply Facilities Work Plan addresses issues that pertain to water supply facilities and requirements needed to serve current and future development within the City of Sunrise Utility Service Area. The City shall review and update the Work Plan at least every five (5) years within eighteen (18) months after the governing board of the South Florida Water Management District (SFWMD) approves an updated Regional Water Supply Plan. Any changes affecting the 10-Year Water Supply Facilities Work Plan shall be included in the annual update to the Five-Year Schedule of Capital Improvements to ensure consistency between the Infrastructure Element and the Capital Improvements Element (Infrastructure Element, Policy 1.1.13).
- Assure that adequate water supplies and potable water facilities meeting the adopted level of service (LOS) shall be in place and available to serve new development no later than the issuance of a building permit. (Infrastructure Element, Policy 1.1.7).



- The City of Sunrise, in cooperation with the appropriate federal, state, county and other local governmental agencies, shall encourage the appropriate coordinated level of service facilities and services. The City of Sunrise shall continue to provide utility services to governments with which the City has executed agreements and will continue to exchange information with surrounding local governments regarding relative items affecting the standing of such service agreements (Intergovernmental Coordination Element, Objective 1.2; Policy 1.2.4).

COMPLIANCE

- Monitor water usage for compliance with the City of Sunrise's Consumptive Use Permit. (Infrastructure Element, Policy 1.1.8).
- Maintain a Water Supply Facilities Work Plan for at least a 10 year planning period addressing the water supply facilities necessary to serve existing and future development within the City's water service area. (Infrastructure Element, Policy 1.1.10).
- Wellfields: Protect the quality and quantity of the City of Sunrise's potable water supply and eliminate the presence of all regulated substances, as defined in Chapter 27, Article XIII, Broward County Wellfield Protection Ordinance, as amended, Broward County Code of Ordinances from the potable wellfield zones of influence of Sunrise's existing and planned wellfields, as depicted on the Wellfields Map (Figure A-2). (Future Land Use Element, Objective 14.1).
- Update adopted level of service (LOS) for consistency with the South Florida Water Management Districts (SFWMD) Lower East Coast (LEC) Water Supply Plan when proposing or amending the Ten-Year Water Supply Facilities Work Plan. At a minimum, this coordination shall take place within eighteen (18) months following an update to the LEC and be documented in the text of the Water Supply Facilities Work Plan. (Infrastructure Element, Policy 1.1.11).

CAPITAL IMPROVEMENTS

- Projected demands for the Five-Year Schedule of Capital Improvement needs for public facilities, will be met by undertaking projects listed in the Capital Improvement Element and by scheduling projects as identified in the Infrastructure and analysis. (Infrastructure Element, Objective 2.2).
- The annual summaries of facility capacity and demands information prepared by the Utilities Department shall be used to evaluate the need for timing, location and type of projects to extend or increase the capacity of existing facilities. (Infrastructure Element, Policy 2.2.1).
- All projects required to meet projected demands shall be scheduled in the Capital Improvements Element of this plan in accordance with the requirements of Section 163.3177(3), Florida Statutes, and in compliance with the Ten-Year Water Supply Facilities Work Plan.(Infrastructure Element, Policy 2.2.2).



- Wastewater: Annual average daily flow shall not exceed 90 percent (90%) of design capacity until buildout. The system shall maintain the capacity to collect, treat and dispose of ~~440~~ 93 gallons per person per day (Capital Improvements Element, Policy 1.2.1).
- Potable Water: Average daily flow shall not exceed ninety percent (90%) of design capacity of the combined treatment plants. The system shall maintain the capacity to produce and deliver ~~427~~102 gallons per person per day. (Capital Improvements Element, Policy 1.2.3).
- The City of Sunrise shall adequately fund and make capital improvements through the City's Renewal and Replacement Program necessary to keep its present public facilities in good condition and to accommodate new development, within sound fiscal practices. (Capital Improvements Element, Policy 1.2.10).
- The City of Sunrise shall provide adequate potable water and wastewater facilities meeting the adopted level of service (LOS) and available to serve new development concurrent with the impacts of development, or that development orders and permits shall be specifically conditioned on the availability of facilities and services necessary to serve the proposed development prior to the issuance of a Certificate of Occupancy. (Capital Improvements Element, Policy 1.2.11).
- The City of Sunrise shall implement the water supply projects described in the Ten-Year Water Supply Facilities Work Plan. These improvements shall be incorporated into the Capital Improvements Element and the City's budget on an annual basis. (Capital Improvements Element, Policy 1.2.12).

CONSERVATION

- The City of Sunrise shall continue to use multiple programs for year-round water conservation. (Conservation Element, Policy 1.6.1).
- The City of Sunrise shall work with the South Florida Water Management District (SFWMD), Broward County, municipalities, independent drainage districts, and neighboring counties to plan for and develop additional surface water storage and conveyance improvements for supply, including those for the C-51 Reservoir project (Conservation Element, Policy 1.6.11).
- The City of Sunrise shall adopt water conservation measures similar to those adopted by the South Florida Water Management District (SFWMD) in the Lower East Coast (LEC) Water Supply Plan. (Future Land Use Element, Policy 14.1.3)
- The City of Sunrise is committed to support the C-51 Reservoir Project, identifying potential demands from ~~thirty~~ 30 ~~fifty~~ (50) year population projections and will participate in a collaborative process with Broward County, Fort Lauderdale and other willing cities in Broward, Palm Beach and Miami-Dade counties for delivery of this alternative water supply program of projects (Intergovernmental Coordination Element, Policy 1.1.24).



- Conserve potable water by pursuing implementation of the water conservation practices described in the Ten-Year Water Supply Facilities Work Plan (Infrastructure Element, Objective 2.3).
- Irrigation with potable water will be discouraged. (Infrastructure Element, Policy 2.3.1).
- Continue to implement a monitoring plan for construction water usage through the installation for temporary meters. (Infrastructure Element, Policy 2.3.2).
- Increase rates for abnormally high usages by type of business or residential use. (Infrastructure Element, Policy 2.3.3).
- The City of Sunrise shall coordinate as needed with the South Florida Water Management District (SFWMD) to evaluate the development and potential implementation of a program for the voluntary conservation of water through rationing or restricting usage periods. (Infrastructure Element, Policy 2.3.4).
- Require low volume water saving fixtures. (Infrastructure Element, Policy 2.3.5).
- Continue to evaluate other methods of encouraging water conservation such as the reuse of reclaimed water as provided in the 10-Year Water Supply Facilities Plan. (Infrastructure Element, Policy 2.3.6).
- The City of Sunrise shall immediately provide conservation measures by implementing process improvements associated with treatment of water from the Sawgrass plant to increase treatment efficiency by five percent (5%) and reduce water lost from the water treatment process. (Infrastructure Element, Policy 2.3.7).
- The City of Sunrise shall use land development regulations to preserve key natural groundwater aquifer recharge areas. The City of Sunrise shall not allow development identified as non-complying to Broward County Ordinance 89.6 and which does not protect or conserve existing fisheries, wildlife habitats, lakes, floodplains, and wetlands. (Conservation Element, Policy 1.3.3).
- In order to protect and preserve the Biscayne Aquifer the City of Sunrise will utilize alternative water supplies to supplement the City's consumptive use permit water withdrawal allocation. (Conservation Element, Policy 1.3.6).
- The City of Sunrise shall provide for emergency conservation of water in accordance with the plans of the South Florida Water Management District (SFWMD) and the City's Ten-Year Water Supply Facilities Work Plan. (Conservation Element, Objective 1.6).
- The City of Sunrise shall immediately implement emergency measures for conservation of water resources when required or requested by the South Florida Water Management District (SFWMD). Conservation action shall include but not be limited to: a program for the voluntary conservation of water through restricting usage periods and/or rationing. Nonessential water usage such as lawn watering and other outdoor activities would be limited to certain days of the week and times of the day as required by the SFWMD. (Conservation Element, Policy 1.6.2).



- The City of Sunrise shall continue to require through the Land Development Code (LDC) requiring Florida Friendly plantings in all new developments and redevelopment, which will reduce the overall amount of all types of water to be used for irrigation purposes. (Conservation Element, Policy 1.6.3).
- The City of Sunrise shall continue the usage monitoring campaign which includes the identification of potential sources of illegal water uses (i.e. construction activity, non-metered facilities, etc.). Penalties for illegal water use should continue to be enforced by the City. If necessary, to encourage conservation by the public, an awareness campaign in conjunction with the SFWMD will be publicized. (Conservation Element, Policy 1.6.4).
- The City of Sunrise should encourage conservation by the public through an educational awareness campaign supporting environmental education program (Conservation Element, Policy 1.6.7).
- The City of Sunrise shall provide timely amendments to its Land Development Code (LDC) to encourage water conservation through a tiered water and waste water fee structure, which effectively discourages the use of water for all but essential needs by increasing the rates for abnormally high usages by types of use (e.g. business, residential, landscaping, etc.). (Conservation Element, Policy 1.6.5).
- The City of Sunrise shall continue to support the Broward NatureScape Program, which promotes landscapes that conserve water, protect water quality, and creates wildlife habitat in new development and redevelopment. (Conservation Element, Policy 1.6.6).
- In an effort to reduce water usage, the City of Sunrise shall immediately utilize measures outlined in the Water Conservation Ordinance for Landscape Irrigation and Florida Department of Environmental Protection's (FDEP) Florida Statewide Comprehensive Water Conservation Program for Public Water Supply. (Conservation Element, Policy 1.6.8).
- The City of Sunrise shall require new development and redevelopment to implement automatic self-actuating water conservation measures, to be utilized year-round during periods of declared drought. These conservation measures include restricted water use for irrigation purposes to the hours indicated in the South Florida Water Management District's (SFWMD) Comprehensive Water Conservation Plan. (Conservation Element, Policy 1.6.9).
- The City of Sunrise shall continue to seek conservation measures for implementing process improvements associated with treatment of water from the City's water and wastewater treatment plants (WWWTP) to increase treatment efficiency and reduce water lost from the water treatment process. (Conservation Element, Policy 1.6.10).
- The City of Sunrise shall work with the South Florida Water Management District (SFWMD), Broward County, municipalities, independent drainage districts, and neighboring counties to plan for and develop additional surface water storage and conveyance improvements for supply, including those for the C-51 Reservoir project (Conservation Element, Policy 1.6.11).



REUSE

- Groundwater Recharge: The City of Sunrise shall continue to protect the function of designated aquifer recharge areas through implementation of the following policies and land development regulations. (Infrastructure Element, Objective 3.1).
- Natural groundwater aquifer recharge areas will be maintained to provide for quality groundwater recharge. (Infrastructure Element, Policy 3.1.1).
- The City of Sunrise will coordinate with local, state and federal agencies to achieve regional aquifer recharge protection objectives. (Infrastructure Element, Policy 3.1.3).
- The City of Sunrise shall participate in the development and implementation of aquifer recharge area protection programs to meet national, state or regional objectives. (Infrastructure Element, Policy 3.1.4).
- The City of Sunrise shall work the South Florida Water Management District (SFWMD), municipalities, independent drainage districts and neighboring counties to plan and develop additional surface water storage opportunities including the C-51 Reservoir Project in Palm Beach County and the water preserve areas in western Broward County. (Infrastructure Element, Policy 3.1.5).

6.10 CONCLUSIONS

The City of Sunrise Water Utility has a long standing practice for planning and developing a water system capable of meeting all the needs of its customers, both current and future. This is evidenced by its construction and operation of a water system capable of meeting not only today's demands but also demands through 2040.

As the South Florida Water Management District determined that the Biscayne Aquifer water resource can no longer be relied upon to supply future growth demands as follows from passage of the Water Availability Rule, the City has prepared to draw upon alternative water sources to meet future needs, as well as implemented measures to enhance efficiency and prevent losses, and are preparing to deliver beneficial wastewater reuse projects and participate in the C-51 Reservoir Project to make up any shortfalls. These projects along with our inter-governmental coordination, and active conservation measures which range from policies and programs that include the guidance of sound land use planning, development, and landscaping; as well as consumer outreach, education, assistance (incentives) and enforcement combine to position the City to be responsive to its water supply needs.

In summary, the City has prepared this Plan to ensure its water supply and facilities will meet its future demands. We have prepared this Plan as per State and regional coordination requirements specifically, as per the South Florida Water Management District's 2017 regional Lower East Coast Water Supply Plan, and local governments are required to update and adopt their Water Supply Facilities Work Plan by May 2020, and attendant updates to local Comprehensive Plans accordingly.



In preparing this Plan, the water supply and demand projections were formulated through assessment of population growth projections and anticipated water demand. The projections were matched to the data in the SFWMD’s Lower East Coast Plan and to Broward County’s population projections, and robust inter-governmental coordination was conducted with the local governments within the service area to review for any planned land use amendments or developments that may impact projections and require consideration in planning.

This Water Supply Work Plan, as formulated matches alternative source water development with water demand growth. The result is a Plan that the City can fund from cash reserves if desired for the next five years. It is a plan that satisfies the requirements of its Consumptive Use Permit and meets projected growth. Additionally, the plan is designed to minimize the City’s risk by providing significant flexibility with the timing of new facilities thus minimizing capital outlay until it is actually needed.

Regulatory compliance was also considered in the development of this Plan. In particular, the Plan to meet projected growth and future demand builds off of the conditions and requirements of Consumptive Use Permit. In addition, the City’s Plan incorporates measures integrating related regulatory requirements and policy objectives, such as those around water conservation.

Table 6-3. Comparison of Facility Capacity and Anticipated Future Permitted Amount

| | 2020 | 2025 | 2030 | 2040 |
|---|---------|---------|---------|---------|
| Population Served | 231,300 | 238,000 | 244,600 | 273,100 |
| Average Daily Demand (Finished) (MGD) ¹ | 23.6 | 24.3 | 24.9 | 27.9 |
| Demand per Capita Finished (GPCD) | 102 | 102 | 102 | 102 |
| Available Facility Capacity (MGD) | 51.5 | 51.5 | 51.5 | 51.5 |
| Facility Capacity Surplus (Deficit) ² | 27.9 | 27.2 | 26.6 | 23.6 |
| Anticipated Permitted Amount (MGD Annual Avg.) ³ | 31.09 | 31.09 | 31.09 | 31.09 |
| Anticipated Permitted Surplus MGD (Deficit) ⁴ | 4.47 | 3.82 | 3.11 | 0.20 |

¹MGD = Million Gallons per Day

² Calculated by subtracting Average Daily Demand from Available Facility Capacity

³ Calculated as treated water by subtracting Average Daily Demand and additional DRI demand (as of December 2007) from Permitted Amount

⁴The currently permitted raw water amount is 29.09 MGD. The City has applied for Consumptive Use Permit for C-51 Reservoir Project allocation. For the purpose of this calculation, existing Biscayne Aquifer allocation is at 29.09 MGD and Floridan Aquifer is at 2 MGD. Additional water demands will be met by implementing reuse, C-51 Reservoir Project source supply associated credits, and additional permitted withdrawal from Floridan Aquifer. (Source: Computed by Stantec, 2019)

**Table 6-4. City of Sunrise, Alternative Water Supply Project Capital Costs
(No Capital is Currently Required for Alternative Water Supply Projects)**

| Project Name | Funding Source | Expenditure ¹ (In Millions of Dollars) | | | | | Five Year Totals |
|--|-----------------|---|------|------|------|------|------------------|
| | | 2020 | 2021 | 2022 | 2023 | 2024 | |
| C-51 Reservoir Project | BP ² | - | - | - | - | - | - |
| Sunrise Golf Course Reuse Main Extension | Fund 465 | 2.257 | - | - | - | - | 2.257 |
| Reuse Distribution System – SICP, | Fund 465 | - | - | - | - | - | - |



10-YEAR WATER SUPPLY FACILITIES WORK PLAN – 2020 UPDATE

| | | | | | | | |
|--|----------|---|---|-------|-------|-------|-------|
| Sawgrass Mills & Artesia (Phase II) | | | | | | | |
| Reuse Distribution System – SICP, and Markham Park (Phase III) | Fund 465 | - | - | - | 0.2 | 9.66 | 9.86 |
| SGF-1 Aquifer Storage and Recovery conversion | Fund 465 | - | - | 0.095 | 0.173 | 0.173 | 0.441 |
| Springtree Floridan Supply Well | Fund 465 | - | - | 0.025 | 0.025 | 0.025 | 0.075 |

1. Source: Adopted Five-Year Capital Improvement Program – Fiscal Year 2019/2020
2. Bond Proceeds
(Source: City of Sunrise, 2019)



Appendix A **GROWTH POLICY; COUNTY AND MUNICIPAL
PLANNING; LAND DEVELOPMENT REGULATION,
CHAPTER 163, F.S. RELATED TO WATER SUPPLY
PLANNING**



Appendix B **CITY OF SUNRISE PRIVATE POTABLE, AND PRIVATE
AND PUBLIC NON-POTABLE WATER USE PERMITS**



Appendix C **WATER SUPPLY SYSTEM INTERCONNECTIONS**



Appendix D **SUNRISE UTILITY SERVICE AREA POPULATION
PROJECTIONS BY TAZs**



Appendix E **INTERGOVERNMENTAL MEETING MINUTES**



Appendix F CITY OF SUNRISE WELL DESCRIPTIONS



Appendix G CITY OF SUNRISE UNINCORPORATED PROPERTIES



APPENDIX B

CITY OF HOLLYWOOD WATER SUPPLY FACILITIES WORK PLAN (WSFWP) 2025 UPDATE (DRAFT)



Water Supply Facilities Work Plan (WSFWP) 2025 Update

December 2025 / DRAFT



Water Supply Facilities Work Plan (WSFWP) 2025 Update

December 2025 / DRAFT

This document is released for the purpose of information exchange review and planning only under the authority of Angelica Gregory, December 2025, Florida PE 75583.

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Abbreviations

| | |
|---------------------|---|
| AADF | annual average daily flow |
| ASR | aquifer storage and recovery systems |
| AWIA | America's Water Infrastructure Act |
| AWS | alternative water supply |
| BCWPA | Broward County Water Preserve Areas |
| BCWWS | Broward County Water and Wastewater Services |
| BMP | best management practices |
| CERP | Comprehensive Everglades Restoration Project |
| cfm | cubic feet per minute |
| CII | Commercial/Industrial/Institutional |
| CIP | Capital Improvement Program |
| City | City of Hollywood |
| City's WTP | City of Hollywood Water Treatment Plant |
| CO ₂ | carbon dioxide |
| CUP | consumptive use permit |
| CVAAP | Citywide Vulnerability Assessment and Adaptation Plan |
| EHR | effluent heat recovery |
| ESSD | emergency storage and supply diversification |
| FAC | Florida Administrative Code |
| FDEP | Florida Department of Environmental Protection |
| F.S | Florida Statutes |
| GHG | greenhouse gas |
| GOP | goals, objectives, and policies |
| gpcd | gallons per capita per day |
| gpd | gallons per day |
| gpm | gallons per minute |
| gpm/ft ² | gallons per minute per square foot |
| HET | high efficiency toilet |
| HLD | high-level disinfection |
| HLWD-DPU | City Department of Public Utilities |
| H ₂ S | hydrogen sulfide |
| LORS08 | Lake Okeechobee Regulation Schedule |
| LOS | level of service |
| LOSOM | Lake Okeechobee System Operating Manual |
| LS | lime softening |
| µm | micrometer |
| MFL | minimum flow and minimum water level |
| MG | million gallon |

| | |
|--------|--|
| mgd | million gallons per day |
| mg/L | milligrams per liter |
| MORs | monthly operating reports |
| MS | membrane softening |
| NAVD | North American Vertical Datum |
| NIS | NatureScape Irrigation Services |
| NPW | non-potable water |
| NWF | National Wildlife Federation |
| OOL | ocean outfall legislation |
| PFAM | population forecast and allocation model |
| RAA | restricted allocation area |
| RCAP | regional climate action plan |
| RO | reverse osmosis |
| RWA | regional water availability |
| SFWMD | South Florida Water Management District |
| SRF | state revolving funds |
| SRW | South Regional Wellfield |
| SRWWTP | Southern Regional Wastewater Treatment Plant |
| USGS | United States Geologic Survey |
| WRRDA | Water Resources Reform and Development Act |
| WSFWP | water supply facilities work plan |

SECTION 1 INTRODUCTION

This section presents the local government and statutory overview and the project objective, including a brief description of the content in this report.

1.1 Local Government Overview

The City of Hollywood (City) is a coastal municipality located in southeastern Broward County, Florida, situated between Fort Lauderdale to the north and Miami to the south along the Atlantic Ocean. Incorporated in 1925, Hollywood has developed into one of Broward County's largest cities, with 153,859 residents based on 2023 census estimates, spread across roughly 30 square miles. Close to being built-out, the City expects redevelopment to accommodate future population increase. The City operates under a Commission-Manager form of government with a Mayor, six City Commissioners, and a City Manager overseeing daily operations, including the Department of Public Utilities responsible for water supply and distribution. Hollywood falls within the jurisdiction of the South Florida Water Management District (SFWMD) and is subject to regional water resource planning requirements. As a coastal community, the City faces unique water management challenges including saltwater intrusion into groundwater supplies, the impacts of climate change and sea-level-rise, and the need to balance growing demand with sustainable resource management. The City's water system serves Hollywood residents and businesses as well as portions of neighboring municipalities through interlocal service agreements, making regional coordination an essential component of the City's long-term water supply planning efforts.

1.2 Statutory Overview

Chapter 163, Part II, Florida Statutes (F.S.), requires local governments to prepare and adopt 10-Year Water Supply Facilities Work Plans into their comprehensive plans within 18 months after the SFWMD approves a regional water supply plan or its update. The 2023-24 Lower East Coast Water Supply Plan Update (2023-24 LEC Plan Update) was adopted by the SFWMD's Governing Board on September 23, 2024. Therefore, local governments within the Lower East Coast Region are required to amend their comprehensive plans and include an updated 10-year Water Supply Facilities Work Plan and related planning elements by March 23, 2026.

The State of Florida requires that the 10-Year Water Supply Facilities Work Plan Update address the development of traditional and alternative water supplies and management strategies, including conservation and reuse. The data and analyses, including population projections and water demands, must span at least a 10-year planning period and be consistent with the 2023-24 LEC Plan Update. The data presented herein are for the planning period through the year 2045.

1.3 Objective

The City's Water Supply Facilities Work Plan is incorporated into the Water, Capital Improvements and Infrastructure Sub-Elements of its Comprehensive Plan. Carollo was contracted by the City Department of Public Utilities (HLWD-DPU) to update the City's 2020 Water Supply Facilities Work Plan to represent the year 2025 (WSFWP 2025 Update). The main objective of this update is to ensure that potable water service is available to concurrently support development through the 2045 planning horizon.

1.4 Project Overview

This WSFWP 2025 Update identifies water utilities that serve the City's jurisdiction and presents the development of traditional and alternative water supplies, bulk sale agreements, and conservation and reuse programs that are necessary to serve existing and new development for a specific planning period while complying with regulatory requirements. Although this report is referred to as a 10-year work plan, the water demand forecast provided in this document extends to the year 2045, which is consistent with the latest LEC Plan Update.

This City of Hollywood WSFWP 2025 Update builds upon or utilizes the following documents:

- City's 2020 Water Supply Plan Potable Water Sub-Element;
- SFWMD's 2018 LEC Plan Update;
- SFWMD's 2023-24 LEC Plan Update;
- Broward County's Water Supply Facilities Work Plan 2020; and,
- Draft City of Fort Lauderdale Water Supply Facilities Work Plan 2025 Update, dated June 19, 2025.

This WSFWP 2025 Update includes the following items:

- Five-year population and water demand projections through the year 2045 within the City's jurisdiction and HLWD-DPU's service area.
- Assessment of the City's current water supply sources and treatment capacities.
- Identification of alternative water supply projects for implementation including cost and schedule.
- Recognition of the regional water supply planning issues that have the potential to impact the City.
- Identification of water conservation and reuse practices and regulations within the City's service area.
- Identification of the HLWD-DPU capital improvement projects.
- Demonstration that the City has coordinated with other service providers supplying water within the City's jurisdiction (i.e. Broward County Water and Wastewater Services and the City of Fort Lauderdale) to ensure that short- and long-term water supply needs will be met.
- Identification of Goals, Objectives, and Policies (GOP's) required to implement the Work Plan and water supply concurrency requirements.

It should be noted that because the Seminole Tribe of Florida reservation maintains its own water supply system, it is required to prepare its own Water Supply Facilities Work Plan. Detailed water demand projections for its service area are not included in the City's WSFWP 2025 Update.

This report is organized into the following sections.

Section 1: Introduction – presents the local government and statutory overview and the project objective, including a brief description of the content in this report.

Section 2: Water Service Area – introduces the geographic area served by the HLWD-DPU, other utilities that provide water service within the City of Hollywood, and describes the City's reuse water system customers.

Section 3: Existing Water Supply System – characterizes the water infrastructure that serves the Hollywood service area including raw water sources, existing treatment facilities, distribution systems, and associated consumptive use permits.

Section 4: Reclaimed Water System and Water Conservation Program – summarizes the reuse water usages and water conservation program within the City. The section demonstrates the City's progress and plan to meet the Ocean Outfall Legislation's feasible reuse requirements.

Section 5: Data and Analysis of Water Demand Forecast and Supply Adequacy – presents the methods, data and results of the water demand forecasts within the HLWD-DPU water service area and provides a comparison of future water demand to available water supply. This section demonstrates that the existing water supply permitted quantities, coupled with the City's conservation and reuse practices, will meet projected demands through 2045.

Section 6: Regional Issues and Intergovernmental Coordination Activities – summarizes the regional water supply planning issues that have the potential to impact the City. Intergovernmental coordination activities are also reviewed for adequacy and if new activities will be needed because of changes in statutory requirements.

Section 7: Water Supply Capital Improvements – identifies the capital improvements required to maintain and build public water supply facilities to serve the existing and new development within the City's jurisdiction.

Section 8: Comprehensive Plan (Related Amendments) – includes an assessment of the draft Comprehensive Plan GOPs dated 2025 and identifies any new or revised GOPs, relative to the 2020 Water Supply Plan Potable Water Sub-Element, needed to implement the work plan.

Section 9: Summary and Conclusions.

SECTION 2 WATER SERVICE AREAS

This section introduces the HLWD-DPU geographic service area and identifies the water utilities serving portions of the City. This section also describes the City's reuse water system.

2.1 Potable Water Service Areas

The City, located in Broward County Florida, covers approximately 29 square miles bound by the Atlantic Ocean to the east and surrounded by seven cities, one town, a Seminole Tribe of Florida reservation, and unincorporated areas. Figure 2.1 illustrates the City of Hollywood jurisdiction, the HLWD-DPU water service area, and the neighboring municipalities. Except for Port Everglades, the City's jurisdiction is supplied with finished water produced at the City of Hollywood Water Treatment Plant (City's WTP). Port Everglades is supplied by the City of Fort Lauderdale Public Works Department. The City has no plans to expand, contract, or change the geographic location of its water service area. However, it is considering the possibility of establishing an interconnected emergency storage and supply diversification (ESSD) arrangement with the City of Hallandale Beach. There are no domestic self-supplied water systems within the City of Hollywood.

2.1.1 City of Hollywood Potable Water System Service Area

The City's WTP is operated by the HLWD-DPU. In 2024, the City's WTP produced approximately 24.4 million gallons per day (mgd) of potable water. The City's WTP supplies a retail service area, extending over most of the City's jurisdiction, and a wholesale service area covering Broward County Water and Wastewater Services (BCWWS) Districts 3A and 3B/C. In this report, these service areas are referred to as HLWD-DPU water retail area and HLWD-DPU water wholesale area. The BCWWS districts are served under an interlocal resale water agreement between the City and Broward County by which Broward County purchases potable water from HLWD-DPU for resale to its customers.

Beyond the City's jurisdiction, the HLWD-DPU water retail area includes approximately 300 acres in the Town of Davie and 50 acres in the City of Dania Beach. Retail water service to a small area of the Seminole Tribe of Florida reservation that the City previously served was disconnected in recent years.

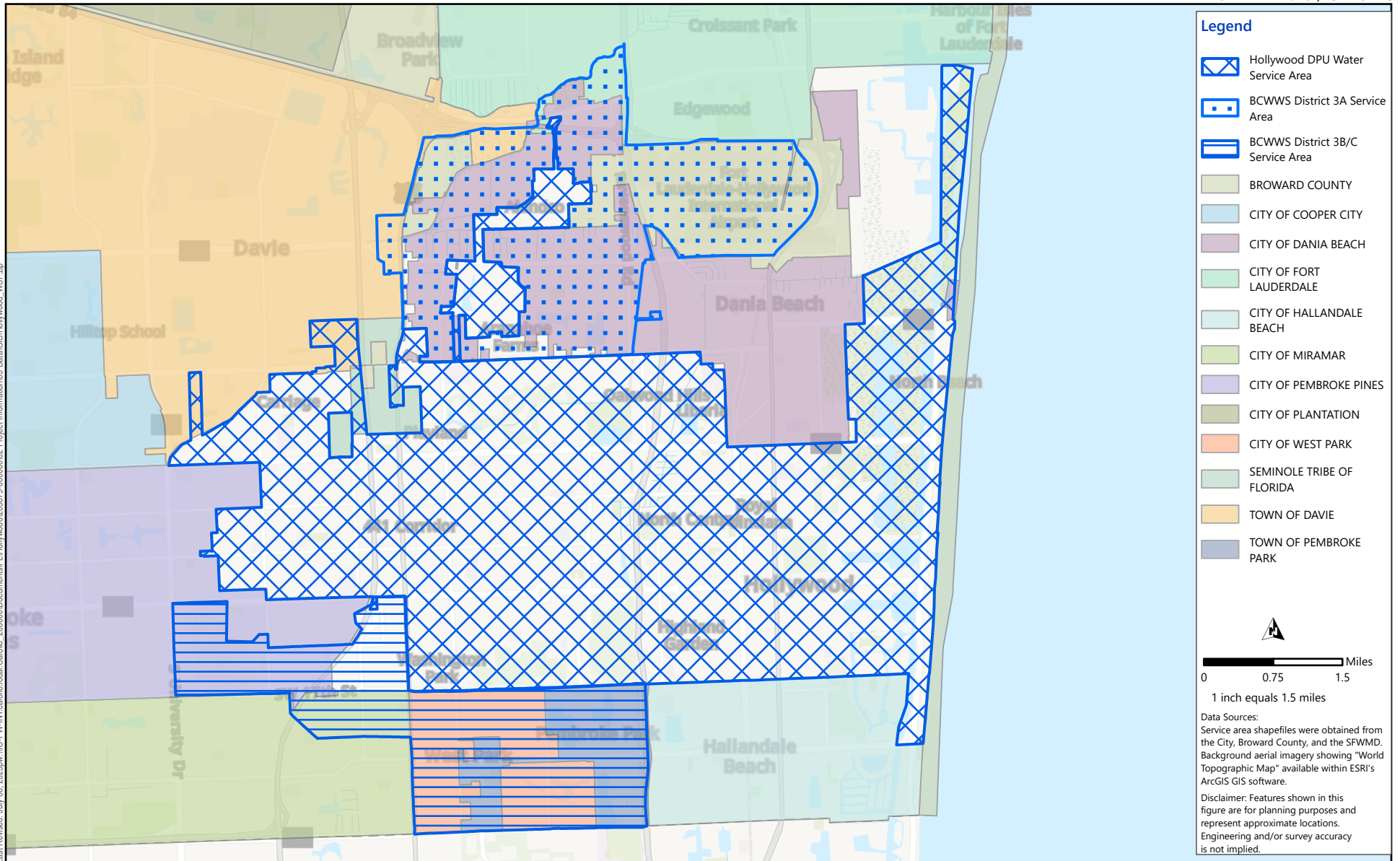
In addition to retail and wholesale water services, HLWD-DPU has an emergency connection with the City of Dania Beach, which withdraws water from the HLWD-DPU system to maintain its system pressure. In 2024, the City supplied only a nominal amount (502,656 gallons total) and only in July to the City of Dania Beach.

2.1.2 BCWWS Districts 3A and 3B/3C Service Areas

BCWWS District 3A covers approximately 8 square miles containing portions of the cities of Dania Beach and Fort Lauderdale, the Town of Davie, the Fort Lauderdale-Hollywood International Airport, and unincorporated Broward County. BCWWS District 3A has two wholesale interconnects with HLWD-DPU.

Districts 3B/C are interconnected and connect to HLWD-DPU via two wholesale interconnects each. Like District 3A, they are supplied solely by HLWD-DPU. BCWWS District 3B covers approximately 4-square miles and includes the cities of West Park and Pembroke Park. BCWWS District 3C covers approximately 2 square miles containing portions of the cities of Hollywood, Miramar, and Pembroke Pines. This area of the City of Hollywood consumes about 2.5 percent of the City's water supply, and its water demand is included in the water demand in District 3B/C.

These BCWWS districts fall mainly outside the City's jurisdiction except for the 400-acre southwest corner of the City of Hollywood located south of Hollywood Boulevard and west of State Road 7, which is served by BCWWS District 3C (See Figure 2.1). Small areas in the City's jurisdiction are served by BCWWS District 3A.



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Figure 2.1 City of Hollywood Jurisdiction and Water Service Areas
CITY OF HOLLYWOOD FLORIDA

2.1.3 Port Everglades

Port Everglades purchases potable water from the City of Fort Lauderdale through five metered connections at the following locations.

- 10-inch meter at Southeast 17th Street.
- 12-inch meter at Southeast 20th Street.
- 8-inch meter at Southeast 24th Street.
- 16-inch meter at Southeast Eller Drive / Old South Federal Highway.
- 10-inch meter at 900 Southeast 28th Street.

Port Everglades distributes this potable water to various commercial and industrial users within its boundaries, such as passenger cruise ships, cargo container ships, and commercial businesses.

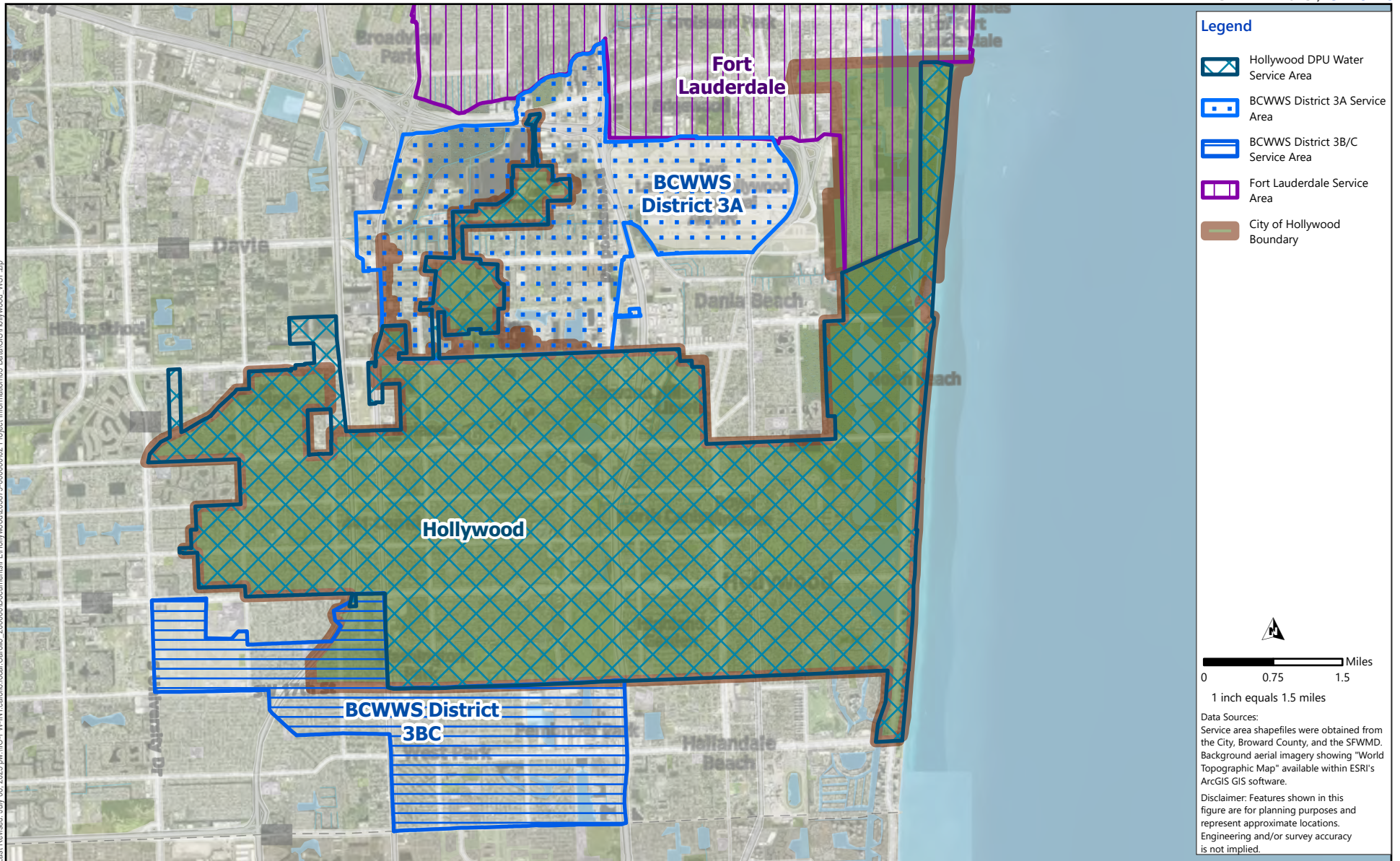
2.1.4 Summary of Water Service Areas Supplying the City of Hollywood

In summary, three water utilities supply the City of Hollywood jurisdiction: (1) HLWD-DPU, (2) BCWWS, and (3) the City of Fort Lauderdale Public Works Department. The first two utilities are supplied by the City’s WTP and deliver potable water to the entire City except for Port Everglades, which is supplied by the City of Fort Lauderdale Public Works Department. Table 2.1 tabulates the number of square miles covered by each potable water service area in and out of the City’s jurisdiction, and Figure 2.2 presents their locations. There are no anticipated changes in the size or coverage of these potable water service areas.

Table 2.1 Geographic Size of Water Utility Service Areas in Square Miles

| Water Utility Serving the Geographic Area | In the City's Jurisdiction | Out of City's Jurisdiction and Served by City's WTP | Total Served from City's WTP by Water Service Area |
|--|----------------------------|---|--|
| HLWD-DPU (City WTP) to City of Hollywood Customers | 26.03 | 0.38 | 26.41 |
| HLWD-DPU (City WTP) to BCWWS District 3A Customers | 0.00 | 7.59 | 7.59 |
| HLWD-DPU (City WTP) to BCWWS District 3B/C Customers | 0.64 | 5.69 | 6.33 |
| Fort Lauderdale Public Works Department to Port Everglades | 2.00 | 0.00 | 0.00 |
| Total | 28.67 | 13.66 | 40.33 |

Sourced from GIS estimates delineated based on the 2023-2024 LEC Plan Update. Port Everglades size estimate was sourced from Water Supply Plan Potable Water Sub-Element, City of Hollywood, Florida, January 2015.



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Figure 2.2 Water Utilities within City of Hollywood
CITY OF HOLLYWOOD FLORIDA

2.2 Reuse Water Customers

HLWD-DPU has implemented a reuse system by making use of secondary treated effluent from its own wastewater service area, and from two of its wholesale wastewater customers, the City of Cooper City and the Town of Davie. HLWD-DPU delivers up to 4.0 mgd, on an annual average daily flow basis (AADF), of blended low-salinity reuse water for irrigation. The chloride levels of this reuse water are within the salt tolerance of local turf grasses and ornamentals. In addition, up to an annual average 4.0 mgd of high-salinity reuse water is used onsite at the City’s Southern Regional Wastewater Treatment Plant for non-potable in-plant uses such as foam control, washdown water, and process make-up water. The system’s effluent filter configurations can be adjusted to increase production.

The existing reuse distribution system serves golf courses, public medians, private developments, athletic complexes and parks that have a relatively large irrigation demand. These customers are the most cost-effective to serve. The City also has a reuse contract agreement with the City of Miramar. Table 2.2 summarizes the capacity and fiscal year (FY) 2023 reuse water flows of the City’s reuse system by type of reuse application.

Table 2.2 City of Hollywood's Reuse System Capacity and FY 2023 Flows

| Type of Reuse | Capacity in mgd | FY 2023 Flow in mgd | Acres Irrigated |
|--|-----------------|---------------------|-----------------|
| Use at the Wastewater Treatment Plant ⁽¹⁾ | 4.00 | 3.29 | Not applicable |
| Golf Course Irrigation ⁽¹⁾ | 2.82 | 0.554 | 602.8 |
| Other Public Access Areas ⁽¹⁾ | 0.511 | 0.063 | 121.0 |
| Residential Irrigation ⁽¹⁾ | 0.672 | 0.013 | 16.0 |
| Contract Reuse (City of Miramar) ⁽²⁾ | 2.0 | 2.0 | Not applicable |
| Total | 10.003 | 5.92 | 739.8 |

Sources:

(1) Florida Department of Environmental Protection, 2023 Reuse Inventory, December 2024, Appendix D.

(2) Contract reuse agreement.

To increase additional offsite irrigation reuse applications within the City, the City has enacted Ordinance 52.70, titled "Effluent Reuse" to promote reuse water and replace potable water use. This ordinance expands the reuse customer base to include additional residential lawns, golf courses, cemeteries, parks, landscaped areas, highway medians, rights-of-way, and other irrigable areas that are larger than 1 acre and located within 50 feet of the existing reuse system. Detailed list and discussion of connected properties is available in Section 4.1. Table 2.3 summarizes the additional reuse customers from this ordinance (connected and to-be connected) and their estimated water reuse demands as reported in the City’s 2024 Reuse Master Plan Update, which refers to these customers as Phase 1 of the expansion plan.

Other potential irrigation expansion areas were also explored in the 2024 Reuse Master Plan Update study and divided into expansion Phases 2, 3, and 4. However, such expansion would be subject to the availability of suitable-quality effluent supply and require significant treatment, storage, and transmission improvements. It was therefore determined to be not favorable. These expansion phases are discussed in detail in Section 4.1, and their estimated reuse water demands are summarized in Table 2.3 as non-committed potential customers.

Table 2.3 Future Expanded Reuse System Customers

| Future Committed Customers from Ordinance 52.70 | Estimated Reuse Water Demand (mgd) |
|---|------------------------------------|
| Phase 1 – Connected | 0.49 |
| Phase 1 – To be connected | 0.52 |
| Total – Future Committed | 1.01 |
| Future Non-Committed Potential Customers | Estimated Reuse Water Demand (mgd) |
| Phase 2 – Offsite Irrigation (East of I-95) | 0.32 |
| Phase 3 – Offsite Irrigation (East of Turnpike) | 0.53 |
| Phase 4 – Offsite Irrigation (West of Turnpike) | 1.75 |
| Total – Future Non-Committed | 2.6 |

Source: City of Hollywood 2024 Reuse Master Plan Update

To meet the Ocean Outfall Legislation’s requirement, the City plans to implement an expansion project to increase on-site process reuse. Details of the Ocean Outfall Legislation and the City’s implementation of the expansion are discussed in Section 4.1.

SECTION 3 EXISTING WATER SUPPLY SYSTEM

This section characterizes the water suppliers including consumptive use permit information, raw water sources, and existing treatment facilities.

As described in Section 2, the City of Hollywood is served, for the most part, by the City's own potable water system. The water suppliers of the City's residents and businesses include the following.

- **City of Hollywood Potable Water System:** Serves most of the City's jurisdiction and several small areas outside of the City as illustrated in Figure 2.1. See Appendix A for the City's water use and water treatment plant's permit (No. 06-00038-W).
- **City of Hollywood Reuse Water System:** Provides irrigation water to customers and non-potable water for in-plant uses at the City's wastewater plant.
- **Broward County BCWWS Water System:** The County purchases finished water supplied by the City of Hollywood from the City's WTP and resells it to a small portion of the City's jurisdiction and to other retail customers in BCWWS District 3A and B/C service areas. See Appendix B for the interlocal agreement for the bulk sale of potable water between Broward County and the City of Hollywood, and Appendix C for its 2004 amendment. See Appendix D for the large user raw water agreement between Broward County and the City of Hollywood, and Appendix E for its 2004 amendment.
- **City of Fort Lauderdale Water System:** Serves Port Everglades.

3.1 City of Hollywood Potable Water System

The HLWD-DPU operates the City's potable water system, which includes a raw water supply system, a water treatment plant, and a distribution system. They are described as follows.

3.1.1 Raw Water Supply

The City's WTP treats water from the City's Biscayne Aquifer and Floridan Aquifer wellfields and water from Broward County's Biscayne Aquifer wells at the South Regional Wellfield (SRW). Raw water from the Biscayne Aquifer is of high quality and raw water from the deeper Floridan Aquifer is brackish and requires reverse osmosis (RO) treatment. Table 3.1 lists the City's Biscayne Aquifer and Floridan Aquifer withdrawal wells.

Table 3.1 City of Hollywood's Biscayne Aquifer and Floridan Aquifer Withdrawal Wells

| Groundwater Source | Well Name | No. of Wells | Casing Diameter (inches) | Depth of Well (ft.) | Pumping Capacity (gpm) | Pumping Capacity (mgd) | Casing Depth (ft.) |
|---|-----------|--------------|--------------------------|---------------------|------------------------|------------------------|--------------------|
| Existing Biscayne Wells | | | | | | | |
| Southern Wellfield | | 8 | | | 17,400 | 25 | |
| Biscayne | BW-28 | 1 | 10 | 75 | 2,400 | 3.5 | 60 |
| Biscayne | BW-29 | 1 | 10 | 75 | 2,400 | 3.5 | 60 |
| Biscayne | BW-30 | 1 | 24 | 95 | 2,100 | 3 | 60 |
| Biscayne | BW-31 | 1 | 24 | 80 | 2,100 | 3 | 60 |
| Biscayne | BW-32 | 1 | 24 | 80 | 2,100 | 3 | 55 |
| Biscayne | BW-33 | 1 | 24 | 90 | 2,100 | 3 | 69 |
| Biscayne | BW-34 | 1 | 24 | 86 | 2,100 | 3 | 70 |
| Biscayne | BW-35 | 1 | 24 | 77 | 2,100 | 3 | 60 |
| Western Wellfield | | 6 | | | 12,600 | 18 | |
| Biscayne | BW-36 | 1 | 32 | 112 | 2,100 | 3 | 90 |
| Biscayne | BW-37 | 1 | 32 | 144 | 2,100 | 3 | 125 |
| Biscayne | BW-38 | 1 | 32 | 150 | 2,100 | 3 | 128 |
| Biscayne | BW-39 | 1 | 32 | 155 | 2,100 | 3 | 135 |
| Biscayne | BW-40 | 1 | 32 | 145 | 2,100 | 3 | 125 |
| Biscayne | BW-41 | 1 | 32 | 150 | 2,100 | 3 | 139 |
| Total Biscayne Wellfield | | 14 | | | 30,000 | 43 | |
| Existing Floridan Wells | | | | | | | |
| Floridan | FW-F2 | 1 | 12 | 1,314 | 1,000 | 1.4 | 926 |
| Floridan | FW-F3 | 1 | 12 | 1,185 | 1,000 | 1.4 | 950 |
| Floridan | FW-F4 | 1 | 12 | 1,185 | 800 | 1.2 | 960 |
| Floridan | FW-F5 | 1 | 12 | 1,185 | 1,100 | 1.6 | 920 |
| Floridan | FW-F6 | 1 | 16 | 1,200 | 1,000 | 1.4 | 1,005 |
| Floridan | FW-F7 | 1 | 16 | 1,200 | 1,000 | 1.4 | 1,005 |
| Floridan | FW-F10 | 1 | 16 | 1,300 | 1,000 | 1.4 | 900 |
| Floridan | FW-F13 | 1 | 17 | 1,300 | 1,000 | 1.4 | 1,000 |
| Total Floridan Existing | | 8 | | | 7,900 | 11.2 | |
| Proposed Future Floridan Wells (Beyond 2019) | | | | | | | |
| Floridan | FW-F8 | 1 | 16 | 1,300 | 1,000 | 1.4 | 900 |
| Floridan | FW-F9 | 1 | 16 | 1,300 | 1,000 | 1.4 | 900 |
| Floridan | FW-F11 | 1 | 16 | 1,300 | 1,000 | 1.4 | 900 |
| Floridan | FW-F12 | 1 | 16 | 1,300 | 1,000 | 1.4 | 900 |
| Floridan | FW-F14 | 1 | 16 | 1,300 | 1,000 | 1.4 | 900 |
| Floridan | FW-F15 | 1 | 16 | 1,300 | 1,000 | 1.4 | 900 |
| Floridan | FW-F16 | 1 | 16 | 1,300 | 1,000 | 1.4 | 900 |
| Floridan | FW-F17 | 1 | 16 | 1,300 | 1,000 | 1.4 | 900 |
| Floridan | FW-F18 | 1 | 16 | 1300 | 1,000 | 1.4 | 900 |
| Floridan | FW-F19 | 1 | 16 | 1300 | 1,000 | 1.4 | 900 |
| Floridan | FW-F20 | 1 | 16 | 1300 | 1,000 | 1.4 | 900 |
| Floridan | FW-F21 | 1 | 16 | 1300 | 1,000 | 1.4 | 900 |
| Floridan | FW-F22 | 1 | 16 | 1300 | 1,000 | 1.4 | 900 |
| Floridan | FW-F23 | 1 | 16 | 1300 | 1,000 | 1.4 | 900 |
| Floridan | FW-F24 | 1 | 16 | 1300 | 1,000 | 1.4 | 900 |
| Total Floridan Proposed | | 15 | | | 15,000 | 21 | |

Source: City of Hollywood Public Utilities Department and South Florida Water Management District, Staff Report for Application No. 070518-17 - Hollywood Water Treatment Plant, April 9, 2008, Table A - Description of Wells

3.1.1.1 Biscayne Aquifer

Fresh groundwater from the Biscayne Aquifer is accessed via the City’s wellfields and Broward County’s SRW. The City has two Biscayne Aquifer wellfields called the South and Western (a.k.a. Chaminade) wellfields. Biscayne Wells No. 20 and 21 (BW-20 and BW-21), referred to as the North wellfield, were abandoned and plugged in 2009.

The Southern and Western wellfields are comprised of 14 shallow wells with depths ranging from 75 to 155 feet. The total raw water pumping capacity of the Biscayne wells is currently 30,000 gallons per minute (gpm) (or 43.0 mgd). The total production capacity available from the Biscayne wells significantly exceeds the amount of water that can be withdrawn under the City’s water use permit, which limits maximum-month withdrawals to an average daily withdrawal of 27.03 mgd.

Broward County BCWWS provides raw water to the City from the SRW under a 4-year raw water large user agreement dated 1994 that is automatically renewed every 4 years unless terminated by either party. The SRW supplies raw water from eight production wells and operates under SFWMD CUP No. 06-01474-W, issued in March 2018 and modified on July 10, 2019, with an expiration of December 2065. Table 3.2 summarizes the allocations of the permit. Per the 2023 2024 LEC Plan Update and the above mentioned permit, BCWWS has purchased an alternative water supply capacity of 3.0 mgd from the C 51 Reservoir Project to provide for demands in the BCWWS 3A and 3B/C service area. Under the large user agreement between the City and BCWWS, an annual average daily quantity not to exceed 5.78 mgd is available to the City and the City is required to take or pay for 4.0 mgd. The SRW is in the western part of the County at Brian Piccolo Park.

Table 3.2 BCWWS SRW CUP No. 06-01474-W Allocations

| Allocation | Duration | Average Daily (mgd) | Maximum Month (MGM) |
|-----------------------------------|-----------------------------------|---------------------|---------------------|
| Base Condition Allocation | March 2023 – March 2038 | 11.62 | 396.13 |
| Total C-51 Offset Allocations | March 2023 – December 2065 | 5.00 | 170.33 |
| Total BCWWS SRW Allocation | March 2023 – December 2065 | 16.62 | 566.19 |

Source: Table WS19 of 2025 Broward County Water Supply Facility Work Plan, draft version dated November 2025.

3.1.1.2 Floridan Aquifer

Raw water from the Floridan Aquifer, which is a brackish water supply, is accessed via the City’s Floridan wellfield. The Floridan wellfield is comprised of eight wells that extend about 1,185 to 1,314 feet below ground. The total raw water pumping capacity of the active Floridan wells is 7,900 gpm (or 11.2 mgd).

3.1.1.3 Water Supply Allocation

The City’s Water Use Permit No. 06-00038-W, issued on April 10, 2008, provides limits to the annual and monthly withdrawals from the City’s two Biscayne Aquifer wellfields and the City’s Floridan Aquifer wellfield. These limitations are summarized in Table 3.2 and were established under the requirements of the District’s Regional Water Availability (RWA) Rule. This Rule limits groundwater withdrawals from the Biscayne Aquifer to the maximum quantity during any consecutive 5 years preceding April 2006 and requires that alternative water supplies be used to meet additional demands. The City of Hollywood’s alternative water supply is the Floridan Aquifer.

The total annual average daily withdrawal limit is 24.80 mgd from the City’s two Biscayne Aquifer wellfields and 8.68 mgd from the Floridan Aquifer. The total allowable withdrawal from these sources is 33.48 mgd. In addition, the City has an agreement with Broward County to purchase 5.78 mgd of Biscayne Aquifer raw water from the County’s SRW. This purchase agreement increases the City’s available raw water supply to 39.26 mgd.

Table 3.3 City of Hollywood Permitted Groundwater Withdrawal Quantities and Contracted Groundwater Quantities from Broward County’s SRW

| Water Supply Source | Annual Withdrawal Limit | | Maximum Monthly Withdrawal | |
|------------------------------------|-------------------------|-------------------|----------------------------|----------------------|
| | MG | Average Daily mgd | MG | Average Daily mgd |
| (1) | (2) | (3) = (2) / 365 | (4) | (5) = (4) / (365/12) |
| Biscayne Aquifer: | | | | |
| Western (Chaminade) Wellfield | 5,475 | 15.00 | 497.30 | 16.35 |
| South Wellfield | 3,577 | 9.80 | 324.90 | 10.68 |
| Subtotal - Biscayne Aquifer | 9,052 | 24.80 | 822 | 27.03 |
| Floridan Aquifer | 3,168 | 8.68 | 259.00 | 8.52 |
| Subtotal – City Permitted | 12,220 | 33.48 | 1,081.00 | 35.55 |
| Contracted from Broward County SRW | 2,153 | 5.90 | 240.00 | 7.89 |
| Total – All Sources | 14,330 | 39.38 | 1,278.20 | 43.44 |

Source: SFWMD Water Use Permit No. 06-00038-W (expires on April 10, 2028), Letter from Broward County to the City of Hollywood dated April 27, 2018, Subject: Hollywood Flow Limitations, and SFWMD Water Use Letter Modification dated March 11, 2020.

The City has established and expanded its Floridan Aquifer water supply and treatment capacity to meet forecasted increases in water demand and to incorporate a more drought-resistant water source that improves water supply reliability.

3.1.2 Treatment Processes

The City’s WTP has been in continuous operation for almost 85 years and consists of the following treatment processes:

- Lime Softening (LS).
- Membrane Softening (MS).
- Reverse Osmosis (RO).

Raw water from the City’s Biscayne Aquifer wellfields is treated using LS and MS treatment processes. In addition, some Biscayne Aquifer raw water is blended with the softened water from the LS and MS systems to help balance water quality and efficiently use the available Biscayne Aquifer allocation. Although raw water piping from both Biscayne Aquifer wellfields and the SRW is interconnected at the plant, the MS units reportedly treat a higher percentage of SRW water, which tends to be more highly colored (MS is more effective at reducing color). Raw water from the Floridan Aquifer is treated using the RO treatment process.

Table 3.3 summarizes the existing firm and nominal water treatment capacities of each treatment system. As shown in the table, the existing total firm and nominal water treatment capacities of the City’s water treatment facilities are 40.5 mgd and 46.0 mgd, respectively.

The average treatment losses of the LS, MS, and RO treatments are 2, 13, and 20 percent, respectively. Treatment losses for the LS facility were estimated based on data from water plant Monthly Operating Reports (MORs). Treatment losses for the MS and RO facilities are based on design and operational criteria.

Table 3.4 Water Treatment Processes and Capacities

| Treatment System | Units in Service Assumed for Firm Capacity | Existing Firm and Nominal Finished Water Treatment Capacities (mgd) | Treatment Losses |
|---------------------------|--|---|------------------|
| Lime Softening (LS) | Nine units in service out of twelve total | Firm: 22.5 mgd Nominal: 24.0 mgd | 2 percent |
| Membrane Softening (MS) | Six trains in service out of seven total | Firm: 12.0 mgd Nominal: 14.0 mgd | 13 percent |
| Reverse Osmosis (RO) | Three trains in service out of four total | Firm: 6.0 mgd Nominal: 8.0 mgd | 20 percent |
| Total (all three systems) | Described above | Firm: 40.5 mgd Nominal: 46.0 mgd | N/A |

Source: City of Hollywood Public Utilities Department and 2007 Water Master Plan.

The City is taking proactive measures to upgrade treatment processes and add capacity to replace aging infrastructure and meet the new PFAS regulatory standards within the required timeframe. To meet both short- and long-term water demands and compliance with PFAS regulations, the City’s 2024 Water Master Plan report identified nanofiltration technology as the most suitable action for the removal of PFAS chemicals and recommended a phased approach to eliminate the LS system and expand the MS and RO membrane systems. The proposed phases are:

- Phase 1 – PFAS Alternatives Evaluation.
- Phase 2A – MS Train Addition – Design.
- Phase 2B – Corrosion Control Study.
- Phase 2C – Preliminary Design Report.
- Phase 2D – MS Train Addition – Construction.
- Phase 3 – MS Train Expansion.
- Phase 4 – Upgrade Existing MS Trains.

3.1.2.1 Lime Softening System

The primary water treatment for the LS system is achieved by a process known as fluidized bed crystallization. The City's LS system consists of 12 fluidized bed crystallization units (Spiractors) followed by 18 dual media filters. Each Spiractor has a conservatively estimated capacity of approximately 2.5 mgd, producing a total capacity of 30 mgd and a firm capacity of 22.5 mgd with three Spiractors offline. Lime is stored in silos and is constantly fed to the Spiractors at an approximate rate of 200 milligrams per liter (mg/L). There are a total of six lime silos at the City's WTP (four 50-ton and two 100-ton). The 18 multimedia filters following the Spiractors have a maximum surface loading rate of 2.0 gallons per minute per square foot (gpm/ft²), but the plant prefers to conservatively operate its six larger filters at 1.5 gpm/ft².

Using these loading rates, the LS system has a total nominal capacity of 24 mgd and a firm capacity of 22.5 mgd, with the maximum production capacity being limited by the filters. Since the current loading rates are relatively conservative, up-rating the filters may be feasible in the future, if the City has an opportunity to expand its Biscayne Aquifer supply. The capacities of the Spiractors and membrane system (described below) together are adequate to be able to fully utilize the City's Biscayne Aquifer allocation. However, the City is planning to replace the LS system with expansion of the MS and RO systems in the future.

3.1.2.2 Membrane Softening System

The City's MS system consists of seven operational treatment trains and three available slots for future installation of additional MS trains. Raw water from the Biscayne Aquifer is treated with sulfuric acid and a proprietary anti-scalant to protect the membranes from scaling. The raw water is filtered through 5 micrometer (µm) cartridge filters prior to entering the membrane to protect against particulate fouling or damage. Each MS skid has a production capacity of 2.0 mgd, and there are seven skids currently in operation. Therefore, the firm capacity of the MS system is 12 mgd and the nominal capacity is 14 mgd.

Each train consists of a feed pump and 54 pressure vessels arranged into a three-stage configuration. Each pressure vessel holds seven membrane elements. Each MS train is designed to operate at 87 percent recovery, which means that approximately 2.3 mgd of feed water is required to produce 2.0 mgd of permeate. The City plans to expand the MS system in the long term.

3.1.2.3 Reverse Osmosis System

The City's RO system consists of four RO skids and four available slots to facilitate the installation of additional RO treatment trains. Raw water from the Floridan Aquifer is treated with sulfuric acid and a proprietary anti-scalant to protect the membranes from scaling. The raw water is filtered through 5 µm cartridge filters prior to entering the membrane to protect against particulate fouling or damage. The four RO skids that are currently in place have finished water production capacities of 2.0 mgd and each operate at 80 percent recovery. At this recovery rate, 2.5 mgd of raw water is needed to produce 2.0 mgd of finished water. Therefore, the total finished water capacity of the RO system is 8.0 mgd and the firm capacity is 6.0 mgd. The City plans to expand the RO system in the long term.

3.1.2.4 Disinfection System

The City currently uses chloramines to provide primary disinfection and a secondary residual for the distribution system. Sodium Hypochlorite 12 percent solution is added to the water, and a brief sodium hypochlorite contact time is provided prior to the addition of ammonia to form chloramines. The City's Sodium Hypochlorite 12 percent solution is stored in nine (seven 10,000-gallon and two 7,000-gallon) fiberglass storage tanks.

The City's ammonia system consists of two 1,000-gallon ammonia gas storage tanks and four rotameters (three 100-lb/day units and one 250-lb/day unit). To maintain a residual of 4.0 mg/L chloramines, 0.85 mg/L ammonia must be added to maintain a ratio of chlorine to ammonia within a recommended range of 4.5:1 to 5.0:1, with a target of 4.7:1. At this dosage, the ammoniators have the capability to treat 77.6 mgd with all four units in service, and 42.3 mgd with the largest (250 lb/day) rotameter offline.

3.1.2.5 Degasifier System

The City's degasifier system reduces the carbon dioxide (CO₂) levels in both the MS-treated water and RO-treated water and the hydrogen sulfide (H₂S) levels in RO-treated water, via air stripping. Sulfuric acid is added to lower the pH of the Floridan Aquifer water to aid in H₂S removal prior to countercurrent air stripping through a packed tower. The MS-treated Biscayne Aquifer water does not require additional pretreatment prior to stripping. The WTP has four forced-draft, packed-tower degasifiers. Each degasifier unit includes an 18,000-cubic feet per minute (cfm) fan, a 13.5-foot diameter by 24 foot overall height tower, and 12 feet of packing. Two degasifiers are designed to remove CO₂ from the MS permeate with discharge of the tower exhaust to the atmosphere. One degasifier is designed to remove H₂S from the RO permeate with discharge of the tower exhaust to an odor control scrubber. The fourth degasifier is a standby unit for both systems, which can discharge exhaust gas either to the atmosphere or to the odor control scrubber. The degasification system is adequate to treat the MS and RO flows that the plant currently produces. The upgrades to the odor scrubber system allow the plant to run all four of its RO skids without generating nuisance odors.

3.1.3 Post-Treatment

Degasified permeate from the MS and RO systems drains to a 250,000-gallon blend tank where it mixes with LS water. The secondary treatment in the blend tank includes addition of sodium hypochlorite, caustic soda, and fluoride. Water from the blend tank is pumped into the onsite ground storage tanks.

3.1.4 Storage

The City has 18 million gallons (MG) of total finished water storage capacity including 2 MG stored in two separate 1-MG elevated storage tanks within the distribution system, 11 MG of ground storage on-site at the WTP, and 5 MG of ground storage located at the West Hollywood Storage and Pumping Facility located near Sheridan Street and 68th Avenue. The tankage present at each location is detailed below.

At the plant, a total of five ground storage tanks are available. Water from the blend tank flows into parallel lines that feed two 3.5 MG tanks. Water from these two tanks is discharged into a manifold that feeds three parallel 1.0 MG storage tanks. These three storage tanks then combine into another manifold that feeds a 1 MG high service pumping clearwell. Inclusive of the clearwell, the combined finished water storage inventory (on-site) is 11 MG. The breakdown of the 11 MG on-site finished water storage capacity is indicated below.

- Clearwell: 1 MG.
- Tank No. 2: 1 MG.
- Tank No. 3: 1 MG.
- Tank No. 4: 1 MG.
- Tank No. 5: 3.5 MG.
- Tank No. 6: 3.5 MG.

The on-site finished water storage tanks provide operational storage required to equalize diurnal demands and provide for emergency storage (fire flows). According to the most recent Water Master Plan, they hold approximately six hours flow when all treatment systems are operating at designed capacity. The water levels in the tanks are typically maintained between low (50 percent) and high (85 percent) operating limits to accommodate short-term system changes in the system demand. The tanks are all interconnected and are maintained at the same level.

3.1.5 High Service Pumps

The City's WTP has two High Service Pump (HSP) stations that pump finished water from on-site storage tanks at the WTP to the City's distribution system.

The main HSP station, referred to as the high service pump room, houses six split case horizontal centrifugal pumps and their respective motor control centers. The six pumps, aligned in parallel, draw water from clear wells and pump into a common 42-inch discharge header.

The secondary HSP station, referred to as the aeration building pump station, is primarily used to complement the required constant operation of the main pumping station. The ABPS previously housed four horizontal split case pumps that pumped finished water from a 1.0 MG above ground storage tank (Tank No. 2) into a 30-inch discharge header to the distribution system. Two of the four pumps have recently been demolished and engineering design activities are ongoing to modify the facility to a one 5,000 gpm pump configuration to serve as back-up pumping to the primary HSPS.

3.1.6 Distribution System

The City's WTP has three discharge mains that supply water into the distribution system transmission lines as follows:

- 24-inch water main (South header);
- 30-inch water main (West header); and
- 20-inch water main (Bypass header).

The City’s water distribution system consists of:

- Approximately 700 miles of water main pipe ranging from 2-inch to 36-inch diameter;
- Two elevated 1.0 MG storage tanks;
- The West Hollywood Pumping and Storage Facility which includes four 1,500 gpm vertical turbine pumps to boost system pressure, chemical dosing to boost system disinfection residual, and two 2.5 mgd aboveground storage tanks; and,
- Approximately 40,000 connections, over 2,500 fire hydrants, and over 7,500 valves.

The piping diameter ranges and lengths are presented in Table 3.4. The distribution system piping is comprised of a variety of materials, including cast iron, galvanized iron, polyvinyl chloride, ductile iron, and asbestos cement.

Table 3.5 City of Hollywood Water Distribution System Pipe Diameters

| Diameter (inches) | Approximate Length (miles) |
|-------------------|----------------------------|
| 16 to 30 | 30 |
| 6 to 14 | 480 |
| < 4 | 200 |

3.2 Broward County BCWWS Potable Water System

Finished water from the City’s WTP is supplied to the BCWWS Districts 3A and 3B/3C. The water customers in these Districts are Broward County’s retail water customers and a small area, less than 1 square mile, is within the City’s jurisdiction. The raw water sources and treatment plant facilities supplying these areas were described previously in this section. The Broward County Water Supply Facilities Work Plan 2020 (2020 BC WSFWP) accounts for the potable water distribution system within the City. Therefore, only a brief description of the areas served by BCWWS in the City is provided under this WSFWP 2025 Update.

See Appendix F for the 2020 BC WSFWP.

3.3 City of Fort Lauderdale Potable Water System

According to its Water Supply Facilities Work Plan 2025 Update, the City of Fort Lauderdale provides potable water service to a population of approximately 253,000 residents and 6 wholesale customers in central Broward County. Port Everglades is one of Fort Lauderdale’s wholesale water customers. Fort Lauderdale’s Draft Water Supply Facilities Work Plan 2025 Update (Draft 2025 Fort Lauderdale WSFWP) accounts for Port Everglades’ water demand as part of its overall aggregate demand projection. A brief description of Fort Lauderdale’s potable water system is provided in this subsection based on information in the Draft 2025 Fort Lauderdale WSFWP.

See Appendix G for the Draft 2025 Fort Lauderdale WSFWP.

The City of Fort Lauderdale supplies its retail and wholesale customers with treated raw water from the Prospect wellfield at the Fiveash Water Treatment Plant and from the Dixie wellfield at the Peele-Dixie Water Treatment Plant. Both the Prospect and Dixie wellfields are permitted by the SFWMD under Consumptive Use Permit (CUP) No. 06-00123-W. Both wellfields withdraw raw water from the Biscayne Aquifer.

The Peele-Dixie system supplies Port Everglades. The Dixie wellfield is comprised of eight 2.5-mgd rated wells and has an installed capacity of approximately 20 mgd. The existing CUP limits the maximum-day withdrawal of this wellfield to 15 mgd. The existing Peele-Dixie Water Treatment Plant is a nanofiltration treatment plant placed into service in 2008. The plant has a maximum installed finished water treatment capacity of 12 mgd with all units in service.

SECTION 4 REUSE WATER SYSTEM AND WATER CONSERVATION PROGRAM

This section characterizes the reuse water usages and water conservation program within the City and the Ocean Outfall Legislation compliance. Intergovernmental coordination efforts are also discussed.

4.1 Reuse Water System

Reuse water is a critical component in effectively managing water resources. Effective water management employs diverse water resources to strike an appropriate balance among resource conservation, development cost, and sustainability. Reuse water, when of suitable quality, may be used for many purposes including, but not limited to:

- Irrigation of golf courses, parks, medians, residential lots, school landscaping, and other green space;
- Cooling water and process water;
- Decorative lakes, ponds, and fountains;
- Car washing, toilet flushing, and dust control;
- Agricultural irrigation and irrigation at nurseries;
- Wetlands creation, restoration, and enhancement; and,
- Recharging groundwater aquifers.

The HLWD-DPU operates a reuse water system at the City-owned Southern Regional Wastewater Treatment Plant (SRWWTP), located at 1621 North 14th Avenue. The SRWWTP is permitted to treat 55.5 mgd on an annual average daily flow (AADF) basis. The facility collects, treats, and discharges approximately 42 mgd of secondary-treated wastewater into the Atlantic Ocean and to the underground Boulder Zone via deep injection wells. Since chloride and TDS levels prevent the City from reusing SRWWTP effluent without desalination (RO) treatment, the City has implemented its existing reuse system using the low-salinity effluent exclusively from the Town of Davie and City of Cooper City, which pump their effluent to the SRWWTP under a Large User Effluent Agreement signed in 1985. The reuse system is located at the southeastern portion of SRWWTP and the distribution system is consisted of approximately 10 miles of distribution mains constructed in 1994.

The City's existing water reuse system has a rated capacity of 8.0 mgd to high-level disinfection (HLD) standard. The system is hydraulically separated in which 4.0 mgd is dedicated to offsite landscaping irrigation and 4.0 mgd is dedicated to non-potable onsite in-plant uses such as foam control, washdown water, and process make-up water. The system's effluent filter configurations can be adjusted to favor low saline reclaimed water or non-potable water (NPW) production.

4.1.1 Ocean Outfall Legislation

In 2008, the State Legislature promulgated Ocean Outfall Legislation (OOL) which requires that all utilities in the State of Florida eliminate wastewater effluent discharges from their ocean outfalls by 2025, except during peak flow events. The rule also requires that utilities provide technically, economically, and environmentally feasible reuse of 60 percent of a base condition annual average flow by December 31, 2025. The legislation also requires this facility to reduce the mass loading of nitrogen and phosphorus from the outfall by 2018. The City of Hollywood explored effluent disposal options including dual irrigation system and recharge of the Floridan Aquifer, but those options faced significant challenges that limited their feasibility. Ultimately, the City chose to construct a Deep Injection Well System in 2021 to comply with this requirement, allowing use of the Ocean Outfall System only as a backup during high flow events, thereby eliminating the effluent disposal through the outfall. The construction of the Deep Injection Well System is currently being finalized. Testing and commissioning activities are scheduled to follow and go through approximately the first quarter of 2026. The system is projected to be in operation in the second quarter of 2026.

The OOL provides that alternative water supply capacity allocated to meet the utility's water supply needs prior to July 2011 may not be displaced and "stranded". The City has been investing in its Floridan Aquifer supply and treatment system since the mid-1990s and has developed and installed 6.00 mgd of firm RO treatment capacity and 8.68 mgd of Florida Aquifer water supply withdrawal capacity. Consequently, it is not anticipated that reuse may be feasibly utilized to meet anticipated water demand growth through the planning horizon, as that will be fully supplied by its existing Biscayne Aquifer and Floridan Aquifer supply and treatment infrastructure. Also, as explained above, the salinity of the City's wastewater effluent precludes direct reuse without extensive treatment (RO) beyond what is typical for providing irrigation-quality reuse water.

In a status report (mandated by the OOL) to the Governor and State Legislature, the Florida Department of Environmental Protection (FDEP) acknowledged that Hollywood faced unique challenges in its development of a feasible reuse program. The FDEP indicated that it will work with the City to ensure that the most feasible reuse options are implemented by December 31, 2025. The City developed a refined functional reuse compliance plan and closely coordinated with the FDEP to solicit its input at various stages during the development phase.

In a letter dated January 13, 2016, the FDEP documented the results of its evaluation and identified the elements of the City's plan that constitute feasible reuse. The FDEP findings were based on reviewing documents and studies furnished by the City and the outcomes of meetings between the FDEP and the City. Key elements of the City's compliance plan that were determined to constitute feasible reuse and meet the OOL legislative requirements and their status included the following:

- Existing Onsite Process Reuse – 4.0 mgd (filtered brackish effluent).
- Additional Reuse within the City – 1.5 mgd (committed customer capacity).
- Contracted Reuse – 4.5 mgd.

These efforts correspond to a total of 10.0 mgd of feasible reuse either accomplished or to be accomplished by the December 2025 deadline.

4.1.2 Offsite Irrigation Reuse

4.1.2.1 Connected Customers

Prior to the OOL, the reuse water system had 10 connected customers with a total permitted demand of 2.973 MG. Among these original customers, two are no longer receiving reuse water: the City Nursery, which was shut down in 2015, and the Hillcrest Country Club, which was sold and redeveloped into single-family homes. These changes have reduced the original customer base's demand by 0.632 mgd. Table 4.1 presents a summary of these customers.

Table 4.1 Reuse Water Customers Connected Before OOL

| Customer | User Type | Acreage | Permitted Capacity (mgd) | Average Metered Consumption (mgd) [01/01/2017 to 10/01/2023] |
|--------------------------------------|-------------|--------------|-----------------------------|---|
| Maltese Diplomat Country Club | Golf Course | 115 | 0.446 | 0.145 |
| Eco Grande | Golf Course | 753 | 0.109 | 0.06 |
| Hollywood Beach Country Club | Golf Course | 753 | 0.213 | 0.045 |
| Pulte Homes & Hillcrest Country Club | Golf Course | 151 | <i>Disconnected in 2016</i> | |
| Emerald Hills Country Club | Golf Course | 174 | 0.671 | 0.341 |
| Orangebrook Country Club | Golf Course | 230 | 0.888 | 0.398 |
| Dowdy Field | Park | 7 | 0.014 | 0.008 |
| City Nursery | Business | 14 | <i>Disconnected in 2015</i> | |
| Total | | 2,197 | 2.341 | 0.997 |

Source: City of Hollywood 2024 Reuse Master Plan Update.

4.1.2.2 Offsite Irrigation Reuse Water Program – Ordinance 52.70

To expand its reuse water customer base and progress towards additional offsite reuse goals, the City has enacted Ordinance 52.70, titled "Effluent Reuse" to promote reuse water and replace potable water use. This ordinance requires industrial and commercial properties with irrigable areas exceeding 1 acre and located within 50 feet of a reuse water distribution pipe to connect to the reuse system. Eligible irrigation uses include residential lawns, golf courses, cemeteries, parks, landscaped areas, highway medians, rights-of-way, and other applications approved by the Utilities Director and permitted by the FDEP. As of 2024, this ordinance added 22 newly connected reuse water customers, totaling 0.49 mgd to be served. Table 4.2 is a list of those customers and their estimated demands as recorded in the City's 2024 Reuse Master Plan Update. There is 0.52 mgd of potential customers identified as mandated to be connected in the future under this ordinance.

Table 4.2 Reuse Water Customers Connected after OOL as Required by Ordinance 52.70

| Customer (Connected, To Be Served) | User Type | Acreage | Estimated Demand (mgd) |
|--|-------------|---------------|------------------------|
| Memorial Regional Hospital | Business | 21.2 | 0.026 |
| Mckinley St. & 17th Ave | Median | 0.21 | 0.001 |
| Hollywood Blvd & 12th Ave | Median | 0.06 | 0.0002 |
| US-1 & Arthur St | Median | 0.08 | 0.0003 |
| Park Rd between Lincoln St and Buchanan St | Median | 0.24 | 0.001 |
| 600 N Park Rd | Median | 0.17 | 0.001 |
| 3820 W Park Rd | Median | 0.25 | 0.001 |
| 3700 W Park Rd | Median | 0.25 | 0.001 |
| 3500 W Park Rd | Median | 0.26 | 0.001 |
| 3336 W Park Rd | Median | 0.37 | 0.001 |
| 1800 N Park Rd | Median | 0.22 | 0.001 |
| 1516 N Park Rd | Median | 0.14 | 0.001 |
| 1216 N Park Rd | Median | 0.05 | 0.0002 |
| 1000 N Park Rd | Median | 0.02 | 0.0001 |
| 1910 N Park Rd | Median | 0.22 | 0.001 |
| Joseph Scavo Park | Park | 6.99 | 0.25 |
| Rotary Park | Park | 17.27 | 0.023 |
| David Park Tennis Center | Park | 7.85 | 0.028 |
| Lincoln Park | Park | 4.7 | 0.028 |
| Charles F Vollman Park | Park | 6.02 | 0.022 |
| Cortland Hollywood | Residential | 14.53 | 0.06 |
| West Lake Village | Residential | 19.85 | 0.04 |
| Total | | 100.95 | 0.49 |

Source: City of Hollywood 2024 Reuse Master Plan Update

4.1.3 Contracted Reuse

In 2019, the City partially fulfilled its contracted reuse goal by securing a 2.0 mgd AADF agreement with the City of Miramar for \$7 million with a 30-year agreement term. Although negotiations were initiated with the City of Sunrise, they were ultimately abandoned. Further contract reuse agreements with other municipalities were not pursued due to cost-ineffectiveness in meeting the remaining OOL requirements.

4.1.4 Remaining OOL Required Reuse and Feasible Projects

4.1.4.1 Potential Offsite Irrigation Reuse Expansion – Cost and Feasibility

To meet the remaining offsite reuse goals and accommodate the additional 2.5 mgd contracted reuse target, the City has identified potential new customers based on irrigable acreage and estimated irrigation demand. The 2024 Reuse Master Plan Update conceptualized four phases of infrastructure expansion to serve these customers, with an estimated total potential demand of 3.61 mgd:

1. **Phase 1:** Includes properties within mandatory reuse zones as defined by Ordinance 52.70, including 0.49 mgd from already connected customers and 0.52 mgd from potential customers identified as mandated to be connected in the future under this ordinance. The 2024 Reuse Master Plan Update study estimated the cost to connect the potential customers to be \$240,000, or \$0.46/gpd of reuse water.
2. **Phase 2:** Targets properties east of I-95, requiring transmission main extensions to serve a potential demand of 0.32 mgd. These potential customers consist of cemeteries, church, median, parks, and schools. The 2024 Reuse Master Plan Update study estimated the cost to connect the potential customers to be \$2,990,000, or \$9.34/gpd of reuse water.
3. **Phase 3:** Involves transmission system expansion to the west, serving properties east of the Turnpike with a potential demand of 0.53 mgd. These potential customers consist of businesses, cemetery, church, medians, parks, residentials, and schools. The 2024 Reuse Master Plan Update study estimated the cost to connect the potential customers to be \$6,160,000, or \$11.62/gpd of reuse water.
4. **Phase 4:** Generally covers commercial properties west of the Turnpike, resulting in a potential demand of 1.75 mgd. The 2024 Reuse Master Plan Update study estimated the cost to connect the potential customers to be \$15,000,000, or \$8.57/gpd of reuse water.

The existing irrigation reuse system at the SRWWTP has a treatment capacity of 4 mgd (or 5 mgd with the transferal of a 1 mgd NPW swing filter). Currently, there is sufficient low-salinity effluent and system storage to meet existing irrigation demands, with an additional capacity of over 1.5 mgd available on an annual average basis. This capacity is adequate to meet the remaining 1.5 mgd offsite reuse goal, including Phase 1 and portions of Phases 2 through 4. However, compensating for the full additional 2.5 mgd contracted reuse goal using Phases 2 through 4 would require increased effluent supply and further treatment, storage, and pumping infrastructure.

The offsite reuse water production depends entirely on low-salinity effluent supplied by the Town of Davie and the City of Cooper City under a Large User Effluent Agreement providing up to 10.5 mgd of effluent disposal to the City. This agreement expires in March 2035, and without renewal, there would be no alternative source of low-salinity effluent. Additionally, variability in supply and effluent quality could jeopardize the City's ability to meet future reclaimed water demands and sustain long-term system operations.

Renewing the low-salinity effluent agreements is critical for the feasibility of the proposed irrigation reuse expansion. The City's 2024 Reuse Master Plan Update study estimated the average cost for implementing Phases 1 through 4 to be \$7.82/gpd of reuse water.

4.1.4.2 Potential Onsite Industrial Reuse Expansion – Cost and Feasibility

Considering uncertainties around agreement renewal and the economic feasibility of full expansion implementation, the City has also explored increasing industrial reuse to meet the December 2025 OOL deadline. High-salinity industrial reuse could be expanded by installing a secondary Effluent Heat Recovery (EHR) system at SRWWTP to cool cryogenic oxygen generation system compressors instead of using potable water cooling towers. The City’s 2024 Reuse Master Plan Update study estimated this installation to be \$6,950,000, or \$0.70/gpd, and could achieve an installed reuse capacity of 10 mgd. The City’s 2024 Reuse Master Plan Update study concluded that this is the best option.

4.1.4.3 Implementation Toward OOL Reuse Water Compliance

The City of Hollywood's progress towards OOL compliance is summarized in Table 4.3. Currently, the City has achieved 7.01 mgd of planned, installed, or contracted reclaimed water capacity out of the required 10.0 mgd. The 0.52 mgd of planned connection as mandated by Ordinance 52.70 is projected to cost \$380,000, or \$0.46/gpd. This expansion can be achieved using the existing treatment, storage, and pumping infrastructure at SRWWTP without requiring upgrades.

Table 4.3 Status of City of Hollywood’s FDEP OOL Compliance with respect to Reuse Water

| Requirement | Reuse Water Capacity in mgd |
|--|-----------------------------|
| OOL Reuse Achieved | 6.0 |
| Onsite reuse at Southern Regional Wastewater Treatment Plant | 4.0 |
| Miramar contract reuse | 2.0 |
| OOL Reuse Planned | 1.01 |
| Offsite Irrigation use by customers (Ordinance 52.70 Already connected) | 0.49 |
| Offsite Irrigation use by customers (Ordinance 52.70 To be connected) | 0.52 |
| OOL Reuse Being Planned | 10.0 |
| Onsite reuse by installing a secondary EHR system at Southern Regional Wastewater Treatment Plant (Under discussion with FDEP Developing capital improvement plan) | 10.0 |
| Total | 17.01 |

Source: City of Hollywood 2024 Reuse Master Plan Update

The City plans to address the remaining 2.99 mgd reuse requirement by expanding onsite industrial reuse as described in Section 4.1.4.2. This approach takes into account the uncertainties surrounding effluent supply agreement renewals and the economic challenges of fully implementing the offsite reuse expansion. The SRWWTP will be expanded to include an EHR system, which could provide 10 mgd of reuse capacity at an estimated cost of \$7,000,000, or \$0.70/gpd. This expansion would exceed the remaining reuse requirement of 2.99 mgd and is anticipated to eliminate, or substantially reduce, the amount of potable water usage.

As of September 2025, the City is in the process of developing a capital improvement project with detailed timeline, project characterization, and approach. FDEP has agreed to the conceptual approach and its implementation schedule after the December 2025 deadline and will review the detailed capital improvement project plan to formally approve.

4.2 City of Hollywood Water Conservation Program

The average gallons per capita per day (gpcd) over all customers served by the HLWD-DPU, including retail and wholesale customers, fell from a 5-year average of 127 gpcd in 2008 to 113 gpcd in 2018. The 5-year average in 2023 remained steady at 112 gpcd. The historic gpcd from 2004 to 2024 is provided in Table 4.4.

The reduction in gpcd is due to a variety of conservation efforts that include a plumbing fixture replacement program, public education, year-round irrigation restrictions, replacement of aging (leaky) water mains, and other measures. The impact of the City’s efforts appears to be permanent because gpcd did not rebound during the recent economic recovery. Florida Statute 373.250(1) recognizes the importance of conservation and gives it equal consideration with reuse in promoting the public interest. Conservation programs are effective in producing the same water use impact as using reclaimed water at a fraction of the cost.

Table 4.4 City of Hollywood Historical Annual Average per Capita Usage

| Year | Finished Water (mgd) | Population Retail and Wholesale | Annual Average Usage (gpcd) | 5-Year Average Usage (gpcd) |
|------|----------------------|---------------------------------|------------------------------|-----------------------------|
| (a) | (b) | (c) | (d) = [(b) x1,000,000] / (c) | (e) |
| 2004 | 26.1 | 186,648 | 140 | 127 |
| 2005 | 24.5 | 188,287 | 130 | |
| 2006 | 24.6 | 190,595 | 129 | |
| 2007 | 23.0 | 189,716 | 121 | |
| 2008 | 22.1 | 188,837 | 117 | |
| 2009 | 22.6 | 187,958 | 120 | 114 |
| 2010 | 20.8 | 187,078 | 111 | |
| 2011 | 21.7 | 188,108 | 115 | |
| 2012 | 21.0 | 189,138 | 111 | |
| 2013 | 21.0 | 190,168 | 110 | |
| 2014 | 21.4 | 192,944 | 111 | 113 |
| 2015 | 22.3 | 194,411 | 115 | |
| 2016 | 22.8 | 195,644 | 116 | |
| 2017 | 22.5 | 196,876 | 114 | |
| 2018 | 21.9 | 198,109 | 111 | |
| 2019 | 21.2 | 199,261 | 106 | 112 |
| 2020 | 21.8 | 200,574 | 109 | |
| 2021 | 22.5 | 201,947 | 111 | |
| 2022 | 23.5 | 203,320 | 116 | |
| 2023 | 23.9 | 204,693 | 117 | |
| 2024 | 24.4 | 206,066 | 118 | |

Sources:

- 1) 2004 to 2018 finished water and population data from the City’s 2020 Water Supply Facility Work Plan Table 3.6.
- 2) 2019 to 2024 population data from the City of Hollywood 2020 WSP Update, page 2-5, Table 2.3 and Broward County
- 3) Finished water production data from 2019 to 2024 from the City WTP Monthly Operating Reports.

The City’s Water Conservation Plan was developed with the goal of maximizing the City’s water use efficiency and reducing overall potable water demand. This goal aligns with the conservation-related recommendations stated in Chapter 9 of the 2023-2024 LEC Plan Update, as well as the 2008 District’s Comprehensive Water Conservation Program. The City’s water conservation plan includes recommendations on water conservation measures and best management practices (BMPs) that the City has elected to implement to reduce its per capita potable water consumption over time and “free up” available water resources to support future growth.

The conservation related actions identified in the 2023-2024 LEC Plan Update, and the efforts being implemented by the City, are the following:

- “The SFWMD should continue to implement its Comprehensive Water Conservation Program and its Cooperative Funding Program.” (2023-2024 LEC Work Plan Update).
 - » The initiatives and actions being implemented by the City are in accordance with the 2008 District’s Comprehensive Water Conservation Program. The City continues to seek supplemental sources of revenue to expand the reuse system, promote water conservation, and provide alternative water supply.
 - » The City has reduced its water use by approximately 5 mgd through conservation programs, appliance rebates, irrigation rules, and a tiered billing system that encourages lower consumption. The 5-year average per capita demand reduced from 127 gpcd in 2008 to 112 gpcd in 2023.
- “PS utilities are encouraged to develop goal-based water conservation plans and proactively implement water-saving measures and programs.” (2023-2024 LEC Work Plan Update).
 - » The City is a committed member of the Broward Water Partnership Conservation Program known as “ConservationPays” that has a goal of saving 30 mgd county-wide. This program was launched in 2011 and consists of 19 municipalities and water utilities that collaborate on water conservation implementation. This program helps inform residents about the importance of year-round water conservation and any available county conservation incentives. The City renewed this agreement in 2021, in which the City provides financial contribution for 5 years to support the Broward County Conversation Pays program. The total maximum cost of the 5-year commitment is summarized in Table 4.5. The agreement is set to expire in 2026.

Table 4.5 Water Conservation Incentives Program Cost-Sharing Agreement

| Fiscal Year | Maximum Not to Exceed Contribution | |
|-------------|-------------------------------------|--|
| | Media Outreach/ Administration Cost | Maximum Not to Exceed City of Hollywood’s Cost |
| 2022 | \$ 20,253.93 | \$ 20,253.93 |
| 2023 | \$ 20,861.55 | \$ 20,861.55 |
| 2024 | \$ 21,487.39 | \$ 21,487.39 |
| 2025 | \$ 22,132.02 | \$ 22,132.02 |
| 2026 | \$ 22,795.98 | \$ 22,795.98 |

- » The City promotes water conservation through various ways:
 - Private Irrigation System Audit and Rebate Program.
 - The City of Hollywood, in coordination with Broward County NatureScape Division, has performed annual irrigation system evaluations since 2006. Launched in 2005, the NatureScape Irrigation Services (NIS) is implemented by the Broward County's Environmental Protection and Community Resilience Division with cost-share funding provided by Broward County Water and Wastewater Services and local municipalities. The NIS conducts irrigation evaluations of, mostly, large-scale irrigation systems. At each site, the NIS assesses irrigation system design, functional integrity, scheduling, and maintenance issues related to water use efficiency, and landscape best management practices. Following each assessment, efficiency improvement recommendations are provided to the site owner or manager. Water consumption is documented before and after improvements are implemented to calculate water savings. The program targets large water users including government facilities, parks, schools, and homeowner associations where the greatest potential exists for significant water savings. Best Management Practices that encourage the 'right plant in the right place', irrigation water use efficiency, and smart irrigation technology help to secure outdoor water use reductions and long-term water savings.
 - The City of Hollywood has provided financial support for Broward's NIS Program to conduct irrigation evaluations throughout the Hollywood service area since 2006. From 2008 to 2017, a total of 131 irrigation system evaluations were completed within Hollywood resulting in a total water savings of 26,318,934 gallons. The City renewed its agreement in 2020 and again in 2025 with Broward County to share the cost of the NIS program and Residential Irrigation Rebate Program for a 5-year period. This agreement included irrigation system evaluations across Broward County over the 5-year period and will provide water conservation education to residents. It will also offer rebates to offset initial costs incurred in upgrading specified water-efficient irrigation system components. This 2025 renewal was implemented through the passage and adoption of Resolution No. R-2025-214 on June 18, 2025, which authorized the execution of the renewed interlocal agreement in a total amount not to exceed \$133,825.55 over a 5-year period. See Appendix H for Resolution No. R-2025-214.
 - Promotion of Florida-friendly landscape practices and use of native plants to reduce irrigation water use.
 - This best management practice resulted in the City becoming a National Wildlife Federation (NWF) Community Habitat in 2018. The City uses the NWF and Broward County "naturescapes" to help promote better landscape best management practices.
 - Distribution of High Efficiency Toilet (HET) Rebates, retrofit kit giveaways, and restaurant rinse valve replacement program.

- Mandatory year-round landscape irrigation conservation measures.
 - As of December 2024, the City, after working with the SFWMD, passed Ordinance No. 0-2024-18 to amend Section 51.116 “Permanent Restrictions on Lawn and Landscaping Irrigation” of the City’s Code of Ordinances to include Mandatory Year-Round Landscape Irrigation Conservation – Measures and Variances in accordance with Rule 40E-24.301, F.A.C. The City is now one of the over 70 local governments within the LEC Planning area to have adopted this irrigation ordinance. The City provides information relevant to this irrigation ordinance on the City’s Water Conservation website (<https://www.hollywoodfl.org/409/Water-Restrictions-and-Landscaping>).
- Interlocal water conservation incentives program.
 - An Interlocal Agreement between Broward County and City of Hollywood for cost share support of a water conservation incentives program was signed in October 2021. This agreement was to build on the previous 5 years of water conservation efforts. It included a media campaign, rebate and incentives program, and an awards/recognition program to increase water conservation throughout the City of Hollywood and Broward County.
- Public education program.
 - Public education program called Clean Water Cadet Program educates elementary students within the City about water treatment, conservation, and stormwater pollution prevention through school visits from Public Utilities staff. Students also engage in creating public service announcements and receiving coloring books and "Do Not Dump" stickers to install a year-round water protection ethic at home and school.
- Public engagement program.
 - Public engagement program called Drop Savers’ Poster Contest solicits engagement from K-12 students within the City through water conservation poster design competition annually.
- Expansion of Reuse Projects.
- Publication of tips and answers to FAQs on the City’s Water Conservation website.
- “Local governments should evaluate whether mandated water conservation measures, such as requirements for construction of water-efficient homes and commercial properties, are appropriate for their jurisdiction.” (2023 – 2024 LEC Plan Update).
 - » The City has enacted Ordinance 52.70, titled "Effluent Reuse" to promote reuse water and replace potable water use. This ordinance requires industrial and commercial properties with irrigable areas exceeding 1 acre and located within 50 feet of a reuse water distribution pipe to connect to the reuse system. Eligible irrigation uses include residential lawns, golf courses, cemeteries, parks, landscaped areas, highway medians, rights-of-way, and other applications approved by the Utilities Director and permitted by the FDEP.
- “Local governments should adopt a year-round irrigation ordinance that fully comports with the SFWMD’s Mandatory Year-Round Landscape Irrigation Conservation Measures Rule (Chapter 40E-24, F.A.C.). Although 71 of the 116 local governments have adopted acceptable ordinances, 45 in the LEC Planning area have not yet adopted irrigation ordinances.” (2023 – 2024 LEC Plan Update).

- » The City has adopted this irrigation ordinance. As of December 2024, the City, after working with the SFWMD, passed Ordinance No. 0-2024-18 to amend Section 51.116 "Permanent Restrictions on Lawn and Landscaping Irrigation" of the City's Code of Ordinances to include Mandatory Year-Round Landscape Irrigation Conservation – Measures and Variances in accordance with Rule 40E-24.301, F.A.C. The City provides information relevant to this irrigation ordinance on the City's Water Conservation.
- "Local governments should consider developing or enhancing ordinances regarding Florida-Friendly Landscaping Program principles [Section 373.185, Florida Statutes]." (2023 – 2024 LEC Plan Update).
 - » The City promotes Florida-friendly landscape practices and use of native plants to reduce irrigation water use. This best management practice resulted in the City becoming a NWF Community Habitat in 2018. The City uses the NWF and Broward County "NatureScapes" to help promote better landscape best management practices.
- "Public Education programs can help instill a year-round conservation ethic. Local and tribal government and PS Utilities are encouraged to provide conservation-related information, messaging, and educational programs in cooperation with the SFWMD." (2023 – 2024 LEC Plan Update).
 - » The City has continuously implemented local public education programs to encourage water conservation. The Clean Water Cadet Program teaches elementary students about water treatment, conservation, and stormwater pollution prevention through school visits from Public Utilities staff. As part of the program, students create public service announcements and receive coloring books and "Do Not Dump" stickers, helping to instill year-round water protection habits both at home and at school. Additionally, the City runs the Drop Savers Poster Contest, an annual event that encourages K-12 students to participate in a water conservation poster design competition, further engaging the community in water-saving efforts.
- "All eligible water users are encouraged to seek cost-share funding opportunities that may be available for water conservation projects." (2023 – 2024 LEC Plan Update).
 - » The City signed an interlocal agreement with Broward County in October 2021 for cost share support of a water conservation incentives program over a 5-year period. This agreement was to build on the previous 5 years of water conservation efforts. It included a media campaign, rebate and incentives program, and an awards/recognition program to increase water conservation throughout the City of Hollywood and Broward County.
 - » The City has also applied for and received alternative water supply (AWS) funding from FDEP in the past.
- "L/R water users are encouraged to use advanced irrigation technology, improve landscape design and best management practices, and participate in user recognition programs (e.g. Florida-Friendly Landscaping program) to further increase landscape water use efficiency." (2023 – 2024 LEC Plan Update).
 - » The City of Hollywood, in coordination with Broward County NatureScape Division, has performed annual irrigation system evaluations since 2006. Launched in 2005, the NIS is implemented by the Broward County's Environmental Protection and Community Resilience Division with cost-share funding provided by Broward County Water and Wastewater Services and local municipalities. The NIS conducts irrigation evaluations of, mostly, large-scale irrigation systems. At each site, the NIS assesses irrigation system design, functional integrity, scheduling, and maintenance issues related

to water use efficiency, and landscape best management practices. Following each assessment, efficiency improvement recommendations are provided to the site owner or manager. Water consumption is documented before and after improvements are implemented to calculate water savings. The program targets large water users including government facilities, parks, schools, and homeowner associations where the greatest potential exists for significant water savings. Best Management Practices that encourage the 'right plant in the right place', irrigation water use efficiency, and smart irrigation technology help to secure outdoor water use reductions and long-term water savings.

- » The City of Hollywood has provided financial support for Broward's NIS Program since 2006. From 2008 to 2017, a total of 131 irrigation system evaluations were completed within Hollywood resulting in a total water savings of 26,318,934 gallons. The April 2020 renewal included 159 irrigation system evaluations across Broward County. In 2025, the City renewed its agreement with Broward County to share the cost of the NIS and Residential Irrigation Rebate Program for the next 5 years, with a total budget of \$133,825.55 authorized by the City Commission in June 2025.
- "Commercial/Industrial/Institutional (CII) entities are encouraged to use the Water Efficiency and Self-Conducted Water audits at Commercial and Institutional Facilities, a Guide for Facility Managers (SFWMD 2013) to improve water use efficiency and reduce operating costs." (LEC Plan Update).
 - » The City encourages the implementation of EPA WaterSense guidelines including industrial, commercial, and institutional entities. Self-conducted water audits are encouraged.
- Smart Meter Technology.
 - » Residents are eligible for efficiency upgrade rebate through the Irrigation System Assessment and Rebate Program. Eligible upgrades include upgrading an existing timer to an EPA WaterSense smart irrigation controller.

SECTION 5 DATA AND ANALYSIS OF WATER DEMAND FORECAST AND SUPPLY ADEQUACY

This section presents the methods, data and results of the population and water demand forecasts within the HLWD-DPU water service area and compares the future water demand to available water supply. Detailed descriptions of these forecasting analyses are provided in Appendix I and Appendix J of this report. This section also documents the inclusion of Port Everglades in the 2025 Fort Lauderdale WSFWP. The purpose of this section is to demonstrate that the City’s existing permitted water supply, coupled with its conservation and reuse practices, will be sufficient to meet projected demands through 2045.

5.1 Historical Population

To project the population, 2023 was selected as the reference year, using the best available population data from the U.S. Census Bureau. For Unincorporated Broward County where U.S. Census Bureau did not have data available, its 2023 population was interpolated from the Population Forecast and Allocation Model (PFAM) data. Table 5.1 shows the population of each municipality in the year 2023 which was used as a starting point for the population projection through 2045.

Table 5.1 Historic Population in 2023

| Municipality | 2023 Population |
|-----------------|------------------------|
| Pembroke Park | 6,300 ⁽¹⁾ |
| West Park | 15,109 ⁽¹⁾ |
| Davie | 107,799 ⁽¹⁾ |
| Dania Beach | 31,915 ⁽¹⁾ |
| Wilton Manors | 11,403 ⁽¹⁾ |
| Hollywood | 152,630 ⁽¹⁾ |
| Fort Lauderdale | 184,255 ⁽¹⁾ |
| Pembroke Pines | 171,119 ⁽¹⁾ |
| Miramar | 138,319 ⁽¹⁾ |
| Unincorporated | 15,557 ⁽²⁾ |

Sources:

(1) May 2024 U.S. Census Bureau population data.

(2) 2024 Broward County PFAM.

5.2 Projected Population

The population in the City of Hollywood is expected to grow modestly throughout the forecast period as less than 1 percent of the land area in the City is developable vacant land. Redevelopment is expected to accommodate the projected increases in population. The populations served by the City of Hollywood and BCWWS Districts 3A and B/C service areas reside in multiple municipalities. To account for the population growth within the service areas, growth within each municipality was considered. The following procedure was used in the population projection analysis:

1. **Delineation of Service Areas:** The geographic area of each municipality served was delineated using GIS based on the 2023-2024 LEC Plan Update to divide the service areas by municipality boundaries. The square footage of each area was calculated using a GIS calculation tool. Then, the percentage of population served in each municipality was calculated for each service area based on area.
2. **Population Growth Rate Calculation:** The growth rate of each municipality was calculated using the 2024 Broward County PFAM data.
3. **Population Change Calculation:** The growth rates were applied to the percentage of population served by each service area and their 2023 starting population to calculate the population change from 2025 to 2045.
4. **Total Population Projection Calculation:** For BCWWS Districts 3A and 3B/C, the population changes were applied to the 2023 population to calculate the projected total population. For the City of Hollywood, the population changes were applied to the historical population that was reported in the City's 2024 Annual Water Supply Report.

A detailed technical memorandum of the population projection analysis is available in Appendix I. The projected population for the period 2025 through 2045 for each service area is summarized in Table 5.2.

Table 5.2 Population Projections from 2025 to 2045

| Year | City's Retail Service Area | BCWWS District 3A | BCWWS District 3BC | Total Retail and Wholesale |
|------|----------------------------|-------------------|--------------------|----------------------------|
| 2024 | 153,859 ⁽¹⁾ | 23,322 | 33,238 | 210,420 |
| 2025 | 153,839 ⁽²⁾ | 23,409 | 33,224 | 210,472 |
| 2030 | 157,835 ⁽²⁾ | 25,890 | 32,931 | 216,655 |
| 2035 | 162,043 ⁽²⁾ | 27,335 | 33,828 | 223,206 |
| 2040 | 166,788 ⁽²⁾ | 28,193 | 34,906 | 229,887 |
| 2045 | 169,932 ⁽²⁾ | 28,699 | 35,526 | 234,157 |

Sources:

(1) From 2024 City of Hollywood Annual Water Supply Report.

(2) Adjusted based on 2024 population estimate from the 2024 City of Hollywood Annual Water Supply Report.

5.3 Historical Per Capita Demand

The City provides retail water service to residents of the City of Hollywood, as well as small portions of the Town of Davie and the City of Dania Beach. Retail water service to a small area of the Seminole Tribe of Florida reservation that the City previously served was disconnected in recent years. Additionally, the City provides wholesale potable water service to Broward County through pipelines that serve the County's retail water customers located in its Districts 3A and 3B/C.

Historical data from multiple sources was compiled to calculate the average per capita demand. These sources include the U.S. Census Bureau 2024 population report, City of Hollywood Annual Water Supply Reports, City of Hollywood Water Master Plan, and monthly operational data from the WTP. A summary is presented below in Table 5.3.

The annual average water use of the City's residential retail customers was 98.9 gpcd over the most recent 3-year period, 2022 to 2024. The 3-year average was used instead of a 5-year average due to the lower demand trend in water use observed from 2020 to 2021 during the COVID-19 pandemic. The annual average water use in the BCWWS Districts 3A and 3B/C was 113.2 gpcd, this 5-year average represents a conservative estimate given the decreasing trend.

Table 5.3 City of Hollywood Historical Service Area Population, Finished Water Production and Retail Per Capita Usage

| Note Reference | Parameter | 2020 | 2021 | 2022 | 2023 | 2024 |
|----------------|--|---------|---------|---------|---------|---------|
| (1) | City Retail Population Served | 145,309 | 145,309 | 152,131 | 152,650 | 153,859 |
| (2) | Avg. Daily Finished Water Production (mgd) | 21.75 | 22.47 | 23.48 | 23.89 | 24.38 |
| (3) | Avg. Daily Finished Water to City Retail Customers Excluding Large Users (mgd) | 15.23 | 15.61 | 16.97 | 17.55 | 18.04 |
| (4) | Large Users Consumption Excluding BCWWS (mgd) | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| (5) | City Non-Revenue Water (mgd) | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 |
| (6) | Overall City Residential Retail Per Capita Demand Factor (gpcd) | 88.3 | 90.9 | 95.8 | 99.2 | 101.7 |
| | Three-Year Average City Residential Water Demand (gpcd) | | | | 98.9 | |
| (7) | BCWWS Population Served | 56,130 | 55,824 | 56,031 | 56,488 | 56,945 |
| (8) | Avg. Daily Finished Water to BCWWS (mgd) | 6.59 | 6.48 | 6.37 | 6.21 | 6.19 |
| (9) | Overall BCWWS Residential Per Capita Demand Factor (gpcd) | 117.4 | 116.1 | 113.7 | 109.9 | 108.8 |
| | 5-Year Average BCWWS Residential Water Demand (gpcd) | | | | 113.2 | |

Notes:

- (1) (3) and (8) sourced from City of Hollywood Annual Water Supply Reports.
- (2) Sourced from City of Hollywood monthly WTP Operation Reports.
- (4) Total large users consumption rate is sourced from 2024 City of Hollywood Water Master Plan Table 5. Rate excluding BCWWS was calculated as total minus (8).
- (5) Sourced from 2024 City of Hollywood Water Master Plan Table 5.
- (6) Calculated as (3) - (4) - (5)*1000000/(1).
- (7) 2020 to 2023 population data from the US Census Bureau as published in May 2024. The 2024 value was extrapolated from the 2022 and 2023 data.
- (9) Calculated as (8)*1000000/(7).

5.4 Projected Water Demand

A detailed technical memorandum of the demand projection analysis is available in Appendix J. The following sections present a summary of the results.

5.4.1 Projected Finished Water Demand – Annual Average Daily

The per capita demand values from Table 5.3 and population projections from Table 5.2 are used to forecast the annual average daily water demands as presented in Table 5.4. Additionally, consistent large users consumption and non-revenue water are added to determine the total projected demand from the WTP, which is projected to increase from 24.02 mgd in 2025 to 26.47 mgd in 2045.

Table 5.4 Total Forecasted Average Daily Demand from 2025 to 2045

| Year | City's Retail Population | City's Retail Demand Factor (gpcd) | City's Retail Demand (mgd) | BCWWS District 3A and 3B/C Population | BCWWS District 3A and 3B/C Demand Factor (gpcd) | BCWWS District 3A and 3B/C Demand (mgd) | Large Users Consumption (mgd) | Non-Revenue Water (mgd) | Total Demand (mgd) |
|------|--------------------------|------------------------------------|----------------------------|---------------------------------------|---|---|-------------------------------|-------------------------|--------------------|
| 2025 | 153,838 | 98.9 | 15.21 | 56,633 | 113.2 | 6.41 | 0.10 | 2.30 | 24.02 |
| 2030 | 157,835 | 98.9 | 15.61 | 58,820 | 113.2 | 6.66 | 0.10 | 2.30 | 24.67 |
| 2035 | 162,043 | 98.9 | 16.02 | 61,163 | 113.2 | 6.92 | 0.10 | 2.30 | 25.35 |
| 2040 | 166,788 | 98.9 | 16.49 | 63,099 | 113.2 | 7.14 | 0.10 | 2.30 | 26.03 |
| 2045 | 169,932 | 98.9 | 16.80 | 64,225 | 113.2 | 7.27 | 0.10 | 2.30 | 26.47 |

5.4.2 Projected Finished Water Demand – Maximum Day

The maximum day peaking factor, which is the ratio of the maximum day production to the annual average daily flow, is derived from the WTP's monthly operations data from 2020 to 2024. The average max day peaking factor for this period is 1.15. As presented in Table 5.5, the forecasted finished water production, maximized, increases to 30.44 mgd by 2045.

Table 5.5 Total Forecasted Maximum Daily Demand from 2025 to 2045

| Year | Annual Average Daily Demand (mgd) | Max Day Peaking Factor (-) | Max Day Demand (mgd) |
|------|-----------------------------------|----------------------------|----------------------|
| (1) | (2) | (3) | (4) = (2)*(3) |
| 2025 | 24.02 | 1.15 | 27.63 |
| 2030 | 24.67 | 1.15 | 28.37 |
| 2035 | 25.35 | 1.15 | 29.15 |
| 2040 | 26.03 | 1.15 | 29.94 |
| 2045 | 26.47 | 1.15 | 30.44 |

5.4.3 Projected Raw Water Demand

For the purpose of determining the amount of raw water needed to supply the projected finished water demand, it is necessary and industry standard practice to calculate the weighted average treatment loss. The water lost in treatment is then added to the projected demands presented in Table 5.5.

Analysis of the WTP’s MOR data from 2023 to 2024 determines the proportion of raw water allocated to each treatment process. The current weighted average percent treatment loss is 10 percent. Proposed changes to the plant layout to address PFAS regulations include decommissioning the LS system and replacing its capacity with MS treatment while maintaining the current RO capacity. The weighted average treatment loss with expanded MS treatment is projected to be 14.4 percent, the calculation is presented in Table 5.6. This value converts the finished water demand forecast to the total annual raw water withdrawal needed. The total raw water withdrawal requirement is projected at 28.06 mgd in 2025, increasing to 30.93 mgd by 2045. A summary is presented in Table 5.7.

Table 5.6 City of Hollywood Proposed Future WTP Percent Treatment Loss

| Treatment Technology | Projected Process Capacity, Annual Average (mgd) | % of Raw Water | Treatment Loss (%) |
|---------------------------------|--|----------------|--------------------|
| Lime Softening (LS) | 0 | 0% | 2% |
| Membrane Softening (MS) | 19.6 ⁽¹⁾ | 79.4% | 13% |
| Reverse Osmosis (RO) | 5.1 | 20.6% | 20% |
| Total / Weighted Average | 24.7 | 100% | 14.4% |

Notes:

(1) Calculated as 9.7 + 9.9 = 19.6 mgd.

Table 5.7 City of Hollywood Forecasted Raw Water Withdrawals

| Year | Finished Water Demand (mgd) | Annual Average Raw Water Withdrawal (mgd) at 10% Treatment Loss (Current WTP Layout) | Annual Average Raw Water Withdrawal (mgd) at 14.4% Treatment Loss (Proposed WTP Layout for Regulatory Compliance) | Difference |
|------|-----------------------------|--|---|-----------------|
| (1) | (2) | (3) = (2) / [1 - 0.10] | (4) = (2) / [1 - 0.144] | (5) = (4) - (3) |
| 2025 | 24.02 | 26.69 | 28.06 | 1.37 |
| 2030 | 24.67 | 27.41 | 28.81 | 1.41 |
| 2035 | 25.35 | 28.16 | 29.61 | 1.45 |
| 2040 | 26.03 | 28.93 | 30.41 | 1.49 |
| 2045 | 26.47 | 29.41 | 30.93 | 1.51 |

5.5 Capacity Analysis

5.5.1 Permitted Raw Water Withdrawal Limits

The City’s combined permitted raw water withdrawal totals 38.64 mgd if interpreted on an annual average day basis, and 43.44 mgd on a maximum month basis, as summarized in Table 5.8.

Table 5.8 City of Hollywood Permitted Raw Water Withdrawal Quantities

| Water Supply Source | Annual Average Day (mgd) | Maximum Monthly Withdrawal (mgd) |
|---|--------------------------|----------------------------------|
| (1) | (2) | (3) |
| Biscayne Aquifer: | | |
| Chaminade (Western) Wellfield | 14.72 | 16.35 |
| South Wellfield | 9.62 | 10.68 |
| BCWWS – Piccolo Wellfield (contractual) | 5.79 | 7.89 |
| Subtotal – Biscayne Aquifer | 30.12 | 34.92 |
| Floridan Aquifer: | | |
| Floridan Aquifer | 8.52 | 8.52 |
| Subtotal – Floridan Aquifer | 8.52 | 8.52 |
| Total | 38.64 | 43.44 |

5.5.2 Firm Raw Water Treatment Capacity

The maximum amount of finished water that can be produced is based on the firm raw water treatment capacity of the City’s treatment processes, the permitted allocations from the Biscayne and Floridan aquifers, and the historical percent treatment loss of each treatment process. A summary of the calculation is presented in Table 5.9, the maximum treatment capacity utilizing the full raw water allocation is 35.54 mgd.

Table 5.9 Calculation of Finished Water Quantity Limit based on Raw Water Permit Limit

| Treatment Process | Treatment - Firm Capacity (mgd) | Treatment Loss (%) | Raw Water Treatment Capacity (mgd) | - LIMIT - Raw Water Treatment Allocation (mgd) ⁽¹⁾ | - LIMIT - Finished Water Treatment (mgd) |
|---|---------------------------------|--------------------|------------------------------------|---|--|
| (1) | (2) | (3) | (4) = (2) / [1 - (3)] | (5) | (6) = (5) x [1 - (3)] |
| Lime Softening (LS) - Biscayne Aquifer | 22.50 | 2% | 22.96 | 22.96 | 22.50 |
| Membrane Softening (MS) - Biscayne Aquifer | 12.00 | 13% | 13.79 | 7.16 | 6.23 |
| Total Permitted Quantity from Biscayne Aquifer | 34.50 | | 36.75 | 30.12 | 28.73 |
| Reverse Osmosis (RO) (Floridan Aquifer) | 6.00 | 20% | 7.50 | 8.52 | 6.81 |
| Total | 40.50 | | 44.25 | 38.64 | 35.54 |

Notes:

(1) The LS value is equal to the LS raw water treatment capacity of 22.96 mgd of raw water. The MS value is the permitted quantity of raw water from the Biscayne Aquifer (30.12 mgd) minus the amount of raw water treated using LS (22.96 mgd). The RO value is equal to the permitted quantity from the Floridan Aquifer (8.52 mgd). While RO treatment firm capacity is less than the permitted quantity from the Floridan Aquifer, it is assumed that the City would be able to increase treatment capacity to treat 8.52 mgd, when needed.

5.6 Demand and Supply Adequacy Summary

The finished water and raw water demand is projected to remain within the treatment plant firm capacity, permitted raw water withdrawal limit, and treatment limit during the period from 2025 through 2045. A graphical presentation of the comparison is provided in Figure 5.1.

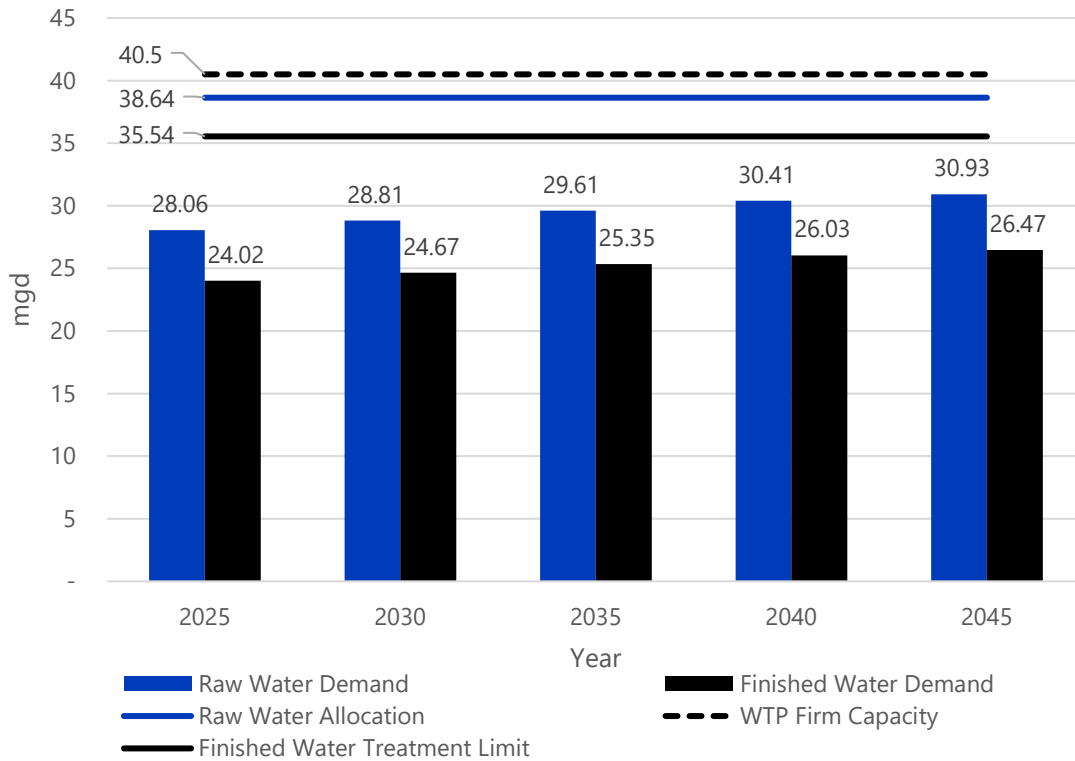


Figure 5.1 Comparison of Finished and Raw Water Demand Forecast to Treatment Capacity, Treatment Limit, and Withdrawal Limit – City of Hollywood Service Retail and BCWWS 3A and 3B/C from 2025 to 2045

5.7 Port Everglades

Port Everglades purchases water from the City of Fort Lauderdale. The historical metered water to Port Everglades is provided in Table 5.10. The annual average daily flow over the 5-year period from 2019 to 2024 was 1.06 mgd. Water flow varied within a narrow range of 0.95 mgd to 1.01 mgd from 2021 to 2023. In 2019, water flow was above average at 1.22 mgd. Water flow in 2020 and 2024 was slightly higher than average at 1.10 mgd both years.

Table 5.10 Historical Annual Average Daily Water Supplied to Port Everglades from the City of Fort Lauderdale

| Calendar Year | Annual Average Daily Flow (mgd) |
|-----------------------|---------------------------------|
| 2019 | 1.22 |
| 2020 | 1.10 |
| 2021 | 0.95 |
| 2022 | 0.98 |
| 2023 | 1.01 |
| 2024 | 1.10 |
| Annual Average | 1.06 |

Source: 2025 City of Fort Lauderdale Water Supply Facility Work Plan, draft version dated June 19, 2025.

The adequacy of the City of Fort Lauderdale water system to supply Port Everglades is implicitly ensured in the 2025 Fort Lauderdale WSFWP. Within the 2025 Fort Lauderdale WSFWP, the forecasted water flow to Port Everglades is projected to remain steady at 1.21 mgd from 2025 to 2045. See Appendix G for the 2025 Fort Lauderdale WSFWP.

SECTION 6 REGIONAL ISSUES AND INTERGOVERNMENTAL COORDINATION ACTIVITIES

This section summarizes the regional water supply planning issues that have the potential to impact the City. Intergovernmental coordination efforts are also reviewed for adequacy and if new activities will be needed because of changes in statutory requirements.

The City and the HLWD-DPU are cognizant of the regional issues that are impacting or have the potential to impact water supply, water demand, and utility infrastructure. The City works with other local governments and utilities to address the challenges and opportunities created. This section summarizes the regional issues being followed by the City including:

- Regional Climate Action Plan;
- Climate Change;
- Sea Level Rise;
- Saltwater Intrusion;
- Extreme Weather Events;
- Infrastructure Development;
- Lake Okeechobee Surface Water Allocation Limitations;
- Lowering Lake Okeechobee Level;
- Infrastructure Planned to Attenuate Damaging Peak Flow Events from Lake Okeechobee; and,
- Use of brackish groundwater from the Floridan Aquifer. Each is discussed in turn.

6.1 Regional Climate Action Plan

Southeast Florida is one of the most vulnerable regions to be impacted by climate change and sea level rise. This is largely the result of several unique geographic characteristics which include low land elevations, flat topography, a porous geology, and dense coastal development. In combination, climate change and sea level rise are expected to present significant challenges relating to water resource planning, management and infrastructure for communities throughout the region, which includes Palm Beach, Broward, Miami-Dade and Monroe counties. These communities have agreed to partner in regionally-coordinated climate mitigation and adaptation strategies as part of the Southeast Florida Regional Climate Change Compact (Compact) and have jointly developed and adopted a Regional Climate Action Plan (RCAP) including 17 recommendations that address “Water Supply, Management, and Infrastructure”. The 2018 LEC Plan Update and 2023-2024 LEC Plan Update both encourage local governments and utilities within the LEC Planning Area to participate in the Compact. Through its adoption of the Mayors’ Climate Action Pledge, the City of Hollywood has been committed to support the Compact and the RCAP since January 23, 2013.

Table 6.1 summarizes the water supply related recommendations from the RCAP 3.0.¹ These recommendations are intended to meet the goals of advancing water management strategies and infrastructure improvements needed to mitigate for adverse impacts of climate change and sea level rise on water supplies, water and wastewater infrastructure, and water management systems and have been incorporated throughout this Water Supply Facilities Work Plan Update and related comprehensive planning element updates.

Table 6.1 Water Supply Recommendations from the RCAP 3.0

| Item | Recommendations |
|-------|--|
| WS-1 | Practice integrated water resources management. |
| WS-2 | Foster innovative water management. |
| WS-3 | Advance water resource management research. |
| WS-4 | Coordinate regional investments in water management. |
| WS-5 | Expand use of green infrastructure and net zero solutions. |
| WS-6 | Use consistent future conditions water management scenario planning. |
| WS-7 | Assess climate impacts on water infrastructure. |
| WS-8 | Modernize water infrastructure development standards. |
| WS-9 | Ensure a resilient regional flood control system. |
| WS-10 | Integrate surface and groundwater impacts on infrastructure. |
| WS-11 | Increase resilient water infrastructure and water quality. |
| WS-12 | Phase out septic systems. |
| WS-13 | Coordinate saltwater intrusion mapping. |
| WS-14 | Develop a database of resilient water projects. |
| WS-15 | Support the Comprehensive Everglades Restoration Plan (CERP). |
| WS-16 | Expand surface water storage. |
| WS-17 | Support private property adaptation. |

Source: *The Water focus area chapter of the RCAP 3.0, published in November 2022.*

6.2 Climate Change

Investigations and evaluations conducted at the national, regional, and local levels have reinforced the need to plan for the predicted impacts of more frequent and severe drought and increases in tidal and storm-related flooding. To protect the City’s water supply infrastructure, ongoing planning efforts should be flexible to adapt to these climate changes.

The City of Hollywood, together with its municipal and regional partners, understands that local governments and water utilities must integrate water supply and climate change considerations through coordinated planning efforts. The City works to provide relevant updates to the 10-year Water Supply Facilities Work Plan and to enhance the Goals, Objectives and Policies (GOPs) of its Comprehensive Plan.

¹ https://southeastfloridaclimatecompact.org/wp-content/uploads/2023/10/SEFL_RCAP3_Final.1.pdf

The City is a leader in developing planning tools and identifying achievable and cost-effective goals that meet the needs of its community. In 2013, the City signed a resolution endorsing the Mayor's Climate Action Pledge in support of the Compact and the RCAP.

The City is a participant in the Compact. The Compact outlines an ongoing collaborative effort among the Compact participants to foster sustainability and climate resilience on a regional scale. The Compact participants include local communities, regulatory agencies, and the counties of Broward, Miami-Dade, Monroe and Palm Beach.

In June 2017, Hollywood Mayor Josh Levy joined Climate Mayors (a.k.a. the Mayors' National Climate Action Agenda) which is a Mayor-to-Mayor network collaborating on climate. There are no binding commitments except for the pursuit of actions to achieve an emissions reduction target through:

- Developing a community Greenhouse Gas (GHG) inventory;
- Setting near- and long-term targets to reduce emissions; and,
- Developing a Climate Action Plan aligned with the City's targets.

In addition to those actions, Climate Mayors join in occasional letters and statement. On June 1, 2017, the City of Hollywood joined in a statement in response to President Trump's withdrawal from the Paris Climate Agreement.

The City approved a Sustainability Action Plan on March 15, 2017 and voted on Resolution R-2017-168 in June of the same year to reaffirm its commitment to the Plan. The Plan contains 99 actions to achieve 32 goals within 7 focus areas. Progress towards the goals will be measured by a set of 22 metrics. The focus areas are: (1) Leadership by Example; (2) Resiliency (Climate Action Plan); (3) Built Environment; (4) Environmental Quality; (5) Resource Stewardship; (6) Mobility; and (7) Community Engagement.

In 2020, the City conducted a review of climate change impacts on the City's water system as part of the America's Water Infrastructure Act (AWIA) Risk and Resilience Assessment. In the same year, the City also conducted a Citywide Vulnerability Assessment and Adaptation Plan (CVAAP). In 2023, the City began updating the CVAAP to ensure compliance with the new state law in Section 380.093 F.S. that was enacted in 2021. As of May 2025, this update effort is not yet completed and has not published its findings. The findings from those completed studies and the information from the Broward County Climate Change Task Torce and the Compact were used for the evaluations and project planning in the City's 2024 Water Master Plan.

6.3 Sea Level Rise

The sea level is rising as reflected in the City's sunny day flooding events. The flooding frequency has been on average less than 8 days per year. With an expected sea level rise above 2 feet, measured to the North American Vertical Datum (NAVD), by the year 2060, the frequency is estimated to increase to 226 days per year. The U.S. Army Corps of Engineers and Broward County conducted a study of flood risk management in Hollywood Lakes and Las Olas Isles in the City of Fort Lauderdale. They modeled different seawall heights to determine how well the walls would protect property from flooding caused by king tides and storms of varying strength.

Based on these findings, the Broward County Commission proposed new regulations for seawall heights in 2018, which are 4 feet NAVD by 2035 and 5 feet NAVD by 2050. These regulations would be an integral part of a holistic approach the County is developing to address tidal flooding and surge protection. In 2019, the County drafted an amendment to its Code of Ordinances to establish regionally consistent minimum seawall and top-of-bank elevation standards for tidally influenced areas, excluding oceanfront beaches, in the unincorporated area of the County to improve flood protection under conditions of sea level rise. In January 2020, the County enacted an amendment to its Land Use Plan creating Policy 2.21.7, requiring tidally influenced municipalities to enact regionally consistent elevations for seawalls, banks and berms, and other appurtenant infrastructure (i.e., boat ramps) consistent with the findings and recommendations of the United States Army Corps of Engineers/Broward County Flood Risk Management Study for Tidally Influenced Coastal Areas within 2 years. Resilience features like this will help prevent large increases in national flood insurance rates.

The City of Hollywood updated its seawall ordinance (O-2022-01) on February 2, 2022 to establish tidal flood protection regulations, and creating Section 150.30 to establish construction and infrastructure standards for seawalls and tidal flooding barriers that account for projected sea level rise. To enhance shoreline protection, the City has initiated the Tidal Flooding Mitigation and Shoreline Protection projects in 2019. Phase I of the projects is to add tidal flooding mitigation where no current shoreline protection exists, and Phase II is improvements to the existing shoreline protection. Bids were solicited for the installation at five sites from December 2024 to January 2025 and to be funded with Federal Funds from the FDEP, and the City Commission approved a budget of approximately \$3.6 million on March 5, 2025.

Development of cost-effective sea level rise adaptation strategies to ensure the sustainability of the City’s water supply is critical to all ongoing planning efforts. A unified projection by the Compact developed in 2015, which the City formally accepted in its 2016 Resolution R-2016-015, is illustrated in Figure 6.1. It shows a 6- to 10-inch increase in sea level in the near term, and a 14- to 26-inch rise by mid-century.

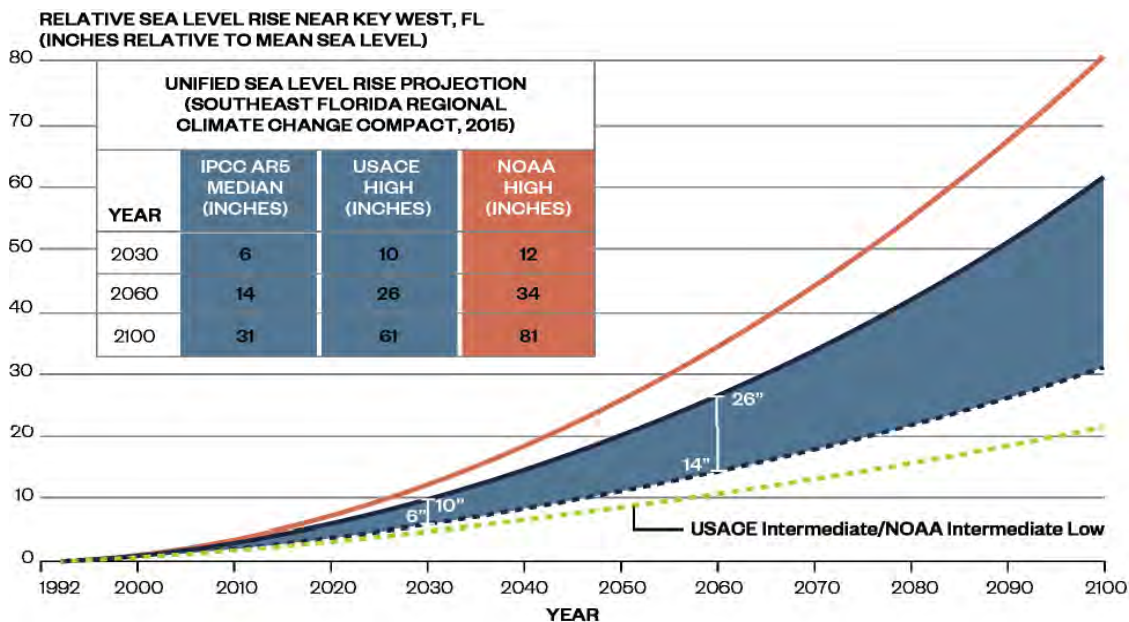


Figure 6.1 Sea Level Rise Projections (2015)

In December 2019, the Compact updated the sea level rise projection based on the NOAA 2017 Global and Regional Sea Level Rise Scenarios for the United States report. This update increased the projected magnitude of sea level rise. The revised projection is provided in Figure 6.2.

In 2024, the Compact conducted its 5-year review to assess the NOAA 2022 Sea Level Rise Technical Report and observed regional sea level trends. While the NOAA 2022 Report’s near-term sea level rise projections are lower than those in the NOAA 2017 Report, the Intermediate, Intermediate-High, and High scenarios from the NOAA 2022 Report remain within the Compact’s 2019 Projection and guidance planning range, especially from about 2030 onward. Figure 6.3 shows a comparison of NOAA’s 2017 and 2022 projections. Additionally, observed sea level rise at the Key West and Virginia Key tide gauges over the past decade has stayed within the Compact’s 2019 recommended planning range. Therefore, the Compact issued a statement in December 2024 affirming the continued applicability of the 2019 Regionally Unified Projection in Southeast Florida as a basis for resilience planning, design, and construction. The Compact plans to review and update the guidance as updated scientific data and modeling results emerge. This 2019 update continues to be used as the basis for planning throughout the region.

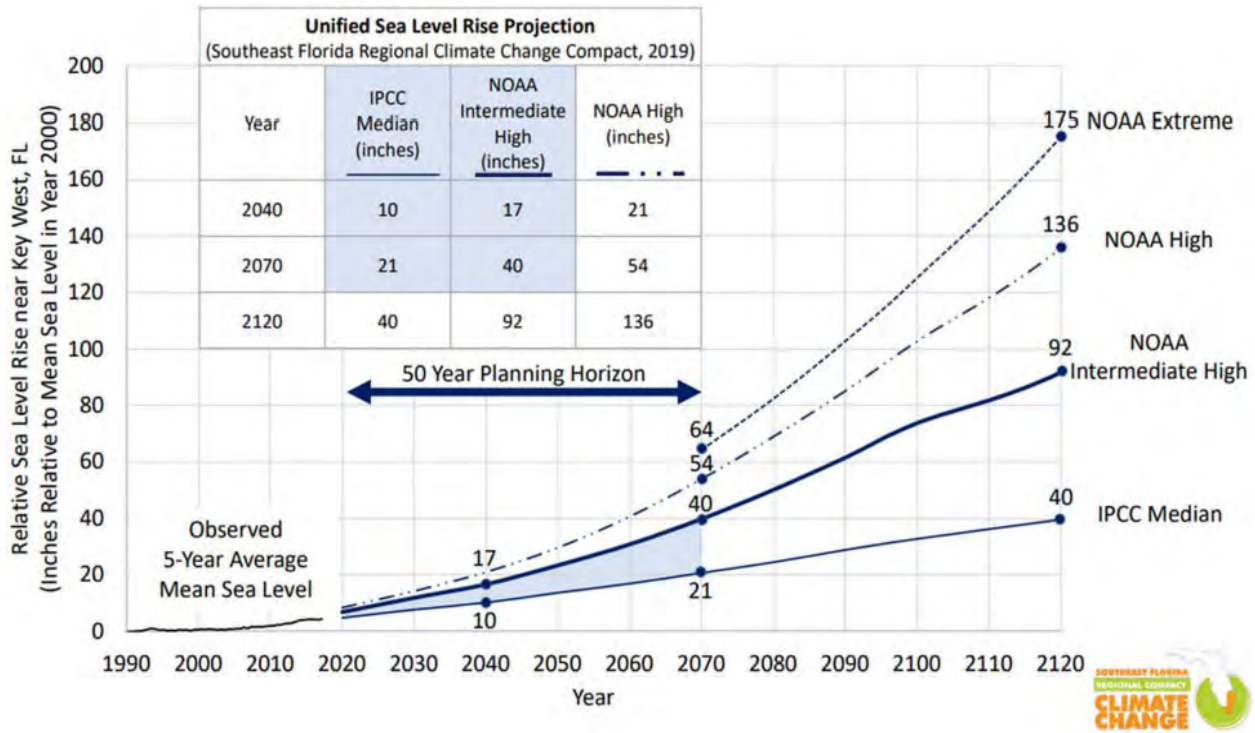
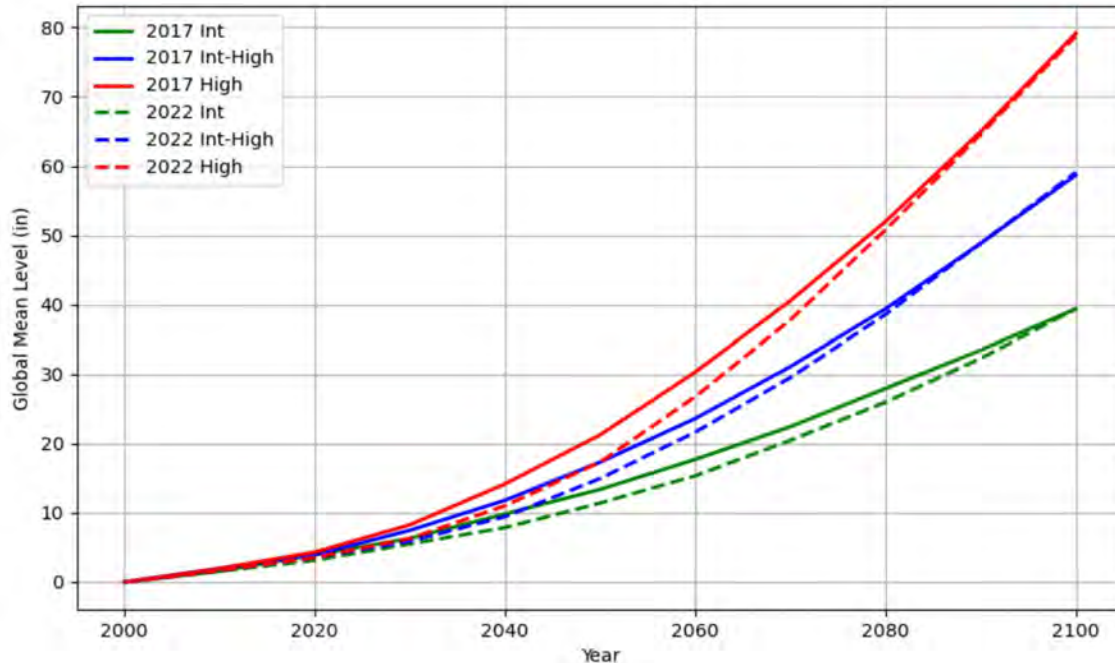


Figure 6.2 Sea Level Rise Projections (2019)



Source: Figure 1 of the Compact's 2024 Statement of Continued Use of the 2019 Southeast Florida Regionally Unified Sea Level Rise Projection.

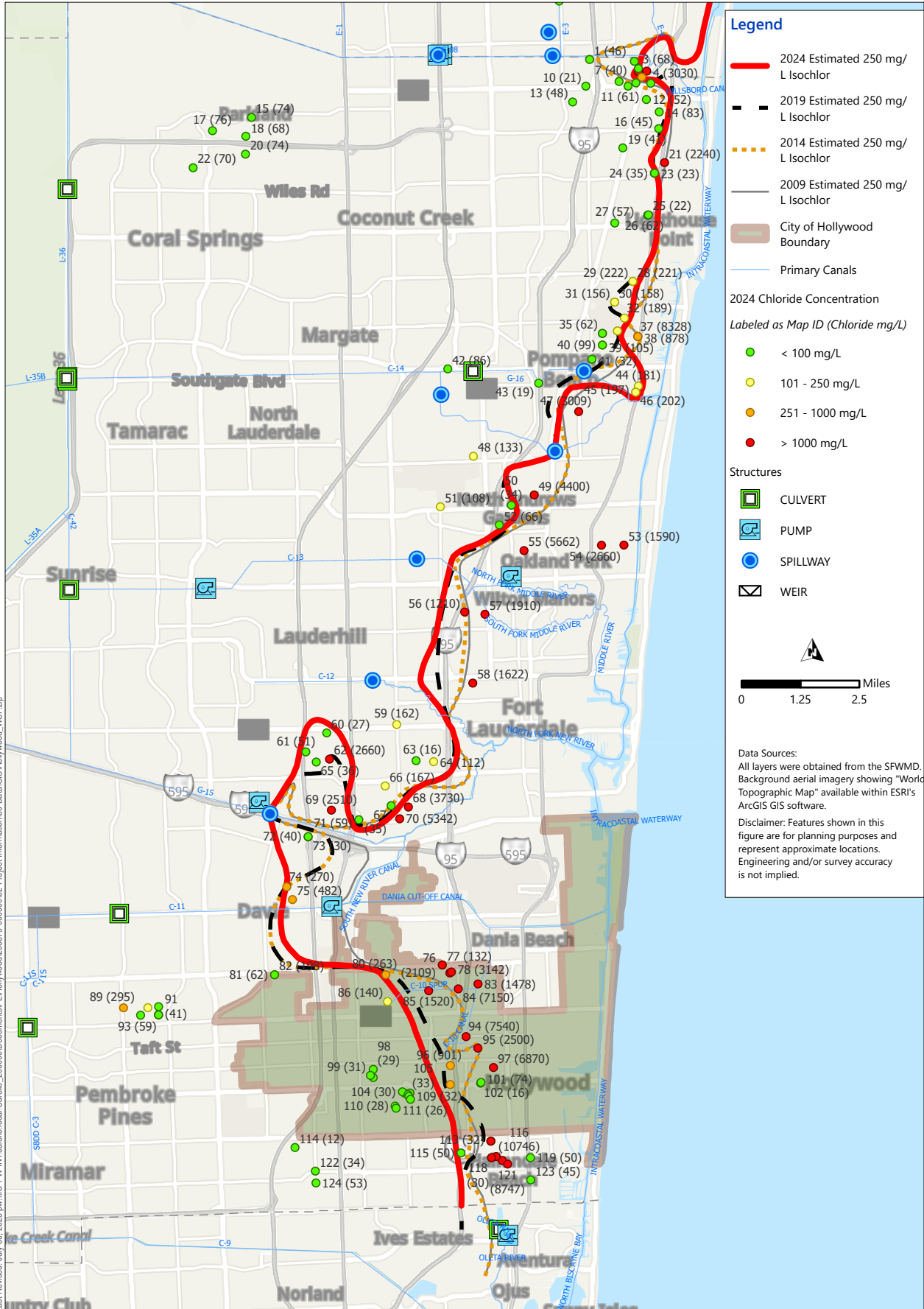
Figure 6.3 Comparison of NOAA Sea Level Rise Projections – 2017 vs. 2022

In terms of infrastructure, every aspect that is underground or touches the ground will need to be assessed for its vulnerability and, if necessary, protected. This includes basic services, such as provision of drinking water, sewage treatment, electricity and waste disposal. The City's ongoing CVAAP update effort includes this analysis and adaptation planning.

6.4 Saltwater Intrusion

The Biscayne Aquifer is the City's primary water supply. It is a shallow, surficial, highly transmissive aquifer. Coastal saltwater intrusion of the aquifer has occurred in eastern parts of Broward County. The extent of saltwater intrusion is measured by the depth and location of the 250 mg/L chloride concentration toe. The mapping of this saltwater intrusion front is supported by local governments throughout the region, the United States Geologic Survey (USGS), and the SFWMD. The SFWMD's 250 mg/L Isochlor Line, as published in 2024, in Broward County is illustrated in Figure 6.4. It indicates that the saltwater intrusion front has largely remained steady, with some inland shifts observed.

At the toe of the saltwater front, chloride concentrations exceed drinking water standards of 250 mg/L and thus restrict and/or require abandonment of wellheads located east of the saltwater intrusion line. It has been concluded that movement of the saltwater front is primarily caused by the historic lowering of the water table in western Broward County for the construction of regional drainage canals. Currently, surface water canals and salinity control structures are operated to maintain water levels that effectively limit inland saltwater migration, and no regional declines in water levels have been observed. However, sea level rise is expected to expedite the inland movement of the saltwater front. Therefore, while the City's Biscayne Aquifer wellfields are located sufficiently west of the 250 mg/L Isochlor, the City continues to monitor its movement and the potential impact on the City's water supply.



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Figure 6.4 250 mg/L Isochlor Line in Broward County (SFWM)
 CITY OF HOLLYWOOD FLORIDA

6.5 Extreme Weather Events

An increase in frequency and severity of extreme weather events may be an impact of climate change. Comprehensive planning should consider impacts and risks associated with drought, water shortages and reduced groundwater tables, all of which can hasten saltwater intrusion and exacerbate water supply deficits. Conversely, more intense rainfall will cause flooding, increased runoff, impacts to the natural systems and provide more recharge potential for wellfields. Integrated water resource management strategies will help to mitigate these impacts, particularly those projects that can serve to provide additional long-term storage of stormwater runoff and redistribution of excess rainfall during dry periods and drought. Regional surface water reservoirs and below ground aquifer storage and recovery systems (ASR) are potentially viable alternative water supply projects and climate adaptation strategies.

6.6 Infrastructure Development

To ensure the long-term sustainability of key facilities in the face of climate change, sea level rise and extreme weather events, it becomes critical to diversify water supply sources, improve treatment technologies, and develop adaptive stormwater and wastewater infrastructure design criteria. Strategic infrastructure planning should incorporate these opportunities and work within the GOPs of the Comprehensive Planning process and 10-year Water Supply Facilities Work Plans to provide for long-term sustainability and a balanced approach to future development.

Increases in groundwater elevations, as a direct and indirect response to sea level, will challenge the function of drainage systems and are expected to exacerbate future flooding for even mild storm events. Future conditions will be more severe with extreme rainfall events increasing damage to low-lying utility infrastructure and contributing to prolonged surface water flooding. Planning for the combined influences of storm events, high tides and sea level rise on drainage system functions and other public infrastructure is a critical need as is the assessment of viable water supplies and impacts to the natural systems from prolonged droughts.

Options that provide for a diversification of water projects and protection of resources will be fundamental and may include changing treatment technologies; developing regional water storage such as the C-51 Reservoir; improving (or relocating) infrastructure in low lying areas; and enhancing operational flexibility. The City's planning effort regarding water supply infrastructure includes use of the Floridan Aquifer as an alternative water supply source and considerations of issues impacting water supply and demand including the RWA Rule, the C-51 Reservoir Project, the Ocean Outfall Program, and the RCAP.

The RWA Rule was adopted by the SFWMD on February 16, 2007. The RWA limits raw water withdrawals from the Biscayne Aquifer to the maximum quantity withdrawn during any consecutive 5 years preceding April 2006. It aims to prohibit increased allocations that induce increased seepage from the canals, in support of the Minimum Flow and Minimum Water Level (MFL) recovery strategies for the Everglades and the Northwest Fork of the Loxahatchee River. Cities needing additional water supplies are required to seek sources that are not dependent upon the Everglades for recharge. These alternative water supply solutions include recycling water, using reclaimed water to recharge the Biscayne Aquifer, or drawing water from the deeper Floridan Aquifer.

The RWA Rule limited the City's Biscayne Aquifer withdrawal from its two wellfields to 24.80 mgd on an annual average day basis. Currently, the City is limited to a 5.78 mgd total allocation from the County's SRW. The Floridan Aquifer, as the City's alternative water source, will provide the additional water needed to serve future increases in demand.

6.7 Lake Okeechobee Surface Water Allocation Limitations

Surface water allocations from Lake Okeechobee and the Water Conservation Areas are limited in accordance with the Lake Okeechobee Service Area Restricted Allocation Area (RAA) criteria. In 2008, the SFWMD adopted RAA criteria for the Lake Okeechobee Service Area as part of the MFL recovery strategy for Lake Okeechobee. The criteria limit allocations from Lake Okeechobee and integrated conveyance systems hydraulically connected to the lake to base condition water uses that occurred from April 1, 2001 to January 1, 2008. After adoption of the RAA, all irrigation users in the Lake Okeechobee Service Area were required to renew their water use permits.

In 2007, the SFWMD adopted the LEC RWA criteria to prohibit increases in surface water and groundwater withdrawn from the North Palm Beach County/Loxahatchee River Watershed Waterbodies and Lower East Coast Everglades Waterbodies above base condition water uses permitted as of April 1, 2006. This also includes canals that are connected to and receive water from these water bodies. New direct surface water withdrawals are prohibited from the Everglades and Loxahatchee River watersheds and from the integrated conveyance systems. These criteria are components of the MFL recovery strategies for the Everglades and the Northwest Fork of the Loxahatchee River.

While the City is not directly impacted by the Lake Okeechobee surface water allocation limitations, the City is directly impacted by the LEC RWA criteria as it applies to the Lower East Coast Everglades Waterbodies. These criteria impact the amount of permitted water quantities available to the City from the Biscayne Aquifer.

Recently, the USACE completed the rehabilitation of the Herbert Hoover Dike in 2023 and revised the Lake Okeechobee System Operating Manual (LOSOM) in 2024 to increase storage volumes and water supply improvement. The LOSOM is intended to replace the current 2008 Lake Okeechobee Regulation Schedule (LORS08). It includes operational flexibility in managing Lake Okeechobee water levels, and the SFWMD will provide the USACE with weekly operational guidance. The goals are to send more water south, reduce damaging discharges to the Calooshatchee and St. Lucie estuaries, and improve water supply performance. However, the SFWMD's analysis suggested that these improvements are not sufficient to allow Lake Okeechobee to return to an MFL prevention strategy and Lake Okeechobee remains in recovery status. The Lake Okeechobee MFL recovery strategy was revised as part of the 2023-2024 LEC Plan Update, with consideration of the Herbert Hoover Dike repairs, a new lake regulation schedule, and additional storage projects. The recovery strategy's capital projects component was revised, but the environmental enhancement, regulatory criteria, and water shortage components were not changed. The SFWMD will continue to allocate water for existing and future reasonable-beneficial uses pursuant to its regulatory rules and criteria described in Section 3.2.1F 1-5 of the *Applicant's Handbook for Water Use Permit Applications within the South Florida Water Management District* (Applicant's Handbook; SFWMD 2022) and Chapter 40E-21 F.A.C.

6.8 Infrastructure Planned to Attenuate Damaging Peak Flow Events from Lake Okeechobee

Construction of additional storage systems (e.g., reservoirs, aquifer storage and recovery systems) to capture wet season flow volumes may increase water availability during dry conditions and attenuate damaging peak flow events from Lake Okeechobee. There are four planned projects in the Lake Okeechobee region of the LEC Planning Area, a list of those projects and their statuses are listed in Table 6.2.

Table 6.2 Water Resource Development Projects Within the LEC’s Lake Okeechobee Planning Area

| LEC Region | Project | Status |
|-----------------|--|------------------------|
| Lake Okeechobee | CERP Lake Okeechobee Watershed Restoration Project (LOWRP) | Planning/ Construction |
| | USACE Herbert Hoover Dike Major Rehabilitation | Construction Complete |
| | Lake Okeechobee Component A Storage Reservoir (LOCAR) | Planning |
| | Central Everglades Planning Project (CEPP) A-2 Reservoir and Stormwater Treatment Area (STA) | Planning/ Construction |

Source: Table ES-2 of 2023-2024 LEC Plan Update.

For protection near the City, the infrastructure planned to attenuate damaging peak flows to surface water bodies and coastal ecosystems located near the City are those underway in Broward County by the SFWMD and the U.S. Army Corps of Engineers under the Comprehensive Everglades Restoration Project (CERP). According to the 2023-2024 LEC Plan Update, this project is within the LEC Service Areas region and is in the planning and design phase.

The Broward County Water Preserve Areas (BCWPA) project is part of the CERP and was designed to restore the ecological health of the Everglades. Its two primary functions are:

1. Reduce seepage loss from WCA-3A/3B to developed areas (i.e., the C-9 and C-11 basins);
2. Capture, store, and distribute surface water runoff from the western C-11 Basin that has been discharges into WCA-3A/3B.

The following major infrastructure features will be constructed as part of the project.

- C-11 Impoundment – A 1,168-acre impoundment that is the first feature of the BCWPA project. As of June 2024, the USACE anticipated the final design to be completed by the end of FY2024 and land clearing to be initiated in March 2025. Its purpose includes:
 - » Capture and store stormwater runoff from the western C-11 Basin.
 - » Stop pumping of untreated runoff into the WCA-3A through the S-9 pump station.
 - » Reduce seepage from WCA-3A and WCA-3A/3B Seepage Management Area, thereby increasing groundwater recharge.
 - » Provide additional water source.
 - » Prevent saltwater intrusion into drinking water aquifers.
- WCA-3A/3B Seepage Management Area – A 4,353-acre seepage management area. As of June 2024, the USACE anticipated the design to be performed in FY2025 to FY2028 and construction to be completed by FY2032. Its purpose includes:
 - » Establish a buffer to reduce seepage from WCA-3A/3B.

- » Connect the C-11 and C-9 impoundments via conveyance canal.
- » Maintain flood protection.
- C-9 Impoundment – A 1,641-acre impoundment. As of June 2024, the USACE anticipated the design to be performed in FY2025 to FY2029 and construction to be completed by FY2035. Its purpose includes:
 - » Capture and store stormwater runoff from the C-9 Basin.
 - » Store C-11 Impoundment overflow.
 - » Manage seepage.
 - » Provide releases for regional benefit.

These infrastructure features will provide various functions such as reducing seepage from WCA-3A, reducing phosphorus loading to WCA-3A, capturing stormwater otherwise lost to tide, and providing conveyance features for urban and natural system water deliveries. The preserve areas will benefit federally listed threatened and endangered species and many wading birds. This project provides water supplies identified in the Everglades MFL recovery strategy. The project received congressional authorization in the 2014 Water Resources Reform and Development Act (WRRDA). Initial construction contract was completed in November 2018 for the North Mitigation Area A Berm (MAAB) of the C-11 Impoundment, and land clearing initiated in March 2025. Design efforts are being finalized for the C-11 Impoundment but has not been initiated for the WCA-3A/3B Seepage Management Area and C-9 Impoundment.

The City continues to monitor the status of environmental restoration projects in the LEC.

6.9 Use of Brackish Groundwater from the Floridan Aquifer

The City of Hollywood was the first south Florida utility to develop water supply from the Floridan Aquifer. Currently, the City is permitted to withdraw an annual average quantity of 8.68 mgd. The City has existing RO treatment capacity to process 7.5 mgd of raw water and the ability to expand this capacity as needed.

6.10 Local Supply and Service Agreements and Coordination

The HLWD-DPU maintains formal agreements with its raw water providers and bulk water customers and communicates and coordinates with them on a regular basis through a variety of methods. In 1994, the City signed a "Large User Raw Water Agreement" with Broward County to purchase raw water from the County's South Regional Wellfield. This agreement was amended in 2004 and is still current. The City also has a current "Finished Water for Resale Agreement" with Broward County since 1991 to provide finished water to the County's 3A and 3B/3C distribution systems. The CUP modification issued by SFWMD on March 11, 2020 allows the City to use up to 2,153 MGY annually and 240 MGM monthly from the County's South Regional Wellfield to meet the County's 3A and 3B/3C demands.

The City of Dania Beach also purchases finish water from the City on an emergency basis through an "Interlocal Agreement for Emergency Water Interconnection" agreement that was signed in 2008.

The City ensures that adequate water supply is available to fulfill its obligations to its large water users by planning and projecting future demand in the area (See Section 5) and by maintaining an open line of communication with the involved municipalities. The City conducts individual meetings with Broward County and the City of Dania Beach as issues arise which may be hosted by either party. Consultants and various agency representatives may be added to the aforementioned meetings and communications as warranted. Formal meetings are augmented by emails and phone contacts.

Additionally, the HLWD-DPU has a designated large user coordinator to facilitate communication between multiple interested parties. Primary operational, budgetary, and field contacts are frequently updated and distributed to each large user to further facilitate planning and coordination activities. At this time, the current coordination activities between the City and its large water users/ raw water supplier are sufficient and additional activities will be scheduled as deemed necessary by either party.

SECTION 7 WATER SUPPLY CAPITAL IMPROVEMENTS

This section identifies the capital improvements required to build public water supply facilities to serve the existing and new development within the City of Hollywood jurisdiction.

The City's overall Capital Improvement Program (CIP) identifies capital improvement projects for the HLWD-DPU that are related to repair and replacement work needed to proactively maintain the level of service for the City's water distribution system. While the City has sufficient existing water supply and treatment infrastructure in place, alternatives have been evaluated to transition away from LS treatment and expand the RO and MS treatment capacity. As outlined in Section 9 of the 2024 Water Master Plan, expanding the MS and RO systems will reduce reliance on the aging LS infrastructure, improve water quality and consistency, and provide protection against current and future regulated contaminants such as PFAS.

7.1 Funding

The City of Hollywood has historically supplemented its revenues from the following funding sources: alternative water supply grants, low-interest state revolving funds (SRFs), water impact fees, and bond proceeds (debt financing). The City anticipates continuing the use of these revenue and funding sources over the next 5 years to implement the Capital Improvement Projects for repair, replacement, and upgrades of existing infrastructure. No additional funding is needed for water supply or treatment expansion. It should be noted that water supply rates can be increased by City Commission action, without third party concurrence, to support the issuance of revenue bonds for any projects not funded by other means. In November 2024, a new utility rate went into effect which slightly increased costs to customers and simplified the tiered rate structure. Under the new structure, the cost for the average customer has increased by less than one dollar per month. The modified three-tiered rate structure provides incentives and rewards for conserving water. These rates paid by customers support the Capital Improvement Program.

7.2 Projects Reported in 2023-2024 LEC Plan Update

As reported to the 2023-2024 LEC Plan Update effort, the City proposed two potable water supply projects that could expand its RO treatment capacity and diversify water supply sources with new FAS wells. The planned completion dates for those proposed projects are 2034 and 2042, details of those projects are summarized in Table 7.1.

Table 7.1 City of Hollywood Proposed Potable Water Projects

| Project Name | Project Description | Project Capacity (mgd) | Total Capital (\$M) | Estimated Completion Date |
|--|--|------------------------|---------------------|---------------------------|
| 2.00 mgd RO Facility Expansion Train E and FAS Wells F14 and F15 | Construct Train E to expand RO capacity by 2.00 mgd at the Hollywood WTP and construct FAS Wells F14 and F15 | 2.00 | \$5.00 | 2034 |
| 2.00 mgd RO Facility Expansion Train F and FAS Wells F16 and F17 | Construct Train F to expand RO capacity by 2.00 mgd and construct FAS Wells F16 and F17 | 2.00 | \$5.00 | 2042 |
| Total | | 4.00 | \$10.00 | |

Source: Table 8-2 of the 2023-2024 LEC Plan Update

7.3 All Planned Projects

In addition to the proposed shift in treatment technology, the CIP includes all treatment, supply and distribution projects expected from 2025 to 2045. These projects will rehabilitate or replace equipment approaching its useful life, address performance issues, and keep pace with population growth and increasingly stringent regulatory requirements. The detailed list of projects and explanation of the prioritization approach are discussed in Section 10 of the 2024 Water Master Plan. To summarize this information, tables including the implementation year and estimated cost can be found below for each project type. Table 7.2 presents the projects focused on the treatment system. Table 7.3 shows the projects related to supply and Table 7.4 contains the distribution system projects which make up the majority of the CIP projects.

Table 7.2 City of Hollywood Water Utility Capital Improvement Program – Treatment Projects

| Project Title | Implementation Year | Total Estimated Project Cost |
|---|---------------------|------------------------------|
| Implementation of 4-Log Virus Treatment | 0-5 | \$8,000,000 |
| Replacement of Media and Underdrain for Up Filters | 6-10 | \$3,850,000 |
| Degasifier Nos. 2, 3, and 4 Media Replacement, Inspection | 6-10 | \$281,000 |
| WTP Membrane Softening Trains Replacement – Phase 1 / Membrane Replacement of 7 MS Trains | 0-5 | \$25,004,000 |
| Phase 1 – Demo Spiractors 1-6 and All Lower Filters and Expand Existing MS / RO Capacity in Existing Building | 0-5 | \$40,867,000 |
| Phase 2 – Demo Spiractors 7-12 and Construct New MS Building II | 6-10 | \$26,147,000 |
| 2024 WTP Maintenance Package A | 0-5 | \$4,400,000 |
| 2024 WTP Maintenance Package B | 0-5 | \$4,400,000 |
| Antiscalant, Fluoride, and HEX System Upgrades | 6-10 | \$1,713,000 |
| Evaluation and Rehab Caustic Tanks | 0-5 | \$1,100,000 |
| Mudhouse Rehabilitation | 0-5 | \$5,000,000 |
| Concrete Tanks Structural Rehabilitation | 6-10 | \$230,000 |

| Project Title | Implementation Year | Total Estimated Project Cost |
|---|---------------------|------------------------------|
| Admin Control Room and PLC Upgrade | 11-20 | \$691,000 |
| Storage Tank Nos. 3 and 4 Valve Replacement | 6-10 | \$204,000 |
| Blend Tank Pumps and Piping Improvement | 11-20 | \$2,840,000 |
| Wellfield Generator Assessment and Implementation | 6-10 | \$2,660,000 |
| Miscellaneous WTP Improvements | 6-10 | \$553,000 |
| Miscellaneous WTP Improvements – Long Term | 11-20 | \$1,155,000 |
| Pavement Resurfacing of Entire WTP | 0-5 | \$425,000 |
| WTP Fence Replacement | 0-5 | \$2,200,000 |
| Total | | \$131,720,000.00 |

Source: Table 10-5 of the 2024 City of Hollywood Water Master Plan Final Report.

Table 7.3 City of Hollywood Water Utility 5-Year Capital Improvement Program – Supply Projects

| Project Title | Implementation Year | Total |
|---|---------------------|----------------|
| Secondary High Service Pump Replacement | 0-5 | \$5,000,000 |
| Wellfield Development (B36, B37, & B41) | 0-5 | \$8,555,000 |
| Floridan Wells Abandonment and Relocation (F2 and F4) | 0-5 | \$6,210,500 |
| Biscayne Wellfields Phased Rehabilitation | 6-10 | \$1,800,000.00 |
| Floridan Wellfields Phased Rehabilitation | 6-10 | \$900,000.00 |
| Total Supply Projects Cost | | \$22,465,500 |

Source: Table 10-5 of the 2024 City of Hollywood Water Master Plan Final Report.

Table 7.4 City of Hollywood Water Utility 5-Year Capital Improvement Program – Distribution Projects

| Project Title | Implementation Year | Total |
|--|---------------------|--------------|
| West Elevated Tank Rehabilitation | 0-5 | \$3,300,000 |
| East Elevated Tank Rehabilitation | 0-5 | \$3,300,000 |
| 2" & 3" GP Replacement between W Chaminade Dr and N 56th Ave, and 8" WM Replacement on Hollywood Blvd | 0-5 | \$1,271,000 |
| 30" WM Replacement on Hollywood Blvd and 2" GP Upgrade between Johnson St and Hollywood Blvd | 0-5 | \$10,684,000 |
| 8" & 4" WM Replacement and 2" GP Upgrade to the Northeast of E Pembroke Rd and S Federal Hwy | 0-5 | \$3,822,000 |
| 6" WM Replacement and 2" Upgrade East of I-95 | 0-5 | \$7,943,000 |
| 2" GP Upgrade on Sheridan St | 0-5 | \$660,000 |
| Ground Storage Tank Rehabilitation | 6-10 | \$1,630,000 |
| 24", 8" & 6" WM Replacement and 3", 2.5", 2" & 1" Near the Intersection of I-95 and Taft St (5135 partial) | 6-10 | \$9,586,000 |
| 24" WM Replacement on Van Buren St and 2" Upgrade on S 29th Ter | 6-10 | \$4,071,000 |

| Project Title | Implementation Year | Total |
|---|---------------------|----------------------|
| 30", 24", 18", 16", 8" & 6" WM Replacement and 2" Upgrade on Hollywood Blvd and N 35th Ave | 6-10 | \$9,308,000 |
| 24" WM Replacement on Taft St and 3rd, 2.5" & 2" Upgrade West of Rotary Park | 6-10 | \$4,071,000 |
| 3", 2.5" & 2" Upgrade North of Hollywood Blvd and West of N 35th Ave | 6-10 | \$6,171,000 |
| 12", 8", 6" & 4" WM Replacement and 2" Upgrade North of Stirling Rd and West of Florida's Turnpike | 6-10 | \$5,639,000 |
| 24" & 6" WM Replacement and 2" Upgrade East of I-95 on Sheridan St | 6-10 | \$3,609,000 |
| 12", 10", 8", & 6" WM Replacement and 2" Upgrade between Sheridan St and Taft St | 6-10 | \$8,871,000 |
| 12" WM Replacement and 2" Upgrade Near Dania Beach Drawbridge | 6-10 | \$367,000 |
| 24" WM Replacement on Sheridan St and 2" Upgrade South of Sheridan St | 6-10 | \$4,669,000 |
| Installation of 8" Water Main Railroad Crossing at Polk Street | 6-10 | \$1,000,000 |
| 16" Water Main from Tyler St to Washington St | 6-10 | \$1,270,000 |
| Asbestos Cement and Lead Goosenecks Replacement on City's West Side | 6-10 | \$1,000,000 |
| Onsite Distribution Header Upgrades | 11-15 | \$1,568,000 |
| 3", 2.5" & 2" Upgrade West of N 35th Ave between Taft St and Johnson St | 11-15 | \$5,674,000 |
| 6" WM Replacement and 2" Upgrade Northwest of Taft St and N Longfellow Cir | 11-15 | \$4,116,000 |
| 10" WM Replacement from Hollywood Blvd to Washington St | 11-15 | \$10,724,000 |
| 12", 10", 8" & 6" WM Replacement and 2" Upgrade East of Driftwood Park | 11-15 | \$8,479,000 |
| 12", 8", 6" & 4" WM Replacement and 2" Upgrade East of 72nd Ave and South of Johnson St | 11-15 | \$6,992,000 |
| 12", 8", 6" & 4" WM Replacement and 2" Upgrade East and West of Hollywood Blvd and South of Johnson St | 11-15 | \$11,680,000 |
| Replacement of Lead Service Lines per LSLR | 11-15 | \$6,300,000 |
| 12", 8", 6" & 4" WM Replacement and 2" Upgrade West of Florida's Turnpike and South of Taft St | 16-20 | \$8,481,000 |
| 12", 8", 6" & 4" WM Replacement and 2" Upgrade in Corner of Ike Blvd and West of Stirling Rd | 16-20 | \$12,040,000 |
| 12", 8", 6" & 4" WM Replacement and 2" Upgrade West of Florida's Turnpike and North of Stirling Rd | 16-20 | \$11,679,000 |
| 12", 8", 6" & 4" WM Replacement and 2" Upgrade on A1A between Sheridan St and Emerson Dr | 16-20 | \$12,634,000 |
| 12", 10", 8", 6" & 4" WM Replacement and 2" Upgrade West of Hollywood Blvd and West of State Rd 7 | 16-20 | \$3,594,000 |
| 12", 8", 6", 4" & 2" WM Replacement and 2" Upgrade North of Hollywood Blvd and East of Florida's Turnpike | 16-20 | \$6,835,000 |
| Total Distribution Project Costs | | \$210,885,000 |

Source: Table 10-5 and 10-6 of the 2024 City of Hollywood Water Master Plan Final Report.

SECTION 8 COMPREHENSIVE PLAN (RELATED AMENDMENTS)

This section includes an assessment of the City's Comprehensive Plan GOPs and identifies any new or revised GOPs, within the Infrastructure and Capital Improvement Elements, needed to implement the work plan. For ease of identification, edits are tracked in Table 8.1 and Table 8.2 with ~~strikeout~~ (text deleted) and underline (text added).

The City's Division of Planning and Urban Design is in the process of revising the Comprehensive Plan. This Section will be completed prior to submittal to the SFWMD and adoption.

SECTION 9 SUMMARY AND CONCLUSION

Local governments are mandated by Florida Legislature to submit a Water Supply Facilities Work Plan (WSFWP) to ensure linkage between the Regional Water Supply Plan and their individual comprehensive plans. The WSFWP is to address infrastructure and conservation requirements, needed capital improvements, and intergovernmental and water supplier coordination. It is required that the WSFWP be updated every 5 years, or within 18 months after the Governing Board adoption of an updated Regional Water Supply Plan so that the local plan reflects the changes of the regional plan.

This WSFWP has been prepared for the City of Hollywood. The purpose of this WSFWP is to assess the City's current water sources and existing facilities and evaluate their adequacy to meet the projected future raw and treated water demands. The WSFWP development will facilitate the required coordination efforts for water supply and land use planning between the City's Planning and Zoning Department and Department of Public Utilities, the SFWMD, BCWWS, and other water service providers within the City's jurisdiction.

9.1 City Service Area

The City of Hollywood, situated in southeastern Broward County, spans roughly 30 square miles. The City's water service area includes most of its jurisdiction, along with portions of Davie and Dania Beach. The City's water system also provides finished water to BCWWS Districts 3A and 3B/C. Port Everglades is served by the City of Fort Lauderdale.

Table 9.1 Geographic Size of Water Utility Service Areas in Square Miles

| Water Utility Serving the Geographic Area | In the City's Jurisdiction | Out of City's Jurisdiction and Served by City's WTP | Total Served from City's WTP by Water Service Area |
|--|----------------------------|---|--|
| HLWD-DPU (City WTP) to City of Hollywood Customers | 26.03 | 0.38 | 26.41 |
| HLWD-DPU (City WTP) to BCWWS District 3A Customers | 0.00 | 7.59 | 7.59 |
| HLWD-DPU (City WTP) to BCWWS District 3B/C Customers | 0.64 | 5.69 | 6.33 |
| Fort Lauderdale Public Works Department to Port Everglades | 2.00 | 0.00 | 0.00 |
| Total | 28.67 | 13.66 | 40.33 |

Sourced from GIS estimates delineated based on the 2023-2024 LEC Plan Update. Port Everglades size estimate was sourced from Water Supply Plan Potable Water Sub-Element, City of Hollywood, Florida, January 2015.

9.2 Existing Potable Water Facilities

9.2.1 Raw Water Allocation

The City of Hollywood obtains its raw water from the Biscayne and Floridan Aquifers. The City's Water Use Permit (WUP) No. 06-00038-W allows for an annual average daily withdrawal of 24.80 mgd from the Biscayne Aquifer and 8.68 mgd from the Floridan Aquifer. The City also has an agreement to purchase 5.78 mgd of Biscayne Aquifer raw water from Broward County's South Regional Wellfield (SRW). The permitted annual and monthly withdrawal limits are shown in Table 9.2.

Table 9.2 City of Hollywood Permitted Groundwater Withdrawal Quantities and Contracted Groundwater Quantities from Broward County's SRW

| Water Supply Source | Annual Withdrawal Limit | | Maximum Monthly Withdrawal | |
|------------------------------------|-------------------------|-------------------|----------------------------|----------------------|
| | MG | Average Daily mgd | MG | Average Daily mgd |
| (1) | (2) | (3) = (2) / 365 | (4) | (5) = (4) / (365/12) |
| Biscayne Aquifer | | | | |
| Western (Chaminade) Wellfield | 5,475 | 15.00 | 497.30 | 16.35 |
| South Wellfield | 3,577 | 9.80 | 324.90 | 10.68 |
| Subtotal – Biscayne Aquifer | 9,052 | 24.80 | 822 | 27.03 |
| Floridan Aquifer | | | | |
| Floridan Aquifer | 3,168 | 8.68 | 259.00 | 8.52 |
| Subtotal – City Permitted | 12,220 | 33.48 | 1,081.00 | 35.55 |
| Contracted from Broward County SRW | 2,153 | 5.90 | 240.00 | 7.89 |
| Total – All Sources | 14,330 | 39.38 | 1,278.20 | 43.44 |

Source: SFWMD Water Use Permit No. 06-00038-W (expires on April 10, 2028), Letter from Broward County to the City of Hollywood dated April 27, 2018, Subject: Hollywood Flow Limitations, and SFWMD Water Use Letter Modification dated March 11, 2020.

9.2.2 Facilities

The City's Water Treatment Plant (WTP) utilizes lime softening (LS), membrane softening (MS), and reverse osmosis (RO) treatment processes. The WTP has a firm treatment capacity of 40.5 mgd and a nominal capacity of 46.0 mgd. The City has 18 million gallons (MG) of total finished water storage capacity, including elevated and ground storage tanks. The water distribution system consists of approximately 700 miles of water main pipe, ranging from 2-inch to 36-inch diameter.

9.3 Reuse Water System and Water Conservation Program

The HLWD-DPU operates a reuse water system at the City-owned Southern Regional Wastewater Treatment Plant (SRWWTP). The facility collects, treats, and discharges approximately 42 mgd of secondary-treated wastewater into the Atlantic Ocean and to the underground Boulder Zone via deep injection wells. The OOL requires that all utilities in the State of Florida eliminate wastewater effluent discharges from their ocean outfalls by 2025, except during peak flow events, and that utilities provide technically, economically, and environmentally feasible reuse of 60 percent of a base condition annual average flow by December 31, 2025. In 2019, the City partially fulfilled its contracted reuse goal by securing a 2.0 mgd AADF agreement with the City of Miramar. As of September 2025, the City has achieved 7.01 mgd of planned, installed, or contracted reclaimed water capacity out of the required 10.0 mgd. To address the remaining 2.99 mgd reuse requirement, the City will increase onsite process reuse by expanding SRWWTP to include a EHR system. This expansion would exceed the remaining reuse requirement of 2.99 mgd and would replace the use of potable water. The City has discussed the approach and the extended implementation timeline with FDEP, and a formal plan is being drafted to present to FDEP for approval.

In addition to investing in reuse water, the City is also committed to promoting water conservation. The City's Water Conservation Plan was developed with the goal of maximizing the City's water use efficiency and reducing overall potable water demand. The 5-year average per capita demand over all customers served by the HLWD-DPU, including retail and wholesale customers, was reduced from 127 gpcd in 2008 to 112 gpcd in 2023. The City has reduced its water use by approximately 5 mgd through conservation programs, appliance rebates, irrigation rules, and a tiered billing system.

9.4 Data and Analysis

9.4.1 Population Projections

The population in the City of Hollywood is expected to grow modestly throughout the forecast period, as less than 1 percent of the land area in the City is developable vacant land. The projected population for the period 2025 through 2045 for each service area is summarized in Table 9.3.

Table 9.3 Population Projections from 2025 to 2045

| Year | City's Retail Service Area | BCWWS District 3A | BCWWS District 3BC | Total: Retail and Wholesale |
|------|----------------------------|-------------------|--------------------|-----------------------------|
| 2024 | 153,859 ⁽¹⁾ | 23,322 | 33,238 | 210,420 |
| 2025 | 153,839 ⁽²⁾ | 23,409 | 33,224 | 210,472 |
| 2030 | 157,835 ⁽²⁾ | 25,890 | 32,931 | 216,655 |
| 2035 | 162,043 ⁽²⁾ | 27,335 | 33,828 | 223,206 |
| 2040 | 166,788 ⁽²⁾ | 28,193 | 34,906 | 229,887 |
| 2045 | 169,932 ⁽²⁾ | 28,699 | 35,526 | 234,157 |

Notes:

(1) From 2024 City of Hollywood Annual Water Supply Report.

(2) Adjusted based on 2024 population estimate from the 2024 City of Hollywood Annual Water Supply Report.

9.4.2 Finished and Raw Water Demand Projections

The projected demand for both finished and raw water from 2025 through 2045 is expected to stay within the treatment plant's firm capacity, the permitted raw water withdrawal limit, and the treatment limit. The change in demands through 2045 compared to the limits are shown in Figure 9.1.

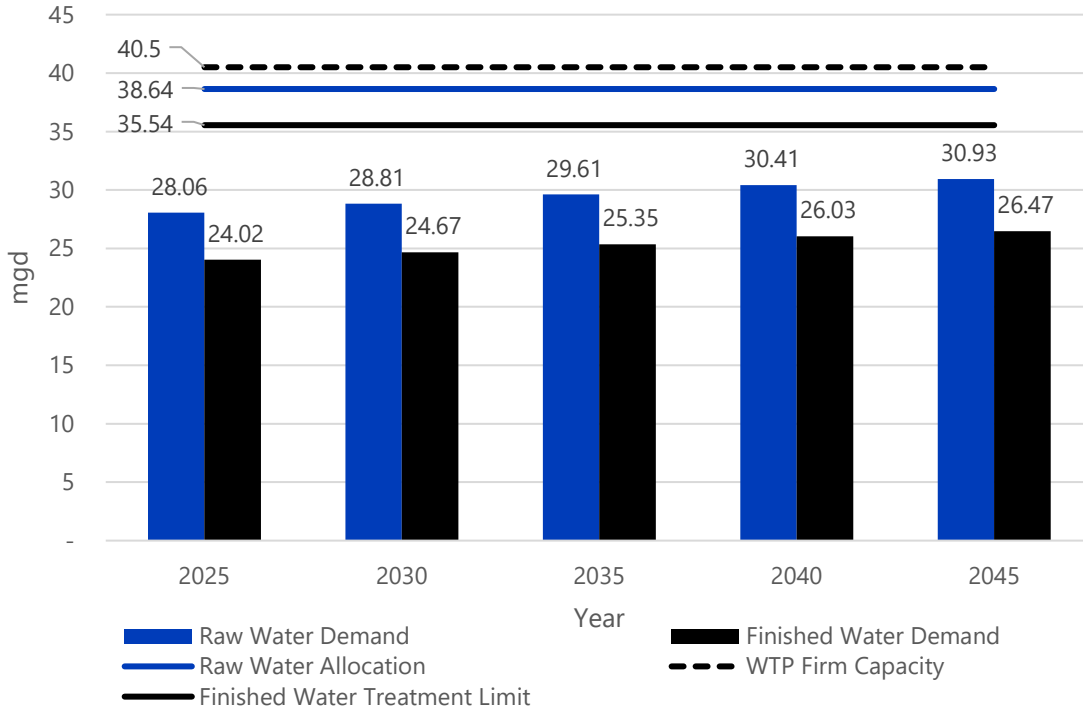


Figure 9.1 Comparison of Finished and Raw Water Demand Forecast to Treatment Capacity, Treatment Limit, and Withdrawal Limit – City of Hollywood Service Retail and BCWWS 3A and 3B/C from 2025 to 2045

9.5 Regional Issues and Intergovernmental Coordination Activities

The City and the HLWD-DPU are aware of the regional issues that are impacting or have the potential to impact water supply, water demand, and utility infrastructure. In 2013, the City of Hollywood adopted the Climate Action Pledge affirming its support of the Compact and the RCAP. The City is a leader in developing planning tools and identifying achievable and cost-effective goals that meet the needs of its community. In 2020, the City conducted a review of climate change impacts on the City’s water system as part of the AWIA Risk and Resilience Assessment, and a CVAAP. The Biscayne Aquifer is the City’s primary water supply. Coastal saltwater intrusion of the aquifer has occurred in eastern parts of Broward County. The SFWMD’s 250 mg/L Isochlor Line, as published in 2024, in Broward County indicates that the saltwater intrusion front has largely remained steady, with some inland shifts observed. In 1994, the City signed a “Large User Raw Water Agreement” with Broward County to purchase raw water from the County’s South Regional Wellfield. In 1991 the City signed a “Finished Water for Resale Agreement” with Broward County. In 2008, an “Interlocal Agreement for Emergency Water Interconnection” agreement was signed with the City of Dania Beach.

9.6 Water Supply Capital Improvements

The City's Water Supply Capital Improvements program includes projects to rehabilitate or replace equipment approaching its useful life, address performance issues, and keep pace with population growth and increasingly stringent regulatory requirements.

9.7 Comprehensive Plan

The Comprehensive Plan is being updated with information that will support this updated WSFWP. Components included as part of the Comprehensive Plan update include the Capital Improvements and Infrastructures Elements. The goals, objective, and policies for each component have been updated and identified to reflect the WSFWP. The full list of existing and proposed goals, objectives, and policies for each component are included as part of Appendices K and L.

9.8 Conclusions

The City of Hollywood has sufficient existing water supply and treatment infrastructure to meet projected demands through 2045. The City is committed to diversifying its water supply sources and improving treatment technologies. The WSFWP identifies capital improvements required to maintain the City's water supply facilities and ensure reliable service to existing and new development within the City's jurisdiction.

APPENDIX A

CITY OF HOLLYWOOD WATER USE PERMIT



**WATER USE
LETTER MODIFICATION**

APPLICATION NUMBER: 200218-3 **PERMIT NUMBER:** 06-00038-W
DATE ISSUED: March 11, 2020 **EXPIRATION DATE:** April 10, 2028
PERMITTEE: CITY OF HOLLYWOOD
P O BOX 229045
HOLLYWOOD, FL 33022

PROJECT NAME: HOLLYWOOD WATER TREATMENT PLANT

PROJECT LOCATION: BROWARD COUNTY, S1,2,3,10-15,24/T51S/R41E
S35,36/T50S/R42E
S1-24/T51S/R42E

District staff has reviewed the information submitted in support of the referenced application for permit modification(s) and determined that the proposed activities are in compliance with the previous permit and the appropriate provisions of Rule 40E-2.331 (4)(a), Florida Administrative Code. The permit modification(s) include the following:

To update Limiting Condition 5 to remove the daily allocation for Wells 20 and 21 since these wells have been abandoned.

To remove former Limiting Condition 22 that required an evaluation of long term water supply alternatives and submittal of a long term supply plan since the reporting requirement has been completed.

To update locations of production wells, monitor wells, and surface water monitoring stations. In addition, the surface water body for the five surface water monitoring stations has been updated and the total depth and cased depth for Wells F10 and F13 have been updated. The updated facility locations are shown on Exhibits 1A and 1B and facility information is shown on Exhibits 2 and 3 (Application 200218-3).

To update former Exhibits 8 and 8A in Water Use Permit Application 070518-17 for the Alternative Water Supply schedule. The updated schedule is shown in Exhibit 4 (Application 200218-3). Limiting Condition 29 (former Limiting Condition 30) has been updated with the new exhibit number for the Alternative Water Supply schedule.

Please understand that your permit remains subject to the 29 Limiting Conditions and all other terms of the permit authorization as previously issued.

A handwritten signature in blue ink, appearing to read "Nick Vitani".

Nicholas M. Vitani, P.G.
Section Leader
Water Use Bureau

LIMITING CONDITIONS

1. This permit shall expire on April 10, 2028.
2. Application for a permit modification may be made at any time.
3. Water use classification:
Public Water Supply
4. Source classification is:
Groundwater from:
Biscayne Aquifer
Floridan Aquifer System
5. Annual allocation shall not exceed 14,372.66 million gallons (MG). (39.38 MGD)
Maximum monthly allocation shall not exceed 1,320.80 million gallons (MG).

The following limitations to annual withdrawals from specific sources are stipulated:

- Biscayne Aquifer-Chaminade Wellfield: 5,475 MG.
- Biscayne Aquifer-South Wellfield: 3,577 MG.
- Floridan Aquifer System-Floridan Wellfield: 3,168 MG.

The following limitations to maximum monthly withdrawals from specific sources are stipulated:

- Biscayne Aquifer-Chaminade Wellfield: 497.30 MG.
- Biscayne Aquifer-South Wellfield: 324.90 MG.
- Floridan Aquifer System-Floridan Wellfield: 259.00 MG.

Annual and maximum per month supplied from the Piccolo Wellfield (contractual quantities) shall be 2153 MGY and 240 MGM respectively.

6. Pursuant to Rule 40E-1.6105, F.A.C., Notification of Transfer of Interest in Real Property, within 30 days of any transfer of interest or control of the real property at which any permitted facility, system, consumptive use, or activity is located, the permittee must notify the District, in writing, of the transfer giving the name and address of the new owner or person in control and providing a copy of the instrument effectuating the transfer, as set forth in Rule 40E-1.6107, F.A.C.

Pursuant to Rule 40E-1.6107 (4), until transfer is approved by the District, the permittee shall be liable for compliance with the permit. The permittee transferring the