

**COMPREHENSIVE PLAN
UTILITIES ELEMENT**

**POTABLE WATER SUBELEMENT
GOALS, OBJECTIVES AND POLICIES**

GOAL 1: PROVIDE CITY RESIDENTS AND OTHER LOCAL GOVERNMENTS THAT RECEIVE POTABLE WATER WITH RELIABLE SERVICE.

Objective 1.1: New development within the City’s Potable Water Service Area shall be approved only when adequate water supply, treatment and distribution capacity is available to provide, or provisions are included (as identified in Capital Improvement Element Policies), for the needed potable water or when the developer obligates funds to provide that development’s share of capital improvements to any of these systems, as well as the distribution systems within the development.

Policy 1.1.1: The City shall coordinate closely with local governments that receive potable water from the City to ensure they provide the City with an annual report including 5-year, 10-year and 20-year projections of population, land use and water usage information.

Policy 1.1.2: Applicants seeking development approvals shall obtain a written water availability statement from the City indicating an adequate water supply consistent with the established level of service (LOS) standard based on the City’s Consumptive Use Permit (50-12547-W). At a minimum, the water availability statement shall indicate an adequate water supply will be available and all required delivery infrastructure shall be fully constructed and operable prior to the issuance of the Certificate of Occupancy.

Policy 1.1.3: The LOS standard for determining the demand and future capacity needs to be generated by a development shall be based on 240 gallons per capita per day (gpcd) factor as identified in the Capital Improvement Element of the City’s Comprehensive Plan.

Objective 1.2: The City shall continue to annually evaluate programs and construction projects to identify necessary repairs and add to the potable water delivery system to correct existing facilities and distribution deficiencies.

Policy 1.2.1: The City shall continue to implement an on-going program of inspection and replacement of water lines which are determined to be in a deteriorated condition. Priorities for this work shall be established within the planned capital projects. Additionally, the Utilities Department shall continue to identify and implement appropriate measures to safeguard the quality of the City’s potable water.

Policy 1.2.2: The City shall continue with programs such as water quality monitoring nodes, automatic flushing units, free chlorination, reviewing the system to provide looped service among other programs to continuously monitor and improve water quality in the distribution system.

Objective 1.3: Pursuant to the South Florida Water Management District’s 50-Year Consumptive Use Permit (50-12547-W), per capita use of potable water within the West Palm Beach Service Area shall not exceed 240 gpcd.

Policy 1.3.1: The City shall continue to educate water users of the importance of water conservation and coordinate with the South Florida Water Management District (SFWMD) in the implementation of water conservation programs such as but not limited to:

- a) Encourage the use of water saving plumbing devices in new and existing structures.
- b) Reduce water line loss through leak detection, valve exercises and regular repair and replacement.
- c) Pursue the use of wastewater reuse for landscaping within rights-of-way, golf courses and parks as an alternative water supply that reduces potable water demands and enhances water conservation efforts.
- d) Promote native and Florida friendly plants and efficient irrigation when considering all proposals for development and/or redevelopment.
- e) Enhance water conservation through public education, irrigation practices, and other user behaviors as detailed in the approved Water Conservation Plan dated January 10, 2024.

Policy 1.3.2: The City shall continue to implement a water conservation program aimed at the consumer and monitor water usage to study the results of the program.

Policy 1.3.3: The City shall continue to employ structured water rates as an incentive that supports this objective of potable water conservation.

Objective 1.4: In order to discourage urban sprawl, the City shall concentrate new development around existing or planned infrastructure, including potable water facilities.

Policy 1.4.1: The City shall discourage urban sprawl by adhering to the concurrency requirements and level of service standards outlined within this comprehensive plan, including those for potable water facilities.

Policy 1.4.2: The City shall investigate, and, when technically and economically feasible, construct additional infrastructure and/or facilities for potable water delivery as it deems necessary to accommodate projected needs.

Objective 1.5: The City has planned for future water supplies to assure future water demands are met through the implementation and updates of the 20-Year Water Supply Facility Work Plan (Work Plan) SubElement and incorporated alternative water supply projects identified in the SFWMD’s regional water supply plan pursuant to s. 373.036(2)(a).

Policy 1.5.1: The City shall continue to coordinate with the SFWMD regarding water supply efforts and shall incorporate into the 20 Year Work Plan, as appropriate, any updates to the South Florida Water Management District Lower East Coast Regional Water Supply Plan (WSP).

Policy 1.5.2: The City shall continue to coordinate population projections and future annexation areas with local governments within the City’s potable water service area through the following actions:

- An ongoing review, through the Intergovernmental Plan Amendment Review Committee (IPARC) notification system, of all future land use amendments to properties located within the City’s potable water service area.
- Use of the Palm Beach County Planning, Zoning and Building Division’s Population Allocation Model and 2023/2024 Lower East Coast Regional Water Supply Plan (2023/2024 WSP) for future population projections by jurisdiction; and
- Once-a-year notification, requiring local governments within the City’s potable water service area to provide the City with (i) major development plans affecting the service/future annexation area; and (ii) population projections, if different from those provided by Palm Beach County; and.

Policy 1.5.3: The City shall coordinate its level of service (LOS) standards for potable water with local governments within the City’s service area, through the following actions:

- The City shall contact local governments within the City’s potable water service area to provide them with information on any changes regarding current LOS standards or any changes of future LOS standards to be included in the Comprehensive Plan and the renewal of local service agreements; and
- The City shall provide local governments within the City’s potable water service area with its potable water conservation measures, including reuse.

Policy 1.5.4: The City shall provide local governments within the City’s potable water service area with a copy of its annual update of the Capital Improvements Schedule (CIS) for all capacity-related water supply facility projects to be included in the respective updates of their CIS.

SANITARY SEWER SUBELEMENT GOALS, OBJECTIVES AND POLICIES

GOAL 1: THE CITY SHALL CONTINUE TO MEET ITS SANITARY SEWER NEEDS AND, AS EAST CENTRAL REGIONAL WATER RECLAMATION FACILITY OPERATOR, SHALL COORDINATE WITH LOCAL GOVERNMENTS THAT IT SERVES IN ORDER TO MEET THEIR FUTURE PLANNING NEEDS.

Objective 1.1: The City shall continually ensure that future demands for sanitary sewer can be met for at least a 20-year planning horizon.

Policy 1.1.1: The City shall coordinate closely with local governments that receive treatment service to ensure they provide the City with 5-year, 10-year and 20-year projections of future wastewater needs and flows based on population projections, development activity, and wastewater generation estimates.

Policy 1.1.2: The City shall treat wastewater from the service area to meet current and future State and Federal standards.

Policy 1.1.3: The City shall coordinate with the communities holding large user agreements to ensure their comprehensive plans and development permit procedures are compatible with the City of West Palm Beach policies with regard to waste water generation, collection, transport, treatment and disposal.

Objective 1.2: In order to discourage urban sprawl, the City shall maximize the use of existing facilities by concentrating new development activity around existing or planned infrastructure, including sanitary sewer facilities.

Policy 1.2.1: The City shall discourage urban sprawl by adhering to the concurrency requirements and level of service standards for sanitary sewer.

Policy 1.2.2: The City shall construct additional infrastructure and/or facilities for sanitary sewer delivery as it deems necessary to accommodate projected needs.

Objective 1.3: The City shall ensure that development permits are issued only if adequate capacity is available concurrent with the impacts of development.

Policy 1.3.1: The City shall continue to prepare annual summaries of built and approved development within its service area.

Policy 1.3.2: The following level of service standards shall serve as the basis for determining current or future capacity requirements:

WASTE WATER COLLECTION

DEVELOPMENT TYPE	AVG. DAILY WASTE WATER FLOW
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Single Family	350 gpd/DU
Multifamily	250 gpd/DU
Commercial	0.20 gpd/SF
Industrial	0.15 gpd/SF
Hotel	100 gpd/room

DU = dwelling unit
SF = square feet

gpd = gallons per day

PUMP STATION PEAKING FACTORS

PEAKING FACTOR	AVG DAILY FLOW (MGD)
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3.5	0.01 to 0.05
3.0	0.05 to 0.25
2.5	0.25 to 2.0
2.0	> 2.0

Peaking factors for other facilities shall be determined using historical flow records.

Policy 1.3.3: All improvements shall be consistent with federal, state and local standards, where applicable.

Policy 1.3.4: Permits for future development shall not be issued if flow from the development will cause overloaded conditions within the sewage treatment facilities until improvements can be completed to bring treatment/transmission systems up to capacity and up to adopted standards.

Policy 1.3.5: Sanitary sewer lines shall be installed, either by the City, or through City-approved agreements to meet sanitary sewer level of service requirements.

Policy 1.3.6: The City shall prepare a capacity analysis for the wastewater treatment plant in accordance with State and Federal regulations. The analysis shall be updated annually when a capacity increase is necessary within the next 10 years. Design for additional capacity in the City service area shall begin before a facility is 3 years away from the need for on-line capacity expansion determined by the capacity analysis.

Objective 2.1: The City shall develop a list of capital improvement projects, to be updated annually, identifying needs in 5-year planning increments.

Policy 2.1.1: The capital improvement projects list shall be comprehensive and include projects from all departments of the City government.

Policy 2.1.2: The City shall evaluate and rank the list of capital improvement projects in order to logically distribute funding for the various projects.

Policy 2.1.3: Projects which correct existing deficiencies to an adopted level of service, shall be ranked ahead of those required for projected shortfalls.

Objective 2.2: The City shall ensure the maximum use of existing facilities and discourage urban sprawl while expanding the City tax base sufficiently to provide adequate services to all within its service area.

Policy 2.2.1: New capital projects shall be constructed preferably in a compact loop design around the existing collections and treatment facilities in order to maximize the use of new facilities and minimize the cost to the City.

SOLID WASTE SUBELEMENT GOALS, OBJECTIVES AND POLICIES

GOAL 1: THE CITY SHALL CONTINUE TO PROVIDE COLLECTION AND TRANSPORT OF GARBAGE, VEGETATIVE WASTE, BULK TRASH AND RECYCLABLES TO MEET THE CITY'S EXISTING AND 10-YEAR PROJECTED DEMANDS.

Objective 1.1: The City shall continue to implement procedures to discourage urban sprawl and ensure that at the time a development permit is issued, adequate solid waste disposal capacity is available or will be available when needed to serve the development.

Policy 1.1.1: The following collection and disposal level-of-service standards are hereby adopted for determining the availability of facility capacity and the demand generated by development:

Collection – The City shall adhere to the Franchise Agreement of the Solid Waste Authority by providing a minimum level of service for residential garbage collection of twice per week, bulk trash collection of once per week, vegetation collection of once per week, and recyclable collection of once per week.

Disposal – The City shall ensure delivery of solid waste material collected to the Solid Waste Authority (SWA) North County Landfill and shall continue to seek annual certification from the SWA that it has sufficient disposal capacity to accommodate the solid waste generated for both the five (5) year and ten (10) year planning periods. The

SWA certification letter shall constitute compliance with the City's Solid Waste LOS standard.

Objective 1.2: The City shall continue to coordinate with the Palm Beach County Solid Waste Authority regarding the management of existing landfill sites, the selection of future landfill sites, and in developing alternative methods of disposing of solid and hazardous wastes.

Policy 1.2.1: The City shall continue operating its recycling program on a Citywide basis in order to increase the amount of recyclable material, to reduce solid waste going to landfills by 30 percent between 2008-2018, and to conserve valuable natural resources through reuse of materials.

Policy 1.2.2: The City of West Palm Beach shall coordinate with Palm Beach County to ensure that the City is assisting the County with a countywide solid waste collection system to discourage littering and the illegal dumping of solid waste.

Policy 1.2.3: The City shall ensure proper notification to its residents and businesses of its collection schedule before and after a major storm event in order to provide appropriate and safe disposal practices.

Policy 1.2.4: The City shall control urban sprawl by adhering to the concurrency requirements and level of service standards outlined within this comprehensive plan, including those for solid waste facilities.

Policy 1.2.5: The City shall provide additional infrastructure and/or facilities for solid waste collection and transport as it deems necessary to accommodate projected needs.

Objective 1.3: The City shall continue to coordinate with local businesses contracted to haul Fats, Oils, and Grease (FOG) from restaurants and food service establishments and septage according to State Regulations for disposal at the East Central Regional Water Reclamation Facility (ECRWRWF).

Policy 1.3.1: FOG and Septage transporters, when required, shall obtain an annual written permit from the Florida Department of Health.

Policy 1.3.2: All septage transporters shall comply at all times with Florida Administrative Code (F.A.C) 64E-6, City of West Palm Beach City Ordinance 4414-12, City of West Palm Beach Sewer Use Ordinance 90-126 and 90-128, and ECRWRWF Septage Receiving Policy accordingly.

Policy 1.3.3: All FOG transporters shall comply at all times with Florida Administrative Code (F.A.C) 64E-6, City of West Palm Beach City Ordinance 4414-12, and ECRWRWF Septage Receiving Policy accordingly.

Policy 1.3.4: The City shall continue to maintain an Industrial Pretreatment Program (IPP) according to EPA local limits, F.A.C. 62-625, City of WPB Resolution No. 52-12, and City of West Palm Beach Industrial Pretreatment Program Enforcement Response Plan to ensure compliance by local businesses that produce waste.

STORMWATER MANAGEMENT SUBELEMENT GOALS, OBJECTIVES AND POLICIES

GOAL 1: THE CITY SHALL PROVIDE ADEQUATE STORMWATER MANAGEMENT FOR PROTECTION AGAINST FLOODING AND TO PREVENT DEGRADATION OF THE QUALITY OF RECEIVING WATERS.

Objective 1.1: The City shall continue to implement adopted stormwater management regulations which will help to discourage urban sprawl and provide guidelines to prevent the degradation of the water quality of receiving waters. The City shall ensure that future development meets level of service standards and utilizes stormwater management systems compatible with the City's current Stormwater Management Plan.

Policy 1.1.1: The City shall continue to fully implement the stormwater requirements set forth in the Zoning and Land Development Regulations and as specified by the South Florida Water Management District. The City shall continue to implement these regulations in order to meet the following:

- a. Maintain and expand the storm management system as needed to maintain level of service design standards of a 3-year, 1-hour storm for the storm-sewer system and a 25-year, 24-hour storm for the canal system.
- b. Require erosion and sedimentation controls during construction to avoid contamination of receiving waters.
- c. Utilize retention/detention facilities where practical to provide water-quality treatment of stormwater runoff.
- d. Install sedimentation basins and/or baffle systems to prevent pollutants from entering receiving water bodies.
- e. Maintain the land around Clear Lake and Lake Mangonia in order to prevent stormwater runoff from entering this potable water source.
- f. Require future development to limit post-development runoff rates to pre-development discharge rates.
- g. Provide routine maintenance to the stormwater management facilities to ensure they are functioning properly and to prolong their service life.

- h. Continue the City's vigorous street sweeping program that includes the daily sweeping of downtown streets and twice weekly sweeping of all streets outside of the downtown.

GOAL 2: THE CITY SHALL ENCOURAGE COMPACT GROWTH IN THE WESTERN AREAS OF THE CITY AND PROVIDE ADEQUATE STORMWATER MANAGEMENT SYSTEMS WITHOUT DEPLETING THE SOURCE OF IRRIGATION AND RECHARGE WATER.

Objective 2.1: The City shall continue to coordinate with the South Florida Water Management District and the local improvement districts to design and implement future stormwater management systems, to conserve wetlands acreage, to foster protection of natural wildlife habitats, to protect natural resources, and to protect water quality.

Policy 2.1.1: The City shall maintain the water levels in the City's discharge canals at beneficial elevations during dry periods to conserve valuable water resources.

Objective 3.1: The City shall implement recommendations from the 2016 Stormwater Master Plan, which addresses correcting existing deficiencies and the increasing of capacity to meet future needs.

Policy 3.1.1: The City shall address deficiencies and future demand through the Implementation of the 2016 Stormwater Master Plan recommendations and by the implementation of the 1993 Stormwater Utility Ordinance and the Utility Fee to fund designated projects on an ongoing basis.

NATURAL GROUNDWATER AQUIFER RECHARGE SUBELEMENT GOALS, OBJECTIVES AND POLICIES

GOAL 1: PRESERVATION AND ENHANCEMENT OF THE AQUIFER IN THE CITY'S WATER CATCHMENT AREA.

Objective 1.1: The City shall maintain Comprehensive Plan policies and land development regulations that restrict the encroachment of incompatible land uses upon the water catchment area.

Policy 1.1.1: Written objections will be submitted to the City regarding restrictions upon encroachment of potentially-detrimental land uses near the water catchment area. The Water Advisory Committee will analyze and report concerns directly to the City Commission.

Policy 1.1.2: Continue monitoring water quality in an effort to identify possible deterioration in water supply quality. Cooperate and participate with other agencies to develop water quality models to more accurately assess the impacts of proposed land use activities.

Objective 1.2: The City shall actively pursue acquisition of lands adjacent to the Water Catchment Area and the voluntary dedication of preserves areas in adjacent developed land to maximize natural buffer areas around the perimeter of the Water Catchment Area.

Policy 1.2.1: The City shall protect this vital groundwater recharge area and closely regulate development surrounding the Water Catchment Area by allowing only those land uses, site designs, and on-site stormwater drainage systems that are of a benign or beneficial influence to the recharge area.

Objective 1.3: The City shall continue to implement a program of public education and information to promote understanding of the Water Catchment Area and the importance of environmental preservation to the quality of the City's water supply.

Policy 1.3.1: The City shall continue to develop and utilize the Nature Center facilities and relationships with environmental groups and educational centers to provide an educational program that allows acceptable, passive recreational use of the Water Catchment Area to promote an appreciation of the fragile and unique environment that is the source of the City's water.

Objective 1.4: The City shall continue to implement existing and identify additional programs to augment and enhance groundwater recharge.

Policy 1.4.1: The City shall continue to divert excess rainwater from the catchment area to Clear Lake and Lake Mangonia to enhance groundwater recharge.

Policy 1.4.2: The City shall continue to operate the Renaissance Stormwater Treatment System to capture and store water in South Clear Lake to enhance groundwater recharge.

Policy 1.4.3: The City shall continue to operate the C-17 Tidal Capture System to capture and store water in Clear Lake to enhance groundwater recharge.

20 YEAR WATER SUPPLY FACILITY WORK PLAN SUBELEMENT

1.0 INTRODUCTION

1.1 Purpose and Objectives

The purpose of the City of West Palm Beach Water Supply Facility Work Plan (hereinafter the Work Plan) is to identify and plan for the water supply sources and facilities needed to serve existing and new development within the local government's jurisdiction.

The work plan reflects the assessments completed as part of the City's 2025 Capacity Analysis Report (2025 CAR), the 2023/2024 Lower East Coast Regional Water Supply Plan (2023/2024 WSP) development, Consumptive Use Permit 50-12547-W, and the Capital Improvement Program (CIP). The development and submittal requirements for the Work Plan are based on the following:

- Chapter 403, Part VI, F.S., requires public water systems to provide for the timely planning, design, permitting, and construction of necessary public water system sources, treatment, or storage facilities. Under Chapter 62-555.348, F.A.C., the City is required to prepare and submit an updated Capacity Analysis Report (CAR) every five years. The 2025 CAR update was submitted to the Florida Department of Health in January 2025.
- Chapter 163, Part II, F.S., requires local governments to prepare and adopt Work Plans into their comprehensive plans within 18 months after the water management district approves a regional water supply plan or its update. The 2023/2024 WSP update was approved by the South Florida Water Management District (SFWMD) on September 24, 2024.

Residents of the City, Town of Palm Beach and Town of South Palm Beach, buy their water directly from the City of West Palm Beach Public Utilities Department (PUD). Under this arrangement, the City's PUD ensures that sufficient capacity is available for existing and future customers and that supporting infrastructure, such as the water lines, are adequately maintained.

According to state guidelines, the Work Plan and the comprehensive plan amendment must address the development of traditional and alternative water supplies, bulk sales agreements and conservation and reuse programs that are necessary to serve existing and new development for at least a 20-year planning period.

The City's Work Plan is divided into the following four sections:

Section 1 – Introduction

Section 2 – Background Information

Section 3 – Data and Analysis

Section 4 – Work Plan Projects/Capital Improvement Element/Schedule

1.2 Statutory History

The Florida Legislature has enacted bills in the 2002, 2004, 2005, 2011, 2012, 2015 and 2016 sessions to address the state’s water supply needs. These bills, especially Senate Bills 360 and 444 (2005 legislative session), significantly changed Chapter 163 and 373 Florida Statutes (F.S.) by strengthening the statutory links between the regional water supply plans 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 the local land use planning and water supply planning.

1.3 Statutory Requirements

The following highlights the statutory requirements:

1. Coordinate appropriate aspects of its comprehensive plan with the appropriate water management district’s regional water supply plan.
2. Ensure that its future land use plan is based upon availability of adequate water supplies and public facilities and services. Data and analysis demonstrating that adequate water supplies and associated public facilities will be available to meet projected growth demands must accompany all proposed Future Land Use Map amendments submitted to the Planning Division for review. The submitted package must also include an amendment to the Capital Improvements Element, if necessary, to demonstrate that adequate public facilities will be available to serve the proposed Future Land Use Map modification.
3. Ensure that adequate water supplies and facilities are available to serve new development no later than the date on which the local government anticipates issuing a certificate of occupancy and consult with the applicable water supplier prior to approving building permit, to determine whether adequate water supplies will be available to serve the development by the anticipated issuance date of the certificate of occupancy. This “water supply concurrency” is now in effect, and local governments should be complying with the requirement for all new development proposals. In addition, local governments should update their comprehensive plans and land development regulations as soon as possible to address these statutory requirements. The latest point at which the comprehensive plan must be revised to reflect the concurrency requirements is at the time the local government adopts plan amendments to implement the recommendations of the Evaluation and Appraisal Report (EAR).
4. For local governments subject to a regional water supply plan, revise the General Sanitary Sewer, Solid Waste, Drainage, Potable Water, and Natural Groundwater Aquifer Recharge Element (the “Infrastructure Element”), within 18 months after the water management district approves an updated regional water supply plan, to:
 - a. Identify and incorporate the alternative water supply project(s) selected by the local government from projects identified in the updated regional water supply plan, or the

alternative project proposed by the local government under s. 373.709(8)(b) and 373.709(2) (a) F.S.;

- b. Identify the traditional and alternative water supply projects, bulk sales agreements, and the conservation and reuse programs necessary to meet current and future water use demands within the local government's jurisdiction; and
 - c. Include a water supply facility work plan for at least a 20-year planning period for constructing the public, private, and regional water supply facility identified in the Element as necessary to serve existing and new development. Amendments to incorporate the water supply facility work plan into the comprehensive plan are exempt from the twice-a-year amendment limitation.
5. Revise the Schedule of Capital Improvements to include any water supply, reuse, and conservation projects and programs to be implemented during the planning period.
 6. To the extent necessary to maintain internal consistency after making changes described in Paragraph 1 through 5 above, revise the Conservation Element to assess projected water needs and sources for at least a 20-year planning period, considering the appropriate regional water supply plan, the applicable District Water Management Plan, as well as applicable consumptive use permit(s).

If the established planning period of a comprehensive plan is greater than ten years, the plan must address the water supply sources necessary to meet and achieve the existing and projected water use demand for established planning period, considering the appropriate regional water supply plan.

7. To the extent necessary to maintain internal consistency after making changes described in Paragraphs 1 through 5 above, revise the Intergovernmental Coordination Element to ensure coordination of the comprehensive plan with applicable regional water supply plans and regional water supply authorities' plans.
8. Address in the EAR, the extent to which the local government has implemented the 10-year water supply facility work plan, including the development of alternative water supplies, and determine whether the identified alternative water supply projects, traditional water supply projects, bulk sales agreements, and conservation and reuse programs are meeting local water use demands.

2.0 BACKGROUND INFORMATION

2.1 Overview of the City of West Palm Beach

The City, established in 1894, is the largest municipality within Palm Beach County and serves as the County seat. The City boundaries encompass approximately fifty-eight (58) square miles and are bounded by the Intracoastal Waterway to the east, the SFWMD C-51 canal to the south, the City's 19.3 square mile Water Catchment Area to the west, and the Beeline Highway and 59th Street to the north. Located adjacent to the City are several municipalities including, the Town of Palm Beach, City of Lake Worth, Town of Mangonia Park, and City of Riviera Beach.

Although the City is substantially built out, approximately 98%, the City's service area population continues to grow from 126,650 in 2020 to 136,078 in 2024, an increase of nearly seven percent. Most of the population growth is reflective of the fact that the City continues to experience infill and redevelopment within its limits. For future planning purposes, 2025 has been set as the base year with 5-year planning increments through 2045, consistent with the 2023/2024 WSP

The City does not anticipate any substantial increases in land area in the near future within the Service Area; however, population projections indicate continued growth of 16% between 2025 and 2045 based on the Palm Beach County Allocation Model (Allocation Model).

2.2 Relevant Regional Issues

As the state agency responsible for water supply in the Lower East Coast planning area, the SFWMD plays a pivotal role in resource protection, through criteria used for Consumptive Use Permitting. As pressure increased on the Everglades ecosystem resource, the Governing Board initiated rulemaking to limit increased allocations dependent on the Everglades system. As a result, the Regional Water Availability Rule was adopted by the Governing Board on February 15, 2007, as part of the SFWMD's Consumptive Use Permit Program. This reduced reliance on the regional system for future water supply needs, mandates the development of alternative water supplies, and increasing conservation and reuse.

1. The existing alternative water supplies developed by the City include:
 - a. Construction of an Aquifer Storage and Recovery (ASR) well system at the water treatment plant to capture and store excess water from Clear Lake during the wet season and recover the stored water during the dry season.
 - b. Construction of the C-17 Pump Station to capture excess stormwater within the C-17 Canal prior to discharge to tide.
 - c. Construction of the Renaissance Project to capture and treat stormwater drainage from the Stub Canal to reduce discharges to tide.

- d. Construction of the Boyd Street gate system that allows the capture of excess water from the C-51 Canal prior to discharge to tide.
2. Future water supplies and treatment strategies to be evaluated include:
- a. Alternative Water Supply: The City will develop strategies for use of alternative water supplies including:
 - i. Brackish Water Supply: The City received an allocation of brackish water (Floridan Aquifer) from the SFWMD under Permit 50-12547-W to meet future demands through Year 2074.
 - ii. Brackish Water Production Wells: The City will develop the necessary upper Floridan Aquifer production wells (31 Wells) and associated infrastructure to transport brackish water for treatment to meet future demands.
 - b. Treatment Strategies: The City will investigate and implement strategies to improve, maintain and expand the water treatment plant capacity, capabilities, and efficiencies including:
 - i. Surface Water Treatment: The City will investigate and develop treatment strategies that improve the efficiencies for raw water treatment, chemical use, and waste production.
 - ii. Brackish Water Treatment: The City will investigate and develop treatment strategies to process brackish water to meet future demands.
3. The East Central Regional Water Reclamation Facility (ECR) will continue to maintain, operate and investigate opportunities to reduce potable water demands, increase reuse rates, and develop strategies to reclaim treated water.
- a. FPL Reclaim Facility: The ECR and Palm Beach County have an interlocal agreement for the operation and maintenance of the reclaimed water facility located on the ECR property. Through interlocal agreement Palm Beach County provides reclaimed water to the FPL West County Energy Center and Fit Team Ball Park of the Palm Beaches.
 - b. Process Water Treatment System: Operation and maintenance of the Process Water Treatment System used to filter and pressurize process water for the biosolids facility. The system reduces the ECR's potable water usage demand by approximately 14 million gallons per month (mgm).

The intent of the Work Plan is to meet the statutory requirements mentioned in subsection 1.2 and to coordinate the City's water supply initiatives with the SFWMD's 2023/2024 WSP.

This Work Plan details the facilities and proposed alternative water supply (AWS) projects that are being evaluated, planned or completed and included in the 2023/2024 WSP to assist the City in meeting the service area water demands through 2045. These projects are expected to be completed in increments consistent with the projected growth set forth in the Work Plan. The AWS projects will be included within the City's Capital Improvement Element, as needed.

3.0 DATA AND ANALYSIS

3.1 Service Area - Population Information

The City of West Palm Beach Potable Water Supply Service Area (Service Area) includes the City of West Palm Beach, Town of Palm Beach and Town of South Palm Beach. The existing and future population figures for the Service Area were developed based on the information obtained from the following sources:

- Historic Population Estimates: University of Florida's Bureau of Economic and Business Research web site (www.bebr.ufl.edu); and
- Population Projections: Palm Beach County PZB Divisions Population Allocation Model (<https://discover.pbcgov.org/pzb/planning/Projects-Programs/Population-Demographics.aspx>).

The City reviewed the 2023/2024 WSP population projections and elected to use the more conservative projections and updated values from the Allocation Model for the Work Plan. In reviewing the 2023/2024 WSP, it was noted that the population projections were nearly three years old and were used in September 2023 to support the CUP 50-12547-W application and in December 2024 for the 2025 CAR.

Between 2020 (126,650) and 2024 (136,078) the City experienced a population growth rate of nearly seven percent in the Service Area. The City does not anticipate substantial increases in land area in the near future; however, population projections indicate a continued population growth for the Service Area of nearly 16 percent for the next 20 years to 164,873 in the year 2045.

The City has two bulk service agreements that account for a reserve demand of 0.55 mgd and include the Solid Waste Authority and Bayhill Estates. The City anticipates that the agreement with the Solid Waste Authority will remain in place during the planning horizon, with the agreement with Bayhill Estates, currently being served by Palm Beach County, expiring in 2030.

3.2 Service Area Map

The Service Area includes the City of West Palm Beach, Town of Palm Beach and Town of South Palm Beach. A copy of the Service Area map is provided in the Comprehensive Plan Map Series and is also found at the end of this document.

The following items associated with the City's municipal boundaries and the service area are noted:

- A trailer park, located in unincorporated Palm Beach County, on Community Drive is within the Service Area but not connected to the City's water system. Currently the City has no plans to incorporate the area or provide water service.
- The following residential developments are located within the City's boundaries but outside the Service Area:
 - Caribbean Apartments (398 Units);
 - Tara Cove (58 Units);
 - Okeechobee Commons (245 Units); and
 - Azola (179 Units).

Populations associated with these areas were not deducted from the BEBR or Allocation Model due to the uncertainty related to the actual number of permanent residents.

3.3 Population and Potable Water Supply Demand Projections

This section provides the historical population data from 2020 to 2024 and population projections for 2025 through 2045 for the Service Area.

The total population estimates for the City, Town of Palm Beach and Town of South Palm Beach were based on the information obtained from the sources noted in Section 3.1 of the Work Plan. The Work Plan assumes the Town of Palm Beach will remain a customer through the planning period.

3.3.1 Historical Population Projections for the Service Area

Historical populations for the Service Area are shown in Table 1. These figures are based on the BEBR data.

Table 1 – Service Area Historical Population Estimates

Municipality	Year				
	2020	2021	2022	2023	2024
<i>City of West Palm Beach</i>	116,781	119,255	119,971	122,157	125,401
<i>Town of Palm Beach</i>	8,409	9,253	9,218	9,207	9,212
<i>Town of South Palm Beach</i>	1,460	1,472	1,472	1,469	1,465
Total Service Area	126,650	129,980	130,661	132,833	136,078

3.3.2 Service Area Population Projections

Population projections for the Service Area are shown in Table 2 and were obtained from the Allocation Model.

Table 2 – Service Area Future Population Projections

Municipality	Year				
	2025	2030	2035	2040	2045
<i>City of West Palm Beach</i>	127,076	135,179	143,669	149,589	153,493
<i>Town of Palm Beach</i>	9,464	9,569	9,627	9,642	9,818
<i>Town of South Palm Beach</i>	1,549	1,552	1,557	1,557	1,562
Total Service Area	138,089	146,300	154,853	160,788	164,873

3.3.3 Historical Water Use

The historic water production figures, average daily rates, Service Area populations, and per Capita rate are shown in Table 3 for years 2020 through 2024.

Table 3 – Service Area Historic Water Production and Demand

Production/Demand	Year				
	2020	2021	2022	2023	2024
Annual Production (mgd)	10,364	10,662	10,894	11,025	11,060
Average Daily Rates (mgd)	28.39	29.21	29.85	30.21	30.30
Service Area Populations	126,650	129,980	130,661	132,833	136,078
Per Capita Demand (gpcd)	224.20	224.74	228.43	227.40	222.68

3.3.4 Future Water Demand

Future water demands are estimated using the Service Area population projections multiplied by the per capita rate of 225.49 gpcd.

The selected per capita rate was based on the average of the rates in Table 3 for the past five years. Table 4 below provides the projected finished water demand for the years 2025 through 2045.

Table 4 –Service Area Future Water Demand

Demand Projections	Year				
	2025	2030	2035	2040	2045
Service Area Populations	138,089	146,300	154,853	160,788	164,873
Per Capita Factor (gpcd)	225.45	225.45	225.45	225.45	225.45
Average Daily Production (mgd)	31.14	32.99	34.92	36.26	37.18
Maximum Daily Production (mgd)	42.93	45.48	48.14	49.99	51.26
Annual Production (gpy)	11,365	12,041	12,745	13,233	13,570

Table 5 summarizes the reserve capacities for the Bulk Service Agreements with the Palm Beach County Solid Waste Authority (expires September 2029) and Palm Beach County Water Utilities Department for Bayhill Estates (expires October 2030). The City anticipates the agreement for Bayhill Estates will not be renewed.

Table 5 – Bulk Service Agreements Capacity Reservation

Utility/Agency Served	Quantity of Water (mgd)				
	2025	2030	2035	2040	2045
Solid Waste Authority	0.40	0.40	0.40	0.40	0.40
Palm Beach County- Bayhill Estates	0.15	0.15	-	-	-
Total	0.55	0.55	0.40	0.40	0.40

The City has additional interconnect agreements with Palm Beach County and the adjacent municipalities, which are not included as a capacity reservation as these are, by definition, for emergency use, and subject to system capacity capability at the time of request.

Table 6 summarizes the estimated finished water needs based on the demand projections and bulk service agreements compared to the permit allocations.

As shown in Table 6, Phase I of the Upper Floridan Aquifer project (10 mgd, Reverse Osmosis Treatment) is planned to be available between 2030 and 2035 with an additional 15 mgd, based on need, available between 2035 and 2040 for a total of 25 mgd by the end of calendar year 2045.

Table 6 –Service Area Demand Projections

Demand Projections/Allocations (mgy)	Year				
	2025	2030	2035	2040	2045
Finished Water Demands	11,365	12,041	12,745	13,233	13,570
Bulk Service Agreements	201	201	146	146	146
Total Finished Water (mgy)	11,566	12,242	12,891	13,379	13,716
Raw Water Demand - Surface Water*	11,924	12,620	13,290	13,793	14,140
Raw Water Allocation - Surface Water**	15,038	15,038	14,443	14,443	14,443
Raw Water Demand - Brackish Water*	0	0	4,867	12,167	12,167
Raw Water Allocation - Brackish Water***	4,867	4,867	20,546	20,546	20,546

*Raw water demands are based on treatment losses of three percent (3%) and twenty-five percent (25%) for the surface water and reverse osmosis plants, respectively. ** Annual allocation for Clear Lake withdraws under WUP 50-00615-W expire in 2033. It has been assumed that the per Capita factor will be decreased from 272 gpcd to 240 gpcd consistent with the WUP 50-12547-W. *** Annual allocation for the upper Floridan Aquifer withdraws under WUP 50-12547-W. Under WUP 50-12547-W withdraws from the upper Floridan Aquifer require an equivalent reduction from Clear Lake (50-00615-W). Based on the population projections and the per Capita rate, there is sufficient allocations to meet future demands.

3.4 Potable Water Supply Systems

3.4.1 SFWMD Consumptive Use Permits

The City has obtained two consumptive use permits from the SFWMD including:

- Consumptive Use Permit 50-00615-W issued on February 14, 2013, authorizing allocations for the Surface Water, Surficial Aquifer, and Floridan Aquifer systems. This is a 20-year permit that will expire on February 14, 2033.
- Consumptive Use Permit 50-12547-W issued on July 9, 2024, authorizing allocations for the upper Floridan Aquifer systems. This is a 50-year permit expiring on July 9, 2074.

Permit 50-12547-W secured a future AWS supply for the City which, when permitted, was sufficient to meet the future needs through calendar year 2074.

- WUP Numbers: 50-00615-W and 50-12547-W
- Raw Water Sources:

Ground Water from: ASR Well System (Storage/Recovery – Floridan Aquifer System), Surficial Aquifer System, and upper Floridan Aquifer.

Surface Water from: Clear Lake; and SFWMD Canal (L-8) Tieback.

- Raw Water Allocation Information:
Annual Allocations:

SFWMD Canal (1-8) Tieback:	24,446 MG
Clear Lake:	15,038.00 MG
Surficial Aquifer System (Western Wellfield):	1,470 MG
Surficial Aquifer System (Eastern Wellfield):	864 MG
Floridan Aquifer (Phase 1):	4,866.70 MG
Florida Aquifer System (Phase 2 – 5):	20,545.85 MG

Monthly Allocations:

SFWMD Canal (1-8) Tieback:	2,765.00 MG
Clear Lake:	1,392.32 MG
Surficial Aquifer System (Western Wellfield):	759.50 MG
Surficial Aquifer System (Eastern Wellfield):	446.40 MG
Floridan Aquifer (Phase 1):	437.80 MG
Florida Aquifer System (Phase 2 – 5):	1,848.11 MG

Allocations include the Public Water Supply, Diversion and Impoundment into Non-District Facilities, and the ASR Well.

3.4.2 Existing Withdrawal Facilities

Source: Floridan Aquifer System (ASR well for surface water storage/recovery)

1-24" x 1200' x 4861 GPM Well Cased to 985 feet

Source: Surficial Aquifer System - Western Wellfield

1-18" x 152.5' x 2,780 GPM Well Cased to 82.5 feet

1-18" x 153.5' x 2,780 GPM Well Cased to 83.5 feet

1-18" x 154' x 2,780 GPM Well Cased to 84 feet

1-18" x 163' x 2,780 GPM Well Cased to 93.5 feet

1-18" x 166' x 2,780 GPM Well Cased to 96 feet

1-18" x 170' x 2,780 GPM Well Cased to 100 feet

4-18" x 150' x 2,780 GPM Well Cased to 80 feet

Ground Water: Surficial Aquifer System - Eastern Wellfield

1-24" x 98' x 1000 GPM Well Cased to 95 feet

1-24" x 186' x 1000 GPM Well Cased to 137 feet

1-24" x 181' x 1000 GPM Well Cased to 131 feet

1-24" x 95' x 1000 GPM Well Cased to 91 feet

1-24" x 101' x 1000 GPM Well Cased to 86 feet

1-24" x 170' x 1000 GPM Well Cased to 132 feet

1-24" x 97' x 1000 GPM Well Cased to 93 feet

1-24" x 125' x 1000 GPM Well Cased to 119 feet

1-24" x 195' x 1000 GPM Well Cased to 145 feet

1-24" x 142' x 1000 GPM Well Cased to 105 feet

Source: Clear Lake (East Lobe) - Surface Water

1-30" x 250 HP x 13,900 GPM turbine pump (RW #26)

1-30" x 200 hp x 13,900 GPM turbine pump (RW #27)

4-14" x 100 HP x 8,400 GPM turbine pumps (RW #21, RW #22, RW #24, & RW#25)

3.4.3 Alternative Water Supplies

Table 6 presented the annual demand projections versus source water allocations. Based on the projections, the individual allocations for Clear Lake and upper Floridan Aquifer withdrawals will be sufficient to meet supply needs through 2045. Table 7 identifies the Alternative Water Supply (AWS) sources addressed within the CUPs that are available in accordance with the operating plans of WUP 50-00615-W and the Upper Floridan Aquifer CUP 50-12547-W.

Table 7–Service Area Alternative Water Supply Sources

Alternative Water Sources (mgy)	Year				
	2025	2030	2035	2040	2045
C-51 Tidal Capture	1,080	1,080	1,080	1,080	1,080
Renaissance Project	637	637	637	637	637
C-17 Tidal Capture	1,440	1,440	1,440	1,440	1,440
ASR Well System*	180	180	0	0	0
Upper Floridan Aquifer	0	0	4,867	12,167	12,167
Total AWS	3,337	3,337	8,024	15,324	15,324

*The renewed construction permit for the ASR well system limits recharge water to potable water requiring significant modifications. As a result, the City is considering the conversion of the ASR well to an upper Floridan Aquifer production well during Phase I of the WTP capacity increase.

A discussion of the City’s alternative water supply projects can be found in Section 3.6 of this report.

3.4.4 Interconnects

The City maintains interconnections with other public water suppliers as follows:

1. One interconnection with the Solid Waste Authority for delivery of up to 0.35 MGD of finished water;
2. One interconnection with the Palm Beach County at Bay Hill Estates for delivery of up to 0.15 MGD of finished water;
3. One emergency interconnection with Lake Worth Utilities (1.0 MGD);
4. Five emergency interconnections with Palm Beach County at SR7 at Okeechobee (3.0 MGD), M-Canal W to Coconut Blvd (0.15 MGD), Haverhill Road (1.5MGD), and Jog Road (3.0 MGD), Florida Mango Rd (1.0 MGD); and
5. Two emergency interconnections with the City of Riviera Beach with one at Military Trail (1.0 MGD) and one at Broadway Avenue (1.0 MGD).

3.5 Conservation

The City developed and adopted a Water Conservation Plan in July 2005. The Water Conservation Plan elements include an aggressive approach to the development and implementation of several alternative water supply projects, water conservation-based water rate structures, leak detection

programs, an irrigation limitation ordinance, native vegetation landscaping requirements, ultra-low volume plumbing fixture construction code, rain sensor override requirement ordinance, and extensive public education programs. The City will coordinate future water conservation efforts with SFWMD to ensure that proper techniques are applied. In addition, the City will continue to support and expand existing goals, objectives and policies in the comprehensive plan that promote water conservation in a cost-effective and environmentally sensitive manner. The City will continue to actively support the SFWMD in the implementation of new regulations or programs that are design to conserve water during the dry season.

The City's Water Conservation Program Plan was reviewed, updated, and approved by the SFWMD as part of the permit application process for the upper Floridan Aquifer System allocation (Permit 50-12547-W) in July 2024.

The City's Water Conservation Programs strive to reduce the demand for water in a phased manner that will not only reduce water consumption but also reduce utility bills and help to orient people's behavior in a way to conserve resources. The programs address Water and Resource Conservation goals within the City's Sustainability Action Plan through increasing education and awareness within the community. Conservation programs within the Service Area include:

- High Efficiency Toilet Vouchers and Credits: for both residential and commercial customers, with 5,214 distributed within the 2012 to 2024 period. Since 2019 vouchers and credits allow a purchase of up to \$125 per voucher/credit.
- Rain Barrel Workshops: average 120 free rain barrels with installation/use trainings per year as of 2024.
- Urban Irrigation Efficiency Improvement Program: In partnership with the South Florida Water Management District and Palm Beach Soil & Water Conservation District, the City is offering residential customers free irrigation audit evaluations to help conserve water.
- Home Improvement Program: designed predominantly for low-income households located within the city limits of West Palm Beach. The primary purpose is to help residents begin a journey to save energy, conserve water, and discover additional resources. The program has provided free water conservation resources to 245 participants since its inception in 2020.
- New Water Customer Welcome Kits: The Office of Sustainability provides an average of 4,000 New Water Customer Welcome Kits per year to residents who open new water accounts within the City of West Palm Beach water service area. The kits include a custom home water audit booklet, water conservation tip slide chart, shower/faucet flow measuring bag, and leak-detecting dye tablets.
- Sustainability outreach: The Office of Sustainability participates and implements multiple educational conservation programs annually, including E4 Life: Green, Health, & Wellness Expo, Imagine a Day without Water, Drinking Water Week, LagoonFest, ManateeFest, Natural

Areas Festival, City of West Palm Beach GreenMarket, Climate Smart Floridians; Sustainability distributes water conservation kits per year at events throughout the year which include shower timers, high efficiency shower heads, faucet aerators, and other products.

- The City plans to track monthly water use in City buildings for the U.S. Department of Energy Better Buildings Challenge.
- The City's PACE (Property Assessed Clean Energy) programs include, whenever possible, water and energy savings.
- The City plans to continue following implementation of the district's mandatory year round landscape irrigation conservation measures as detailed in chapter 40E-24 FAC by informing customers through press releases and social media and, if needed, by enforcement through violation fines.

3.6 Alternative Water Supply Projects/Reuse

- The City is committed to developing and implementing alternative water supply projects, including reuse, to the extent possible. The City's AWS activities include the following: Renaissance Project: Constructed in 2002, the project is an innovative stormwater collection and reuse system that collects and treats stormwater normally discharged to tide. With an initial construction cost of \$17,600,000 the project was completed with financial support from the Environmental Protection Agency, South Florida Water Management District, and Palm Beach County. The system captures, treats and stores approximately 637 million gallons per year, (MGY) or one (1.75) million gallons per day (MGD).
- C-51 Capture: Originally authorized in May 2009, the project allows the City to capture water from the C-51 Drainage Basis that would have been lost to tide. All water captured is processed through the Renaissance Project. The project has the potential to capture an additional 54 mgd subject to the WUP 50-00615-W operating plans.
- Aquifer Storage and Recovery (ASR) Well: Upon completion of construction, the ASR well was rated at 8 mgd. Located at the Water Treatment Plant it was designed to store excess surface water during periods of heavy rainfall in the upper Floridan Aquifer System for recovery to meet increased demands during dry weather. Cycle testing continued until June 18, 2025, when the Florida Department of Environmental Protection issued permit number 079933-011-UC/5SR that specified that all source water had to meet the Primary and Secondary Drinking Water Standards of Chapter 62-550 F.A.C. before it is injected (recharged) into ASR well. The City is considering converting the ASR Well to an Upper Floridan Production well during Phase I.
- C17 Canal Pump Structure: The pump station was constructed to capture water prior to being sent to tide from C17 Canal, this pump structure has the potential to capture up to 72 MGD (operational conditions based on water being released to tide and canal levels).

- Floridan Aquifer System: The City secured an allocation of brackish water from the upper Floridan Aquifer System, an AWS, in July 2024. The allocation provides the City with a water supply meeting projected demand needs through the calendar year 2074. Development of the this water supply will be completed in phases and will depend on City needs and availability. A phased approach will be used to develop the production wells, infrastructure, and treatment process over the next fifty (50) years.

4.0 WORK PLAN PROJECTS/CAPITAL IMPROVEMENT ELEMENT/SCHEDULE

4.1 Existing Water Supply and Treatment Plant Process

The West Palm Beach Water Treatment Plant (WTP) is owned and operated by the City of West Palm Beach (City). The WTP and associated distribution system provides potable water to the residents, visitors and business of West Palm Beach and the towns of Palm Beach and South Palm Beach. The WTP is located in Palm Beach County, Florida at 1009 Banyan Boulevard, West Palm Beach, Florida.

The City was founded in 1894 and has been the seat of Palm Beach County government since 1909. The initial urbanized portion of the City was approximately eight miles long and 3 miles wide. A coastal ridge lies several blocks to the west and runs parallel to the Intercoastal Waterway for the entire length of the City. The original City site now constitutes the central business district. The development and maintenance of the utility infrastructure system provides an acceptable level of service and an essential component within the Service Area.

From the first water supply system developed in the late 1800s, the City's utility system has grown from a service population of approximately 500 people in 1900 to its current estimated service population of approximately 136,100 residents in 2024 covering 61 square miles. The utility system provides water for both indoor and outdoor use for about 33,549 residential and commercial customers accounts.

Since 2020 there have been several capital projects initiated and completed that include the following:

- Western Wellfield Replacements (Pumps, Instruments, and Transformers) (~319 thousand)
- Control Structure Rehabilitation and Upgrades (\$2.34 million);
- Valve, Pump and Motor Replacements (~\$800 thousand);
- Roof Replacements (~\$184 Thousand);
- High Service Pumps 1 & 2 - Motor and VFD Upgrades (~\$452 thousand);
- Cyber Security Upgrades - SCADA and PLCs Upgrades (~1.9 million);
- Water Treatment Plant Security Upgrades (Fencing, CCTV, and Gates) (~250 thousand);
- Administration Building and East Pump House Hardening (~\$1.16 million);
- HVAC Upgrades at the Chlorine Building, Administration Building Conference Room, and Generator Building (~\$218 thousand);
- Lime Silo Transfer System Replacement (~\$198 thousand)
- PAC Silo Transfer System Replacement (~\$77 thousand)
- Flocculation Basin Grating Upgrades (~\$574 thousand);

- Clear Lake East Lobe Aeration System (\$35 thousand)
- Powered Activated Carbon (PAC) Basin Construction (~\$2.38 million);
- Pre-Chlorination Systems for the PAC Basin and Flume (~\$100 thousand);
- Granular Activated Carbon (GAC) Replacement in 18 of 24 Filters (~\$1.3 million);
- Mobile Emergency Generator (Generator/Trailer) for Cumberland Repump Station (~\$395 thousand)

These projects total more than 12 million dollars (\$12,000,000) invested in the PWS's water supply and treatment plant since 2020. The City continues to be committed to the proper operation and maintenance of its PWS to ensure public health and safety.

The existing source water supply system dates to 1894 with the construction of a single steam driven pump and an 8-inch pipe to move water from Clear Lake to Henry Flager's Royal Poinciana Hotel. Over the years the source water supply has been expanded. The history of the supply includes the following milestones:

- | | |
|--------|--|
| 1894 | Clear Lake tapped as Water Supply. |
| 1920's | Clear Lake is connected to Lake Mangonia. |
| 1930's | M-Canal excavated to wetlands (Grassy Waters Preserve) west of the lakes. |
| 1950's | Grassy Waters Preserve (19.3 Square Miles) purchased. |
| 1960's | M-Canal Extension westward to the L-8 Canal and Lake Okeechobee. |
| 1980's | Western Wellfield constructed. |
| 1990's | Aquifer Storage and Recovery Well constructed. |
| 2000's | Renaissance Project construction and the Okeechobee Divide Structure constructed. |
| 2010's | Eastern Wellfield constructed, Australian Avenue Gates and Pumps constructed, and the C-17 Pump House constructed. |
| 2020's | UV Treatment System constructed, Powdered Activated Carbon Basins constructed, upgraded high service pumps 4, 5, 6, and 7 installed, and high service pumps 1 and 2 equipped with variable frequency drives. |

The WTP has a maximum permitted capacity of 47.3 mgd that includes the following treatment processes:

- Hypochlorite Pretreatment - Turbidity Control and Cyanotoxin Reduction (Optional);
- Powered Activated Carbon - Cyanotoxin Reduction, Taste and Odor Control (Optional);
- Cationic Polymer - Turbidity Control;
- Ferric Sulfate - Turbidity Control;
- Lime – Softening, Turbidity and TOC Removal;
- Recarbonation - pH Adjustment;
- Filter Aid - Turbidity Control (Optional);
- Conventional/Biologically Active Filters – Turbidity Control, Cyanotoxin Reduction, Taste and Odor Control;
- UV Disinfection - Bacteriological Control;
- Chlorine/Chloramines - Bacteriological Control;

- pH Adjustment (Sodium Hydroxide) - Lead and Copper Control; and
- Orthophosphate (Corrosion Inhibitor) - Lead and Copper Control.

The primary source of the City’s water supply is surface water that travels through the City’s M-Canal to the downtown water supply lakes, Lake Mangonia and Clear Lake. The primary sources water include the Grassy Waters Preserve, a 19.3 square mile aquatic preserve located in western West Palm Beach and Lake Okeechobee through the L-8 Tieback and pumped into the M-Canal via control structure 2.

Alternative sources of water that feed into this above-ground water supply system include the City’s Renaissance Project, tidal water capture from C51 and C17 Canals, and augmentation from surface water stored and recovered from the ASR well.

The Eastern and Western wellfield surficial wells and the Clear Lake Divide structure are available to the City during periods of drought conditions or elevated cyanotoxin levels.

4.2 Capital Improvements Element/Schedule

The City’s financially feasible Capital Improvement Schedule, adopted annually, includes capital improvement projects necessary to maintain levels of service providing for improved reliability and operational efficiencies at the facility (See the Capital Improvements Element). Table 8 contains the active and planned capital projects associated with the water supply, treatment, and above ground distribution assets:

Table 8 Capital Project Schedule

Capital Improvement Project	Planning Period		
	2025- 2029	2030-2034	2035-2045
Western Wellfield Rehabilitation (41756148) – Replacement of transformers, well pumps, motor control centers, electronics, and wellheads.	X	X	
Grassy Waters Preserve, York Bridge Reconstruction (New) – Structural assessment, design and replacement of the existing wooden bridge.	X		
Watershed Storage and Maintenance Facility (New) – Design and construction of a storage and maintenance building to house airboats, trailers and equipment.	X		
Eastern Wellfield Rehabilitation (New) – Replacement of transformers, well pumps, motor control centers, electronics, and wellheads.	X	X	
Wind Retrofit Administration Building and East Pump House (32164867) – FEMA Wind Mitigation Project replacing doors, windows, and louvers.	X		
Water Treatment Plant Chemical Building Exhaust Ventilation System Replacement (32164900) – Replace chemical room exhaust vents and ductwork.	X		
Pre-Chlorination System Modification (32164019) – Purchase and installation of new hypochlorite dosing	X		

pumps, containment piping and transfer line for cyanotoxin control.			
HVAC System Water Treatment Plant Chlorine Building (32164917) – Upgrade and Replace the HVAC systems to maintain temperature control on the sodium hypochlorite (Bleach)	X		
Backwash Recovery Pump Station Improvements (32164049 & 32164995) – Upgrade and Replacement of existing vacuum pump system with a submersible pump system and new discharge header.	X		
Raw Water Pump 27 Replacement (05852435) – Purchase and installation of a new motor (200 HP) and pump 13,900 gpm).	X		
Mixing/Metering Header Replacements (32164973 & 32164997) – Replacement of the existing meter/mixing headers and associated static mixer.	X		
Water Treatment Plant Server/Scada Room Construction (32164960) – Cyber security upgrade for a dedicated server room.	X		
Bulk Dry Storage & Lime Slaker (32164803) – Purchase and installation of a new lime silo and slaker system to increase storage capacity and redundancy.	X		
Cumberland Repump Station Emergency Power System Upgrades (22164899) – Purchase and installation of a new Mobile Power Generator, new Quick Connect, new Main Power Switch, and new Automatic Transfer Switch.	X		
Ibis Repump Station Emergency Power (42164029 & 42164030) – Replacement of the emergency generator and fuel tank (Day Tank).	X		
Ibis Repump Station Surge Tank Replacement (42164030) – Replacement of the hydropneumatic tank.	X		
Kaye Street Repump Station Driveway (32164923) – Expansion of the driveway and construction of a new retaining water.	X		
Palm Beach Repump Station Emergency Power (New) – Replacement of the emergency generator and fuel tank			
St. Mary’s Repump Station Underground Fuel Tank Replacement (12164898) – Removal of the existing underground tank, purchase and installation of a new aboveground storage tank.	X		
Valley Forge Repump Station Tank Replacement (32165800) Demolition and Replacement of the existing three (3) million-gallon storage tank.	X		
Reinstate Settled Water Flume Bypass (32164411) – Removal and replacement of the existing liquid carbon dioxide storage tanks and associated equipment (Phase I).	X		
Citywide Security System And CCTV Upgrade (92399893) – Replacement and Upgrades to the WTP CCTV to meet City Standards.	X		

Lime Sludge Filter Press (New) – Purchase and installation of a new press to replace 1 of 3.	X		
WTP Employee Restroom and Locker Area Renovation (New) – Interior renovation and replacement of the lockers, sinks, showers and toilets	X		
WTP Filtration System Improvement (New) – Reconstruction of the existing filters (1 – 16, Built 1926) and addition of 5 MGD of new filters.	X		
Reinstate Settled Water Flume Bypass (32164411) – Removal and replacement of the existing liquid carbon dioxide/water mixing and metering system (Phase II).	X	X	
Water Treatment Plant Historical Building Improvements (32164818) – Hardening, Refurbishment, and upgrades to the 1926 West Pump House includes interior and exterior improvements.	X	X	
ASR Well Upgrades, Reclaim Pump and Level Sensor (32164961) – Upgrades to address permit requirements and replace recharge pump, motor, and level sensor.	X	X	
Water Treatment Plant Citywide Projects (32164595) – Unscheduled projects including design, purchasing, and construction activities.	X	X	X
Water Treatment Plant Security Upgrades (32164930) – Electronic and cyber security upgrades for electronic access to facilities and buildings, CCTV expansion, fire and intrusion alarms.	X	X	X
Water Treatment Plant Security Upgrades (32164935) – Physical security upgrades for perimeter fencing, buildings, and equipment.	X	X	X
Water Treatment Plant Chemical Storage Tank Replacements (32164996) – Upgrade and replace the chemical bulk and day tanks.	X	X	X
Hardening & Replacement of Electrical Equipment (32164031) – Upgrading and replacement of electrical transformers, switch gear, motor control stations, etc.	X	X	X
Hardening & Replacement of HVAC Systems (32164032) – Upgrading and replacing compressors, evaporators, and ductwork supporting critical electrical and chemical areas.	X	X	X
Valve and Motor Replacement (3216415) – Replacement of pumps, valves, and motors resulting from unscheduled premature failure.	X	X	X
Floridan Aquifer Water Treatment Plant Phase I (New) – Construction of a new 10 MGD Reverse Osmosis Treatment capacity.	X	X	
Finished Water Storage (New) – Construction of a new 3 MG storage tank	X	X	
Floridan Aquifer Water Production Wells Phase I (New) – Construction of up to 12 Floridan Aquifer Wells (Wells 1 -12) and associated Monitoring wells.	X	X	

Floridan Aquifer Water Transmission Lines Phase I (New) – Construction of up to 10 miles of raw water pipeline.	X	X	
Floridan Aquifer Water Booster Stations Phase I (New) – Construction of up to 2 booster stations.	X	X	
Floridan Aquifer Water Treatment Plant Disposal Wells Phase I (New) – Construction of two deep injection wells for RO Concentrate disposal.	X	X	
Floridan Aquifer Water Treatment Plant Phases II – V (Planned) – Construction of additional 40 MGD Reverse Osmosis Treatment Capacity.		X	X
Floridan Aquifer Water Production Wells Phases II - V (Planned) – Construction of an additional 19 Floridan Aquifer wells (Wells 13 - 31) and associated monitoring wells.		X	X
Floridan Aquifer Water Transmission Lines Phases II - V (Planned) – Construction of an additional 10 miles of raw water pipeline.		X	X

Based on the projected water demands, permitted allocations, available alternative water supplies, and issues associated with the reliance solely on the surface water supplies, the City anticipates the need for additional treatment capacity and technologies within the 20-year planning horizon. The City has recognized that existing water quality conditions have not been improving coupled with the emerging contaminants of concern, the City will need the use of advanced treatment strategies to continue providing safe drinking water. As a result, the City has initiated planning for the development of the upper Floridan Aquifer water supply as allowed under the SFWMD permit for Phase 1 (10 MGD). In addition, the City will continue to explore current technology and options to optimize the existing water supplies while enhanced treatment processes are assessed to meet anticipated future demands.

