



10 YEAR WATER SUPPLY FACILITIES WORK PLAN UPDATE 2025

Prepared by:

CITY OF PEMBROKE PINES

UTILITIES DEPARTMENT

8300 South Palm Drive

Pembroke Pines, FL 33025

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EXECUTIVE SUMMARY

The South Florida Water Management District (SFWMD) approved the 2023-2024 Lower East Coast Water Supply Plan Update (2023-2024 LEC Update) on September 24, 2024. As a result, the City of Pembroke Pines (City) is required per Section 163.3177(6)(c)(3), Florida Statutes to prepare and adopt a Water Supply Facilities Work Plan Update (Work Plan Update) into their Comprehensive Plan no later than 18 months after the approval of the 2023-2024 LEC Update, or March 24, 2026. Once adopted, the City will be incorporating this Work Plan Update as part of the Infrastructure Element within the Water Supply section of the Comprehensive Plan. During the prior planning period, the SFWMD approved the 2018 LEC Update on November 8, 2018. Subsequently, the City issued its 10-Year Water Supply Facilities Plan dated December 28, 2020 (2020 Work Plan) which is incorporated herein by reference.

The current SFWMD water use permit, number 06-00135-W, expires on August 18, 2030 and contains the following allocation Limiting Conditions:

1. Annual Allocation shall not exceed 5695 million gallons (MG) per year (or Average Daily Flow (ADF) of 15.60 MGD)
2. Monthly Maximum allocation shall not exceed 516.45 MG.

This Work Plan Update provides for the following:

1. Confirmation that the existing Surficial Aquifer System (SAS) permitted allocations are sufficient for the planning period without Alternative Water Supply (AWS) sources.
2. Confirmation of the ability of the water supply and treatment facilities shall meet the water demand for the next 10-year planning period from 2025 to 2035.
3. Provide for documentation of the 2025 Broward County Water Supply Facilities Work Plan (County Plan) as it pertains to the Broward County service area within the City of Pembroke Pines.
4. Provide for updates to the required 2020 Work Plan Capital Improvements, maintenance and repair projects pertaining to the water supply and treatment facilities and projections of Capital Improvements, maintenance and repair projects for the planning period.

In summary, while the population is projected to increase from previous years, the City of Pembroke Pines SAS permitted allocations shall be sufficient to meet future demands

through the planning period. Therefore, no additional pumping allocations or Alternative Water Supply projects are anticipated. The water supply and treatment facilities are adequately sized for the planning period and Capital Improvements, maintenance and repair continue to be funded each year. The Broward County service area within the City of Pembroke Pines is a part of the County Plan Update and County Alternative Water Supply program. The County Plan Update is incorporated herein by reference.

SECTION ONE

EXISTING SAS PERMITTED ALLOCATIONS

PART 1 - ANNAUL ALLOCATION

1.01 POPULATION PROJECTIONS

Chapter Two of the 2024-2025 LEC Update provides for population projections for the planning area. Summarized below, this most current data indicates an increase in population for the City of Pembroke Pines over the previous 2018 LEC Update and the City's Utilities Comprehensive Master Plan dated August, 2023. In all calculations, this Update will utilize the 2024-35 LEC Update population projections. This data is shown below in *Table 1.1 – Population Projections* and graphically in *Figure 1.1 – Graphical Population Projections*.

SOURCE	2020	2021	2025	2030	2035	2040	2045
2023-2024 LECWSP (University of Florida's Bureau of Economic and Business Research (BEBR))	163,119	163,564	166,381	168,045	169,725	171,422	173,137
2020 CH2M Master Plan (Broward County Planning and Develop. Mgmt Div., Traffic Analysis Zone (TAZ))	156,764	157,756	158,748	160,731	162,715	164,698	
2018 LECWSP (University of Florida's Bureau of Economic and Business Research (BEBR))	164,152	165,431	166,709	167,682	167,615	166,913	

Table 1.1 – Population Projections

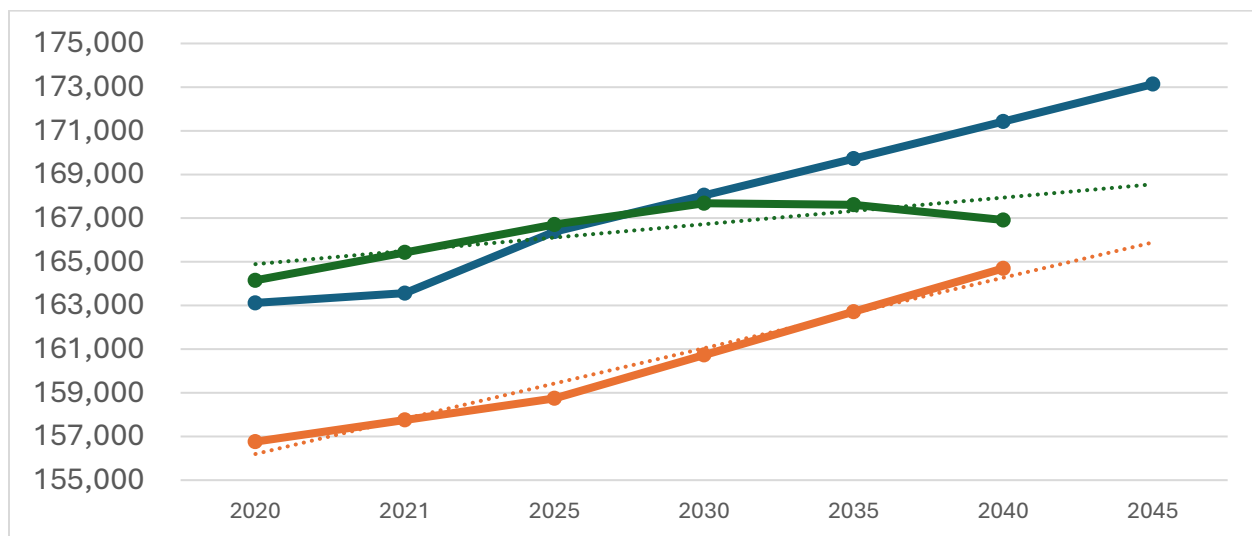


Figure 1.1 – Graphical Population Projections

1.02 PER CAPITA USE RATE

The 2024-2025 LEC Update Appendix contains Table A-2 “Average net (finished) water per capita use rates (in gallons per capita per day) in the LEC Planning Area”. Pembroke Pines is listed as having a per capita use rate of 80 gallons per day per capita (GPCD). Historical data from 2017-2024 indicate a slightly higher GPCD of 81.25. In all calculations, this Update will utilize the more conservative value of 81.25. This data is shown below in *Table 1.2 – Average Historical Per Capita Use Rate*.

YEAR	POPULATION	GPCD
2017	155,574	84.64
2018	155,970	87.05
2019	156,367	83.32
2020	163,119	77.21
2021	163,564	78.49
2022	164,268	78.15
2023	164,973	78.09
2024	165,677	83.07
Average GPCD		81.25

Table 1.2 – Average Historical Per Capita Use Rate

1.03 PROJECTED AVERAGE DAILY DEMAND (ADF)

Utilizing the University of Florida BEBR population projections and the Average GPCD rate of 81.25, the Annual Average Daily Demand may be compared to the Annual Allocation on an MGD basis. The outcome indicates that the City will not exceed the Annual Allocation of 5695 million gallons (MG) per year (daily average of 15.60 MGD) throughout the planning period. This data is shown below in *Table 1.3 – Annual Average Daily Flow Calculation* and graphically in *Figure 1.2 – Annual Average Daily Flow Versus Annual Allocation in MGD*.

YEAR	POPULATION	GPCD	ADF (MGD)	ANNUAL ALLOCATION (MGD)
2017	155,574	84.64	13.17	15.60
2018	155,970	87.05	13.58	15.60
2019	156,367	83.32	13.03	15.60
2020	163,119	77.21	12.59	15.60
2021	163,564	78.49	12.84	15.60
2022	164,268	78.15	12.84	15.60
2023	164,973	78.09	12.88	15.60
2024	165,677	83.07	13.76	15.60
2025	166,381	81.25	13.52	15.60
2030	168,045	81.25	13.65	15.60
2035	169,725	81.25	13.79	15.60
2040	171,422	81.25	13.93	15.60
2045	173,137	81.25	14.07	15.60

Table 1.3 - Average Daily Flow Calculation

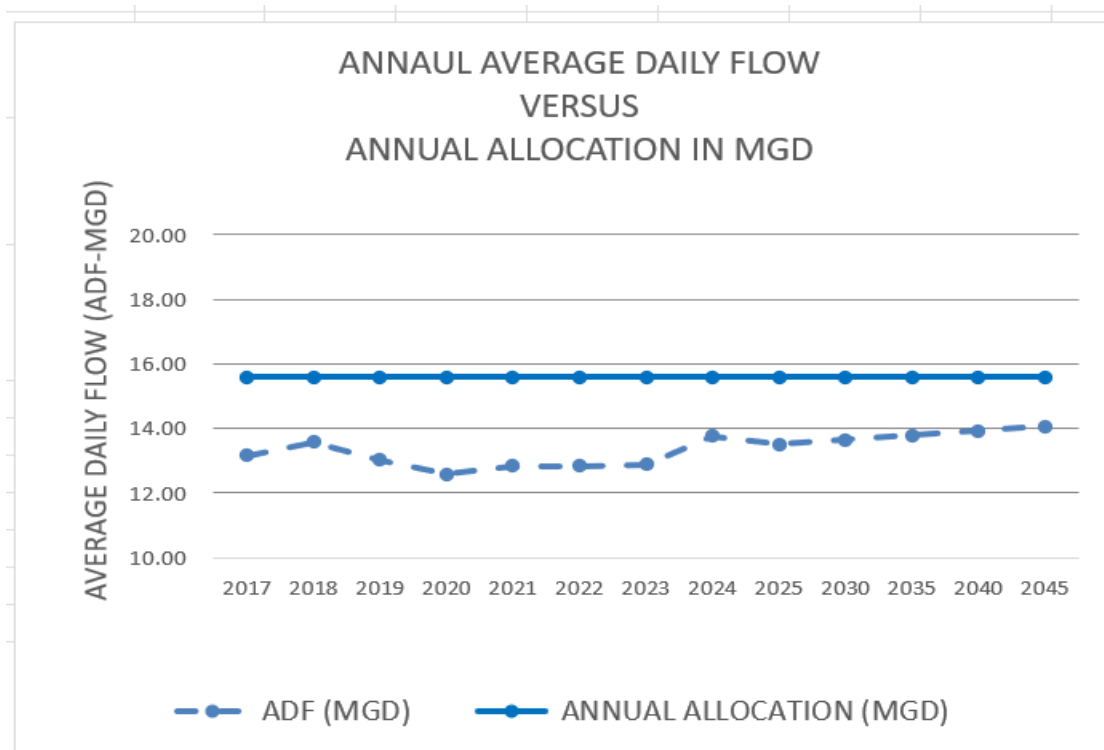


Figure 1.2 – Annual Average Daily Flow Versus Annual Allocation in MGD.

PART 2 - MAXIMUM MONTHLY ALLOCATION

2.01 DETERMINATION OF PEAKING FACTOR

Historical data presented below is taken from monthly Operating Reports (MOR's) beginning in 2017 and running through 2024. This data indicates an average ratio of Average Daily Flow to Maximum Daily Flow of 1.19. This data is seen below in *Table 1.4 – Peak Factor Calculation*.

YEAR	POPULATION	ADF (MGD)	MAX DAY (MGD)	PEAK FACTOR
2017	155,574	13.17	16.24	1.23
2018	155,970	13.58	15.52	1.14
2019	156,367	13.03	15.12	1.16
2020	163,119	12.59	15.92	1.26
2021	163,564	12.84	15.79	1.23
2022	164,268	12.84	14.49	1.12
2023	164,973	12.88	16.67	1.21
2024	165,677	13.76	15.89	1.15
			Average PF	1.19

Table 1.4 – Peak Factor Calculation.

2.02 DETERMINATION OF MAXIMUM MONTH

Utilizing the historical Peak Factor of 1.19 from Table 1.4 and the projected Average Daily Flow values from Table 1.3, an approximation of the future Maximum Month may be determined. This data is seen below in *Table 1.5 – Maximum Month Approximation* and is shown graphically in *Figure 1.3 – Maximum Monthly Allocation and Projected Maximum Month*. The outcome indicates that the City will not exceed the Maximum Monthly Allocation of 516.45 MG throughout the planning period.

YEAR	ADF (MGD)	MAX DAY (MGD)	PEAK FACTOR	PROJECTED MAXIMUM MONTH (MGM)	MONTHLY MAXIMUM ALLOCATION (MGM)
2017	13.17	16.24	1.23	487.20	516.45
2018	13.58	15.52	1.14	465.60	516.45
2019	13.03	15.12	1.16	453.60	516.45
2020	12.59	15.92	1.26	477.60	516.45
2021	12.84	15.79	1.23	473.70	516.45
2022	12.84	14.49	1.12	434.70	516.45
2023	12.88	16.67	1.21	500.10	516.45
2024	13.76	15.89	1.15	476.70	516.45
2025	13.52	16.09	1.19	482.63	516.45
2030	13.65	16.25	1.19	487.45	516.45
2035	13.79	16.41	1.19	492.33	516.45
2040	13.93	16.57	1.19	497.25	516.45
2045	14.07	16.74	1.19	502.22	516.45

Table 1.5 - Maximum Month Approximation

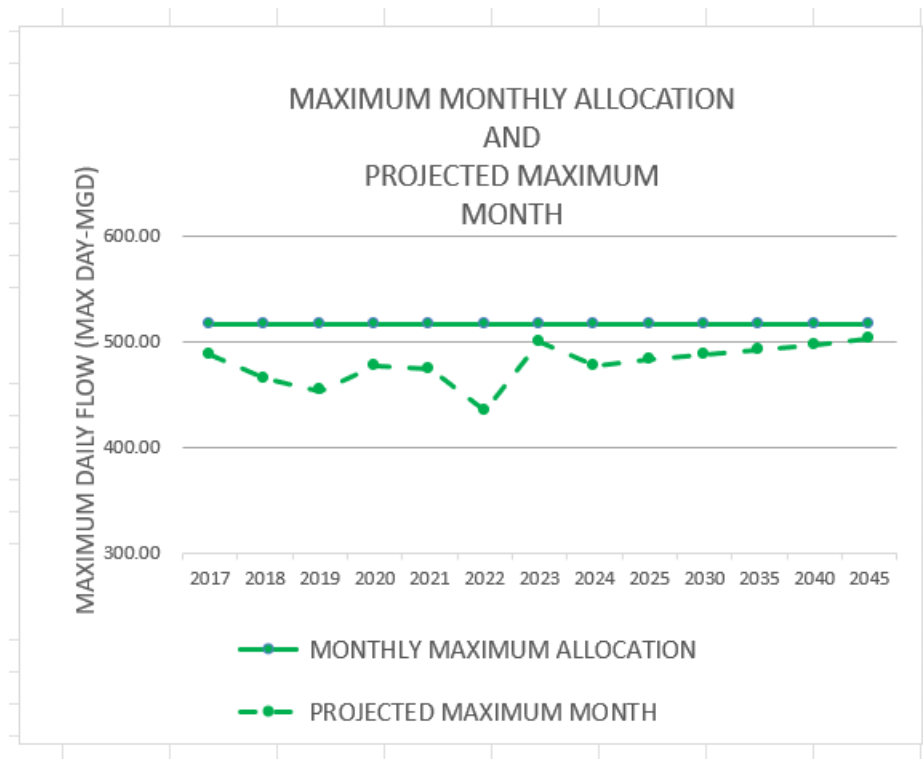


Figure 1.3 - Maximum Monthly Allocation and Projected Maximum Month

SECTION TWO

TREATMENT SYSTEM ABILITY

PART 1 - WATER TREATMENT PLANT CAPACITY

The purpose of this Section is to confirm ability of the water supply and treatment facilities to meet the finished water demand for the next 10-year planning period from 2025 to 2035.

The existing water treatment plant (WTP) has a rated capacity of 18.0 million gallons per day (MGD). This is a firm capacity in that the total capacity of all water source and treatment facilities connected to a water system shall at least equal the water system's design maximum-day water demand, including fire flow (*with the largest unit out of service-emphasis added*) per 62-550.320(6). More details about the WTP and raw water production wells is found in the 2020 Work Plan which is incorporated herein by reference.

Per Table 2-6 of the 2020 Work Plan, water treatment is accomplished by four lime softening treatment units, gravity filters and associated equipment. There are no plans to change the treatment type and treatment capacity within the 10-year planning period. However, additional treatment systems for PFAS removal are underway with plans to implement these systems in compliance with the EPA deadline within the 10-year planning period. These additional treatment systems have been studied but have not been designed as of this writing. In January 2026, the City engaged a consultant to begin design of these facilities. Please refer to SECTION FOUR, UPDATED WATER SUPPLY AND TREATMENT FACILITIES WORK PLAN, Part 4, Project #12.

Utilizing the historic and projected Average Daily Flow values from *Table 1.3 – Annual Average Daily Flow Calculation* and the historical Peak Factor of 1.19 from *Table 1.4 – Peak Factor Calculation*, future Maximum Day Demand may be determined. This data is seen below in *Table 2.1– Maximum Day Flow Demands* and is shown graphically in *Figure 2.1 – Maximum Day Flow and Permitted Capacity*. The outcome indicates that the anticipated WTP Maximum Day Demand will not exceed the WTP firm capacity. In addition, the raw water production well capacity is also presented below in *Table 2.2 – Raw Water Production Capacity*. This data demonstrates that the raw water production well Firm Capacity exceeds the Maximum Day Demand.

YEAR	ADF (MGD)	MAX DAY	FIRM TREATMENT CAPACITY
2017	13.17	16.24	18
2018	13.58	15.52	18
2019	13.03	15.12	18
2020	12.59	15.92	18
2021	12.84	15.79	18
2022	12.84	14.49	18
2023	12.88	16.67	18
2024	13.76	15.89	18
2025	13.52	16.09	18
2030	13.65	16.25	18
2035	13.79	16.41	18
2040	13.93	16.57	18
2045	14.07	16.74	18

Table 2.1- Maximum Day Flow Demands

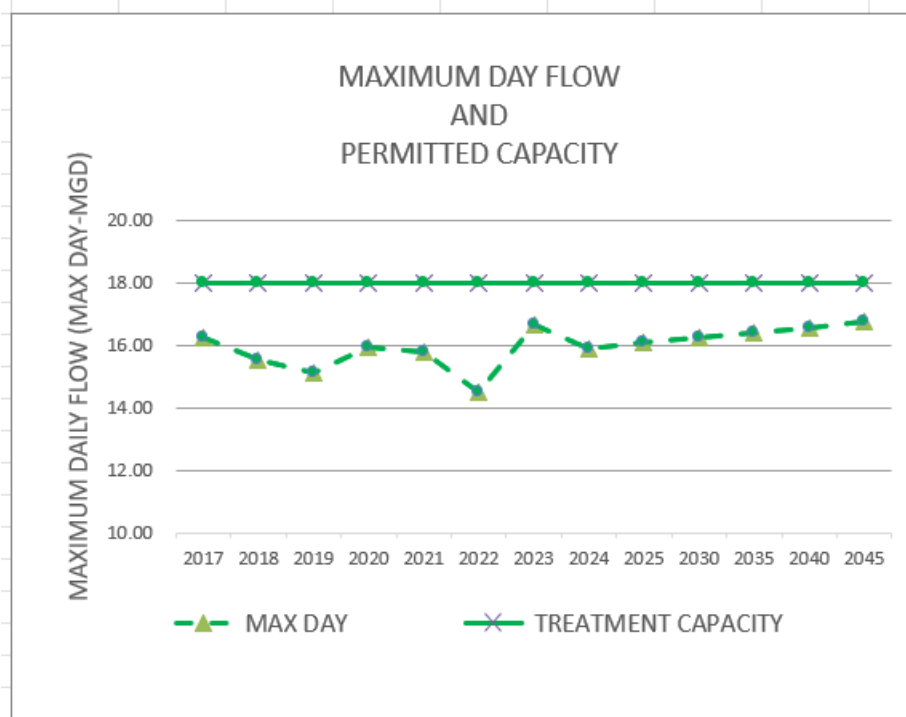


Figure 2.1 - Maximum Day Flow and Permitted Capacity

PRODUCTION WELL No.	PUMP CAPACITY (GPM)	TOTAL CAPACITY (MGD)	FIRM CAPACITY (MGD)*
1	2,800	4.03	4.03
2	1,200	1.73	1.73
3	1,200	1.73	1.73
4	2,000	2.88	2.88
5	2,700	3.89	3.89
6	1,580	2.28	-
9	3,000	4.32	-
10	2,800	4.03	4.03
11	2,800	4.03	4.03
	20,080	28.92	22.32

* Well #6 currently under construction. The largest well, #9 - 3000 GPM, is taken out of service for this FIRM CAPACITY analysis.

Table 2.2 – Raw Water Production Capacity

SECTION THREE

COUNTY PLAN UPDATE

PART 1 - BROWARD COUNTY SERVICE AREA

Broward County WWS (BCWWS) supplies water to a portion of Pembroke Pines which is within BCWWS District 3BC. The residential area is bound on the east by the Florida Turnpike, SW 72nd Ave on the west, SW 9th St. on the north and South Airport Rd. on the south. The area also includes North Perry Airport. This area is depicted graphically below in *Figure 3.1 – Broward County Service Area*, outlined in red.

There are no changes proposed or envisioned to the *Broward County Service Area*. This, in addition to the City's service area, represents the totality of service areas for Pembroke Pines. There are no other service areas or types such as domestic self-service areas.

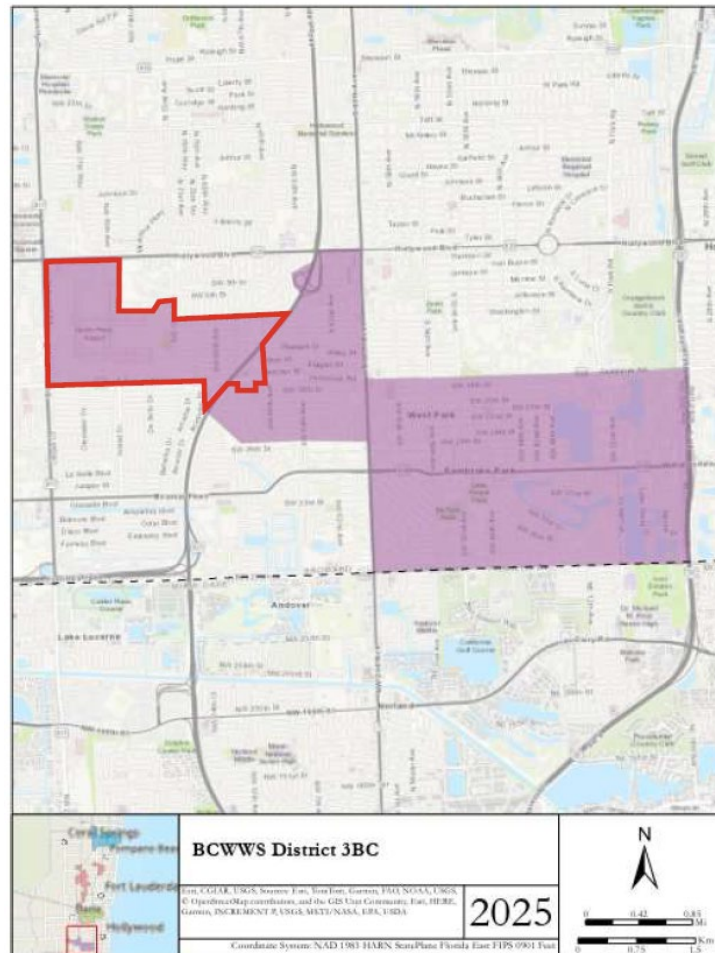


Figure 3.1 – Broward County Service Area with Pembroke Pines Service Area highlighted in red.

Table WS7, of the 2025 Broward County Water Supply Facilities Work Plan (County Plan) indicates population projections for the City’s Broward County Service Area. This data is repeated below in *Table 3.1 – Broward Service Area Population Projection*. More details about the Broward County Service Area is found in the County Plan which is incorporated herein by reference.

Table WS7 District 3BC - Population Projection by Municipality ¹

Municipality	2020	2025	2030	2035	2040	2045	2050
Hollywood	4,467	4,333	4,311	4,286	4,244	4,229	4,221
Miramar	5,452	5,315	5,285	5,623	5,821	5,946	6,055
Pembroke Park	6,863	6,829	6,422	7,382	8,668	9,212	10,261
Pembroke Pines	2,499	2,468	2,456	2,486	2,471	2,548	2,632
West Park	14,663	14,441	14,313	14,191	14,050	13,975	13,907
District 3BC Totals	33,944	33,386	32,787	33,969	35,254	35,911	37,076

1. Based on 2024 BC UPD PFAM update & BC WMD refinements for Service Areas

Table 3.1 – Broward Service Area Population Projection

The County purchases bulk treated water primarily from the City of Hollywood and distributes the treated water through the County’s distribution system. Subdistrict 3BC, including the City’s Broward County Service Area, has interconnects with the City of Hollywood for its primary water supply, and the Cities of Pembroke Pines and Miramar to provide for emergency water supply. Table WS16, of the County Plan indicates the District 3A and 3BC Projected Finished Water Demands which includes the City’s Broward County Service Area. This data is repeated below in *Table 3.2 – Broward Service Area Projected Demands*.

Table WS16 District 3A and 3BC Projected Finished Water Demands

Planning Year	Population (UAZ Estimate)	Finished Water Demands, Annual (MG)	Finished Water Demands, Average Day (MGD)	Finished Water Demands, Per Capita Use (MGD)
2025	50,364	2,085	5.71	113
2030	50,233	2,080	5.7	113
2035	52,688	2,181	5.98	113
2040	54,587	2,260	6.19	113
2045	55,650	2,304	6.31	113

Projected Water Use based on Finished Water Per Capita (5-Year Average) of 113 gallons per capita day

Table 3.2 – Broward Service Area Projected Demands

The City of Hollywood is responsible for ensuring adequate raw water supply and treatment facilities to serve the County District 3 service areas. However, the County provides raw water

to Hollywood from its South System Regional Wellfield (SRW). In order to meet future demands, the County Plan indicates that 3.0 MGD of C-51 Reservoir Project Alternative Water Supply storage credits have been purchased to provide for the demands in BCWWS 3A/3BC service area through December 2065. Table WS20, of the County Plan indicates SRW Raw Water Large User Average Day Projections for District 3A and 3BC, which includes the City's Broward County Service Area. This data is repeated below in *Table 3.3 – Broward Service Area Average Day Projections with C-51 Alternative Water Supply*.

Table WS20 SRW Raw Water Large User Average Day Projections

Limitations	Dania Beach (MGD)	Hallandale Beach (MGD)	Hollywood-BCWWS 3A/3BC (MGD)	FPL (MGD)	TOTAL Allocation (MGD)
Base Condition Allocation ¹ (March 2018 - March 2038)	1.58	3.26	5.78	1.00	11.62
C-51 Offset Allocations ² (March 2023 - December 2065)	1.00	1.00	3.00	---	5.00
TOTAL SR Wellfield Allocation	2.58	4.26	8.78	1.00	16.62
C-51 Reservoir Project Allotments Under Agreements	1.00	1.00	3.00	---	5.00

Table 3.3 – Broward Service Area Average Day Projections with C-51 Alternative Water Supply.

Because additional water supply is not needed for the planning period, BCWWS does not have any required AWS projects in the County Plan or the 2023-24 LEC Update, Table B-13. BCWWS does, however, continue to implement it's Capital Improvement Plan (CIP) and Water Conservation Programs. More information about the BCWWS CIP and Water Conservation Programs may be found in the County Plan which is incorporated herein by reference.

The City of Hollywood has identified two water supply projects. These are listed in the 2023-2024 LEC Update Table B-24 as follows:

1. Hollywood RO WTP 2.00 MGD Expansion Train E and FAS Wells F14 and F15
2. Hollywood RO WTP 2.00 MGD Expansion Train F and FAS Wells F16 and F17

Hollywood continues to implement it's (CIP) and Water Conservation Programs. More information about the Hollywood CIP and Water Conservation Programs may be found in the is found in the 2025 Hollywood Water Supply Facilities Work Plan which is incorporated herein by reference.

PART 2 - WATER CONSERVATION

The City's Water Conservation Plan, as seen in its Comprehensive Plan Conservation Element, Future Land Use Element and the Infrastructure Element, includes a variety of conservation elements including Florida Friendly Landscaping, a leak detection program and a water conserving rate structure. In addition to this, the City is one of the few local jurisdictions which has a permanent irrigation ordinance which prohibits the use of potable water for irrigation. These items contribute to the plan for water conservation, helping to reduce stress on the aquifer and allows the City to maintain one of the lowest per capita water use values in the planning area.

In addition, the City has an Agreement with Broward County, titled Cost Share Support of Water Conservation Incentives Program, and is intended to conserve water quality and quantity. It establishes an enduring water conservation ethic using education, rebates and incentives. The program uses print media, internet, posters, mailings, newsletters (electronic and printed), Facebook and Twitter to educate the public on the use of water conserving plumbing fixtures and other water conservation efforts. Incentives and rebates are given for the installation of water conserving plumbing fixtures.

In addition, the County Plan, pages 10-11, the County Plan which is incorporated herein by reference, has the following outline of Water Conservation efforts:

"Water conservation remains a critical AWS strategy in the 2025 Work Plan. In 2010, the Broward County Board of County Commissioners passed an irrigation ordinance adopting year-round irrigation restrictions limiting landscape watering to two days per week. In addition, Broward County implements a broad set of water conservation programs designed to produce long-term demand reductions along with water quality improvements. These programs target various user groups, including Broward Water Partnership Conservation Pays, NatureScape Irrigation Services (NIS), Residential Irrigation Rebate Program (RIRP), NatureScape Broward, Water Matters Day, and the NatureScape Broward School Board Environmental Partnership Agreement. Water conservation efforts have already produced a 23% reduction in water consumption compared to 2006 and work continues to realize a further 10% reduction in pumpage by 2028 (relative to 2018).

The 2025 Work Plan data analysis confirms that BCWWS will continue to meet its Retail Potable Water Level of Service Standards. With the completion of the C-51 Reservoir Project (\$27.6 million) and the Palm Beach County Reuse Partnership (\$104 million), along with the recent renewal of three consumptive use permits for potable water, Broward County's water supply is well-positioned to meet both current and future demands, physically and in full regulatory compliance through the next reporting period."

SECTION FOUR

UPDATED WATER SUPPLY AND TREATMENT FACILITIES WORK PLAN

PART 1 - WORK PLAN UPDATE CONCLUSIONS

In summary, while the population is projected to increase from previous years, the City of Pembroke Pines SAS permitted allocations shall be sufficient to meet future demands through the planning period. Therefore, no additional pumping allocations or Alternative Water Supply projects are anticipated. The water supply and treatment facilities are adequately sized for the planning period and Capital Improvements, maintenance and repair continue to be funded each year. This Section shall enumerate the status of the 2020 Work Plan as well as the anticipated Capital Improvements, maintenance and repair projects in the current planning period.

PART 2 - COMPREHENSIVE PLAN GOALS, OBJECTIVES, AND POLICIES

Comprehensive Plan Goals, Objectives, and Policies (GOPs) are included in the adopted Future Land Use Element, Infrastructure Element and Conservation Element to ensure implementation and future updates of the 10 Year Work Plan as required by Section 163.3177 (6) (c), F.S. This document is to serve as the basis for the update to these planning elements. More information about statutory requirements is found in the 2020 Work Plan and is incorporated herein by reference.

PART 3 - 2020 WORK PLAN

The 2020 Work Plan identified the following water treatment plant Capital Improvement projects to be completed in the subsequent five years.

PROJECT	STATUS
Installation of 3-30" isolation valves.	Completed
Installation of 30" distribution flow meter.	Completed

The 2020 Work Plan identified the following wellfield system Capital Improvement projects to be completed in the subsequent five years.

PROJECT	STATUS
New 30" raw water main between the eastern wellfield and WTP.	Completed
Rehabilitation of the existing 24" raw water main.	Ongoing
Variable frequency drives installed at central wellfield	Completed
Evaluation of raw water well #6.	Completed

PART 4 - 2025 WORK PLAN UPDATE

The following Capital Improvements, maintenance and repair projects are projected for the water treatment plant and wellfield system for the current planning period. Additions and deletions to this projection may occur as information regarding regulatory changes, condition assessments, maintenance and repair become available.

PROJECT	APPROXIMATE SCHEDULE
1. Replacement of raw water well #6	2026-2027
2. Water treatment unit B rehabilitation	`2026
3. Water treatment unit C rehabilitation	2027-2028
4. Conversion to liquid ammonia study	2027-2028
5. East HSP isolation valve insertion	2026
6. Transfer pump assessment and replacement(s)	2026
7. Polymer room rehabilitation	2027-2028
8. Electrical distribution system replacement	2026
9. High service pump evaluation and replacement(s)	2027-2028
10. VFD installation at Academic Village BPS	2027-2028
11. Rehabilitation of WS tank at Holly Lake BPS	2026
12. Implementation of PFAS treatment system and process additions (*Subject to EPA revisions)	2027-2029*