TOWN OF DAVIE
PLANNING & ZONING DIVISION
6591 ORANGE DRIVE, DAVIE, FLORIDA 33314-3399
PHONE: 954.797.1103, WWW.DAVIE-FL.GOV

NOTICE OF MEETING
PLANNING & ZONING BOARD
SEPTEMBER 8, 2020 - 6:30 PM
Location: Virtual

Pursuant to Executive Order No. 20-69 issued on March 20, 2020, and Executive Order No. 20-112 issued on April 29, 2020 by the Office of Governor Ron DeSantis, municipalities may conduct meetings of their governing boards without having a quorum of its members present physically or at any specific location, and utilizing communications media technology such as telephonic or video conferencing, as provided by Section 120.54(5)(b)2, Florida Statutes.

Members of the Town Council may participate in the virtual meeting

***** AGENDA*****

1. ROLL CALL

2. SELECTION OF CHAIR

3. SELECTION OF VICE CHAIR

4. APPROVAL OF MINUTES

4.1. March 11, 2020

Documents:

DRAFT MINUTES 03-11-20.PDF

5. PUBLIC HEARING
Quasi-Judicial

5.1. Vacation (VA16-193) Provence
Generally located on the west side of Flamingo Road, south of Southwest 14th Street

Documents:

VA 16-193 PLANNING REPORT.PDF

5.2. Rezoning (ZB20-129) The Edge At Davie
4815 South State Road 7

Documents:

ZB20-129 PLANNING REPORT.PDF

6. PUBLIC HEARING

6.1. Land Development Code Amendment (ZB-TXT20-102 10-Year Water Supply Plan)

Documents:

LA(TXT)20-102 PLANNING REPORT.PDF

7. OLD BUSINESS
8. NEW BUSINESS
9. COMMENTS AND/OR SUGGESTIONS
10. ADJOURNMENT

Pursuant to Florida Statute § 286.0105, if a person decides to appeal any decision made by this board, agency, committee, or council with respect to any matter considered at such meeting or hearing, he or she will need a record of the proceedings. For such purpose he or she will need to ensure that a verbatim record of the proceeding is made, which record includes the testimony and evidence upon which the appeal is to be based.

Persons with disabilities requiring accommodations in order to participate should contact the Town Clerk at 797-1023 at least five business days prior to the meeting to request such accommodations. If you are hearing or speech impaired, please contact the Florida Relay Service by using the following numbers: 1-800-955-8700 (voice) or 1-800-955-8771 (TDD).

TOWN OF DAVIE
PLANNING & ZONING DIVISION

PLANNING AND ZONING BOARD MEETING MINUTES
March 11, 2020
DRAFT

1. ROLL CALL

The meeting was called to order at 6:30 p.m. Board members present were Chair Donna Evans, Vice Chair Tom Jacob, Lisa Alvarez, Michael Crowley and David Oakes. Also present were Planning & Zoning Manager David Quigley, Deputy Planning & Zoning Manager David Abramson, Board Attorney Allan Weinthal, and Lorraine Robinson, Board Secretary.

Chair Evans welcomed Mr. Crowley to the board.

2. APPROVAL OF MINUTES

2.1 February 12, 2020 Meeting Minutes

Motion made by Mr. Crowley, seconded by Mr. Oakes, to approve the February 12, 2020 meeting minutes. In a voice vote, the motion passed 5-0.

3. PUBLIC HEARING

Quasi-Judicial

3.1 Variance (V19-138) Munnilal
4321 Southwest 67th Terrace

Ms. Rashbir Munnilal appeared on behalf of the Applicant and agreed to waive quasi-judicial proceeding.

Mr. Abramson provided a brief staff report. The variance being requested would allow construction of a pool and deck 6'-2" from the rear property line and 14'-8" from the side (north) property line. Town code normally requires a minimum yard requirement of 30'-0" and 15'-0", respectively. The property fronts both Southwest 67th Terrace and Southwest 68th Avenue and code requires a minimum front yard of 30'-0" from both rights-of-way. The special circumstance is that the residential lots along the western boundary of the established Del Mar Plat were subject to more restrictive requires due to the placement of the right-of-way on Southwest 67th Avenue.

Vice Chair Jacob asked what the regulations were prior. Mr. Abramson stated that current Town Code requires a rear setback, with a pool or patio the allowance is to go half the distance no less than 10 feet, in this case the rear setback is 25-foot setback, they could go 12.5 feet. He added that because the rear property is adjacent to Southwest 68th Avenue, it now requires a full street setback of 30 feet.

Ms. Munnilal said this was a recently built home and was asking for a variance because without would result in a smaller pool and for safety reasons didn't want it too close to the house for their children. Ms. Alvarez asked if there was a fence. Ms. Munnilal said that there wasn't one currently but would be adding a fence when the pool was built.

Motion made by Mr. Oakes, seconded by Vice Chair Jacob, to approve V19-138.
In a roll call vote, the motion passed 5-0.

3.2 Variance (V19-180) Discount Tire
Variance (V19-182) Discount Tire
5800 South University Drive

Mr. Weinthal advised the board that both items could be heard at the same time but would vote separately for each item.

Mr. Francis Dayoa appeared on behalf of the Applicant and agreed to waive quasi-judicial proceeding. Also representing were Tony Kirchner, Assistant Vice President Florida, Discount Tire and Jason Hart, Wellington Manager, Discount Tire.

Mr. Marlon Holness, Steak 'n Shake, was in attendance and wanted more information on this application. He agreed to waive quasi-judicial proceeding.

Mr. Abramson provided a brief staff report. The variance (V19-180) being requested would allow the creation of a lot that is approximately 1.04 acres. The property is zoned Urban Commercial (UC). Code normally requires properties zoned UC to have a minimum 10 acres. Variance (V19-182) is a request to reduce the required off-street parking requirements as follows:

- From 1,162 spaces to 1,052 spaces for the Lakeside Town Shops (Town code normally requires 1,157 parking spaces).
- From 41 spaces to 31 spaces for proposed Discount Tire property (Town code normally requires 41 parking spaces).

The applicant requested the variance for Lakeside Town Shops because they are proposing to remove an existing parking lot with 110 parking spaces to develop the Discount Tire store.

Chair Evans stated her understanding was the entire parcel would be 1.04 acres and asked why the Town requires 10 acres. Mr. Abramson confirmed the size of the outparcel was correct and stated that at the time of development the entire shopping center came in at 10 acres.

Mr. Oakes asked how many parking spaces. Mr. Dayoa stated there would be 110. Mr. Oakes asked if there had been a parking study to determine the impact of this facility on the entire shopping center. Mr. Abramson responded that generally when an application is submitted, a parking study would be required. He added that there is a site plan application running concurrently and if Engineering feels a study is warranted that request would be made.

Mr. Dayoa said this location would be strictly retail without hazardous waste. He added that 31 spaces would be enough. Mr. Kirschner said that their locations in Wellington (21 spaces) and Greenacres (24 spaces) were found to be plenty of parking for their business.

Mr. Oakes asked for the turnaround time for each vehicle. Mr. Kirschner said the average bay time is 21 minutes for all 4 tires. Mr. Oakes asked what stacking they used. Mr. Kirschner responded that they had 6 bays; 4 would be used for tires and 1 service bay as they offer free safety inspections and air checks. He added that 80% of their customers waited on site due to their quick turnaround time. Mr. Hart said that the store offers a comfortable waiting area and the average wait time is 28 minutes with or without an appointment.

Mr. Oakes what happens with the old tire. Mr. Hart said that tires are never stacked in the parking lot as they use a bay and are picked up weekly by their recycling company. He said they don't offer any auto service.

Mr. Oakes asked if this was a national chain. Mr. Kirschner said they were the largest independent retailer in the world, family owned and not franchised.

Mr. Oakes asked if there was a market study on the number of vehicles. Mr. Kirschner said the average would be 32,000 per year for tires, approximately 70 vehicles per day.

Mr. Crowley said from his personal observation there is plenty of parking in this shopping center and he had no problem with the request as the parking appears to be sufficient for the use proposed.

Mr. Hollness asked for clarification on where in the shopping center the outparcel was being built. Mr. Dayoa said it would be between the Wells Fargo Bank and gas station. Mr. Hollness asked if this would impede traffic coming into the plaza. Mr. Hart said his Wellington store enjoyed eating at the Steak 'n Shake on their breaks. Mr. Kirschner couldn't foresee anything that could create traffic problems.

Chair Evans open and closed the public hearing as there was no one wishing to speak.

Vice Chair Jacob thought it was a good use for the property.

Motion made by Mr. Crowley, seconded by Mr. Oakes, to approve V19-180.
In a roll call vote, the motion passed 5-0.

Motion made by Vice Chair Jacob, seconded by Ms. Alvarez, to approve V19-183.
In a roll call vote, the motion passed 5-0.

4. PUBLIC HEARING

4.1 Land Development Code Amendment (ZB-TXT20-030 Medical Marijuana)

Mr. Weinthal provided an overview of the memorandum prepared by Planning & Zoning and highlighted the changes to the Code. On Exhibit A, page 1, under (B) Commercial, Office and Business Districts; there were some formatting issues with using MS Word. WT & B-2 have new asterisks in both facility and pharmacy; under CC – the asterisk is crossed out for pharmacy.

Mr. Weinthal discussed SEC. 12-436.4 Permitted Uses – Regional Activity Center on page 2 of Exhibit A, Mixed Use and University both have "conditional use" asterisks added.

Mr. Weinthal had the board turn to page 7- Item (4) Nonconformities.

Despite any provision to the contrary in Article III, Division 5, the requirements of paragraph (3), above, are not intended to apply to any Pharmacy which was lawfully established at a particular location prior to January 1, 2020 unless such Pharmacy use is discontinued for one (1) year or more.

He stated this provision would not affect any existing pharmacies and that medical marijuana facilities should be treated the same as standard pharmacies. Vice Chair Jacob asked other than grandfathered in, the pharmacy would have to be a separate building. Mr. Weinthal confirmed and that there would be a 1000-foot distance from K-12 schools and free-standing building for both dispensaries and pharmacies. Chair Evans said that on one of the pages it states 500 feet separation. Mr. Weinthal said that was the state statute and the Town made it tighter.

Mr. Oakes asked if a medical marijuana facility could take over an existing pharmacy. Mr. Weinthal confirmed. Mr. Oakes asked if it could be potentially closer than 1000-feet from a school because it would be grandfathered in. Mr. Weinthal said that could potentially happen. Mr. Quigley said they would have to meet the minimum 1000-foot separation requirement.

Mr. Oakes asked if facilities could grow marijuana. Mr. Weinthal said that cultivation is a different use and licensing; he added this is dispensing only.

Mr. Crowley asked what the separation requirement was for liquor stores near schools. Chair Evans said it was 1200 feet. Mr. Crowley said he'd like to make a recommendation to change to 1200 feet separation. Mr. Weinthal said as an advisory board they could make recommendations to Council. Chair Evans had no objection.

Mr. Crowley referred to page 1 of 7; *The town administrator or his or her designee shall have the discretion to permit uses which are not specifically listed but which are similar in nature to those expressly permitted*. He asked how much discretion they can have.

Mr. Weinthal referred to state statute on page 11- Item 2(c) : *A medical marijuana treatment center dispensing facility may not be located within 500 feet of the real property that comprises a public or private elementary school, middle school, or secondary school unless the county or municipality approves the location through a formal proceeding open to the public at which the county or municipality determines that the location promotes the public health, safety and general welfare of the community.*

Mr. Weinthal said this provision would have to be made through a hearing before Council. Mr. Quigley said this provision wouldn't be used often and the business would have to meet all the other criteria.

Chair Evans asked if limiting by distance would be a better idea than by 'free standing building' to avoid a cluster of shops near each other and was unclear as to what the benefit would be. Mr. Weinthal said that having it in a 'free standing building' limits where in the town it could be located due to less structures in the RAC and B-2 zoning districts. He said that dispensaries are highly regulated by the state with a limited number of licenses issued. Chair Evans asked if restricting it to 'free standing building' would it restrict the number of possible dispensaries because of the structure requirement and therefore limiting the revenue generated. Mr. Weinthal responded that as an advisory board you can recommend eliminating that requirement.

Mr. Oakes asked if there has been interest in opening dispensaries. Mr. Quigley said there had been a lot of inquiries if it was allowed but stopped once the ban was put in place.

Mr. Oakes said he liked the 1200-foot separation and that it is a very expensive business to get into so there aren't a lot of players. He added this is a benefit for those with cancer and that this should be expanded beyond the free-standing building limitation.

Mr. Crowley asked if the Pine Island Ridge Plaza was included in this district as there were a lot of elders that would benefit from the services. Mr. Quigley stated that it is B-3 zoning.

Motion made by Mr. Oakes, seconded by Mr. Crowley, to approve ZBT-TXT20-030 subject to the following board recommendations:

1. *To include B-3/UC Zoning Districts;*
2. *1200 ft. separation from schools*

In a roll call vote, the motion passed 5-0.

5. OLD BUSINESS – none

6. NEW BUSINESS – none

7. COMMENTS AND/OR SUGGESTIONS – none

8. ADJOURNMENT

Hearing no further business, the meeting was adjourned at 7:30 p.m.

Date Approved: _____ _____

Chair/Board Member

TOWN OF DAVIE
PLANNING & ZONING DIVISION
6591 ORANGE DRIVE • DAVIE, FLORIDA 33314-3399
Phone: 954.797.1103 • www.davie-fl.gov

PLANNING REPORT

Project Name
VA16-193 Provence

Application	
Petitioner/Representative	Provence Homeowners Association, Inc./Pillar Consultants
Owner	Town of Davie
Project Planner	Debbie Thomas
Date of Report	09/01/2020
Date of Public Participation	N/A
Date of Public Notification	08/28/2020
Date of Board Review	09/08/2020
Date of Town Council Review	10/07/2020

Location/Site	
Folio/Identification Number	504014170270
Address	N/A
Nearest North/South Road	Flamingo Road
Nearest East/West Road	Southwest 14th Street
Size (Approx. Acres)	2.63
Existing Use	Local Road
Future Land Use	Residential 1 DU/Acre
Zoning	A -1
Council District	4
Redevelopment Area	N/A
Overlay District	N/A
Design Regulation	N/A
Planning Area	2
Right-of-way Acquisition	N/A
Utilities Provider	Sunrise
Drainage District	Central Broward Water Control District (CBWCD)
Nearby Equestrian Trail	N/A
Nearby Recreational Trail	N/A
Nearby Park	N/A
Nearby Bus Route	N/A

Key Points

- The request is to vacate a local right-of-way (ROW) within the single-family residential community of Provence.
- The vacation would allow for privately maintained roads and future installation of guard gates in the community.
- The ROW is 50 ft. in width and includes a 4 ft. sidewalk on both sides of the road.

- The ROW was dedicated to the Town by way of the plat.
- During the Town's review of the vacation, the Applicant recorded a Quit Claim Deed (QCD) that would surrender the interest of the property owners to the Homeowners Association (HOA). This QCD also reaffirms the recorded HOA documents which grant drainage, utilities, and emergency access should the ROW ever be vacated. Therefore, a separate easement is not required in conjunction with the proposed vacation.
- Letters of no objection have been obtained from all utility providers.
- The Town's Development Review Committee (DRC) has reviewed the application and has no objections.

History

1. Related Zoning Information:
   a. In 2019, the Homeowners Association (HOA) recorded a Quit Claim Deed (QCD) signed by all lot owners which surrenders their interests of the right-of-way (ROW) to the HOA.
2. Previous Request(s):
   a. Rezoning ZB01-01-03 Flamingo Road Estates – A request approved on May 21, 2003 through Ordinance 2003-18 to rezone the property from Agricultural (AG) District to Agricultural (A-1) District.
   b. Site Plan SP07-04-03 Flamingo Road Estates – A request approved on January 5, 2005 to approve the development of a new residential community consisting of 26 custom single-family homes.
   c. Plat P07-01-03 Flamingo Road Estates – A request approved on January 5, 2005 through R-2005-13 to approve the boundary plat for a 26 single-family home community. This plat also dedicated the internal roadway serving the community to the Town of Davie for public purposes. At the time this plat was approved, the Rural Lifestyle Regulations prohibited the creation of new private streets, but that prohibition has since been repealed.
3. Concurrent Request(s):
   a. Site Plan SP16-111 Provence – A request to develop a guard gate at the entrance of the residential community using incentive points as required by the Rural Lifestyle Regulations.

Analysis

The following Staff analysis (italic font) is based on the criteria established in the Town of Davie Code of Ordinances, Section12-310(A)(1), for Vacation and Abandonments of Rights-of-Way applications. The Planning and Zoning Board shall provide a recommendation to the Town Council in accordance with the following criteria:

a. Whether the right-of-way is needed for public utilities including storm-water drainage and pedestrian easements to be retained or required to be dedicated as requested by the various departments or utility companies.

The right-of-way (ROW) is not needed for public utilities because the existing Homeowners

Association (HOA) has separately granted all the necessary public easements and such easements will remain in place upon vacation of the right-of-way.

b. Whether the vacation would cause a substantial detrimental effect upon or substantially impair or deny access to any lot of record.

The existing road will continue to provide access to the lots within the community as it was originally designed to do so. The existing HOA documents will ensure the private street will be controlled and maintained by the HOA with the necessary ingress/egress easements provided. As a result, the vacation will not cause a detrimental effect upon the residents.

c. Whether the vacation would adversely impact the existing roadway network, such as creating dead-end rights-of-way, substantially alter utilized travel patterns, or undermine the integrity of historic plats of designated historic landmarks or districts.

The existing road networks and travel patterns will stay the same if the vacation is granted. No dead-ends will be created, and no historic landmarks or districts exist within this area.

d. Whether the right-of-way is needed for the purpose for which the Town has a legal interest and, whether there is a present or future need for the right-of-way for public vehicular or pedestrian access, or for public utility corridors.

Existing easements are in place to allow public utilities and services access and therefore, the ROW is not needed to maintain such access.

e. Whether there are any other factors affecting the public health, safety, or welfare.

The vacation does not involve any factors that will impact public health, safety, or welfare.

Recommendations
Staff finds the application complete and suitable for review. Staff has the following recommendations.

Attachments
1. Draft Ordinance 2. Petitioner Documentation 3. Land Use Map 4. Zoning Map 5. Plat

ORDINANCE _____

AN ORDINANCE OF THE TOWN OF DAVIE, FLORIDA, APPROVING APPLICATION VA 16-193, PROVENCE, VACATING THE PUBLIC RIGHT-OF-WAY WITH FOLIO NUMBER 50-40-14-17-02-70; PROVIDING FOR CONFLICT; PROVIDING FOR SEVERABILITY; AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, a right-of-way known as folio number 50-40-14-17-02-70 was dedicated by a plat known as "Provence", Plat Book 175, Page 65 of the Public Records of Broward County; and

WHEREAS, pursuant to Sec. 12-310 of the Town Code, Provence Homeowners Association Inc. has applied to vacate the right-of-way known as folio number 50-40-14-17-02-70; and

WHEREAS, this request was considered by the Town's Planning & Zoning Board on September 8, 2020; and

WHEREAS, the Town Council of the Town of Davie authorized the publication of a notice of a public hearing as required by law, and a public hearing was held on the date of the adoption of this Ordinance and;

WHEREAS, the Town Council of the Town of Davie finds it in the best interest of the Town to vacate the right-of-way known as folio number 50-40-14-17-02-70.

NOW, THEREFORE, BE IT RESOLVED BY THE TOWN COUNCIL OF THE TOWN OF DAVIE, FLORIDA.

SECTION 1. The Town Council of the Town of Davie does hereby approve the proposed vacation right-of-way as described in the legal description in Exhibit "A"; which is attached hereto and made a part hereof.

SECTION 2. All Ordinances or parts of Ordinances in conflict herewith are to the extent of such conflict hereby repealed.

SECTION 3. If any section, subsection, sentence, clause, phrase, or portion of this Ordinance is, for any reason, held invalid or unconstitutional by any Court of competent jurisdiction, such portion shall be deemed a separate, distinct, and independent provision and such holding shall not affect the validity of the remaining portion of this Ordinance.

SECTION 4. This Ordinance shall take effect immediately upon Broward County approval of the vacation request. Provided that this ordinance shall become void if said approval is not granted within two years of Town Council approval.

PASSED ON FIRST READING THIS_____DAY OF_____, 2020.

PASSED ON SECOND READING THIS_____DAY OF_____, 2020.

_____
MAYOR/COUNCILMEMBER

ATTEST:

_____
TOWN CLERK

APPROVED THIS _____ DAY OF _____, 2020.

Exhibit "A"

Right-of-Way to be Vacated

LEGAL DESCRIPTION:

A portion of, FLAMINGO ROAD ESTATES, according to the plat thereof, as recorded in Plat Book 175, Page 65, of the public records of Broward County, Florida. Being more particularly described as follows:

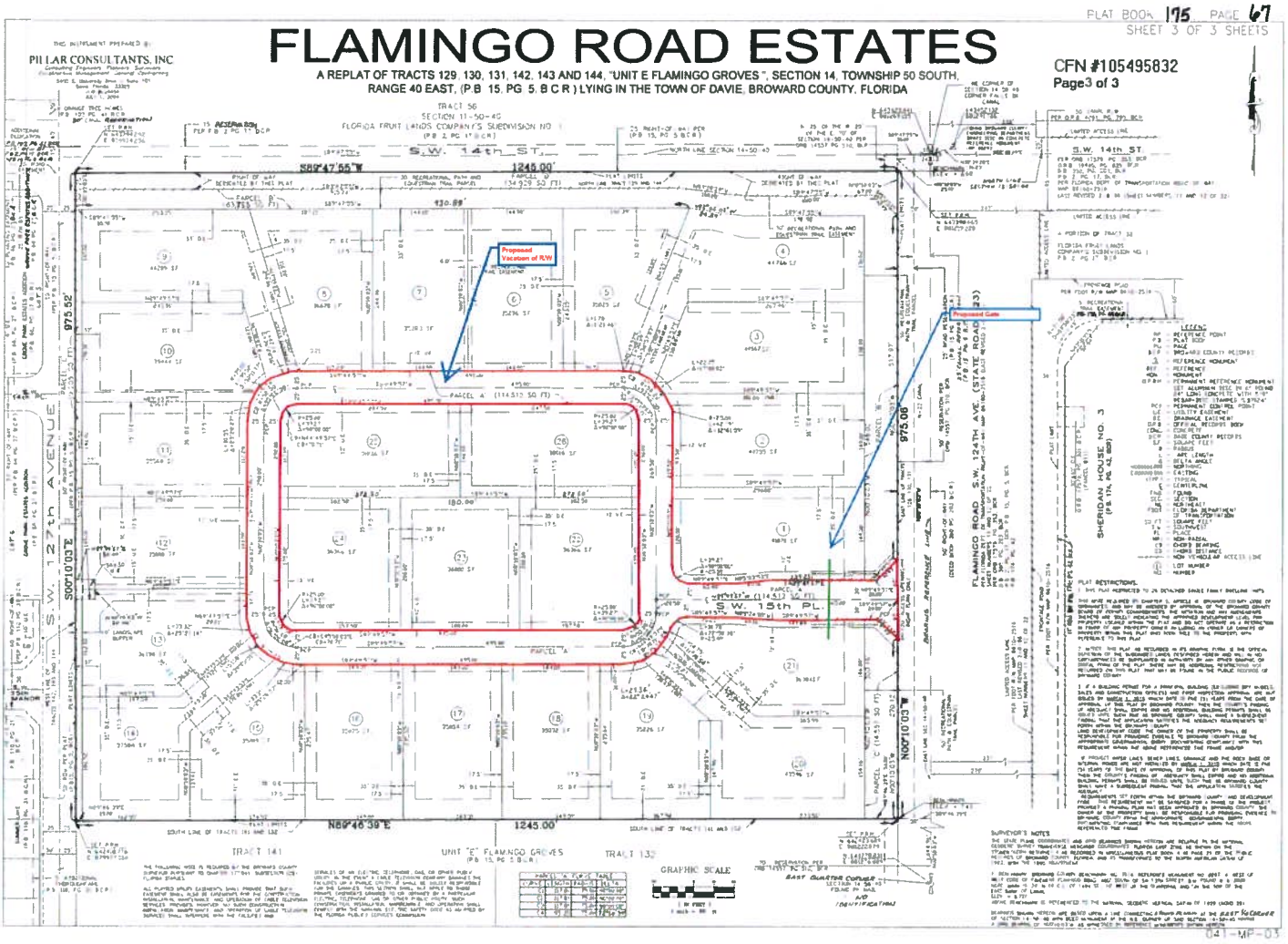
All of Parcel A, of the said FLAMINGO ROAD ESTATES.

Said lands Situate, Lying and Being in the Town of Davie, Broward County, Florida. Containing 114,512 Square Feet (2.62 Acres) More or Less.

FLAMINGO ROAD ESTATES

A REPLAT OF TRACTS 129, 130, 131, 142, 143 AND 144, "UNIT E FLAMINGO GROVES", SECTION 14, TOWNSHIP 50 SOUTH, RANGE 40 EAST, (P.B. 15, PG. 5, B.C.R.) LYING IN THE TOWN OF DAVIE, BROWARD COUNTY, FLORIDA

CFN #105495832
Page3 of 3



04-MP-03

PILLAR CONSULTANTS, INC.

Consulting Engineers, Planners, Surveyors, Construction Management, General Contracting

5230 South University Drive – Suite 104
Davie, Florida 33328
Phone (954) 680-6533 Fax (954) 680-0323

August 3, 2016

Debbie Thomas
Planning & Zoning
Town of Davie
6519 Orange Drive
Davie, FL 33324

Re: **Provence Estates**
Application for Vacation

Dear Ms. Thomas,

Please accept this "**Letter of Intent**" to the referenced application packages on behalf of the Provence Entrance Gate project.

I hereby submit an application to the Town of Davie for the proposed vacation of the right-of-way within the Provence Estates subdivision, located about ¼ mile south of Interstate 595 on the west side of Flamingo Road.

SITE PLAN MODIFICATION:

The developer's intent is to vacate the public right-of-way within the Provence Estates subdivision and make it an ingress/egress and utility easement because of the proposed entrance gate.

If you have any questions, comments, concerns, or require additional documentation, please do not hesitate to contact me at 954-680-6533.

Respectfully Submitted,
PILLAR CONSULTANTS, INC.

Michael Evans
Project Engineer

PILLAR CONSULTANTS, INC.

Consulting Engineers, Planners & Surveyors
5230 South University Drive – Suite 104
Davie, Florida 33328
Phone (954) 680-6533 Fax (954) 680-0323

August 31, 2020

Debbie Thomas
Planning & Zoning
Town of Davie
6519 Orange Drive
Davie, FL 33324

Re: **Provence Estates**
Vacation Criteria Letter

Please see below for the Criteria Responses in support of the Vacation of Right-of-way.

Section12-310(A)(1), for Vacation and Abandonments of Rights-of-Way applications. The Planning and Zoning Board shall provide a recommendation to the Town Council in accordance with the following criteria:

a. Whether the right-of-way is needed for public utilities including storm-water drainage and pedestrian easements to be retained or required to be dedicated as requested by the various departments or utility companies.

Easements for public utilities, including storm-water drainage and access have been provided and recorded as required by the various departments or utility companies.

b. Whether the vacation would cause a substantial detrimental effect upon or substantially impair or deny access to any lot of record.

Access to the lot of record will continue via the recorded easements for access and utilities.

c. Whether the vacation would adversely impact the existing roadway network, such as creating dead-end rights-of-way, substantially alter utilized travel patterns, or undermine the integrity of historic plats of designated historic landmarks or districts.

No impacts to existing roadway network, deadend right of ways, travel patterns is anticipated to occur with the vacation of this right-of-way. All of the same rights of access and maintenance of utilities is provided via the easement already recorded.

d. Whether the right-of-way is needed for the purpose for which the Town has a legal interest and, whether there is a present or future need for the right-of-way for public vehicular or pedestrian access, or for public utility corridors.

The proposed right-of-way is not needed as the road does not connect through to other streets and is solely for the benefit of the subdivision.

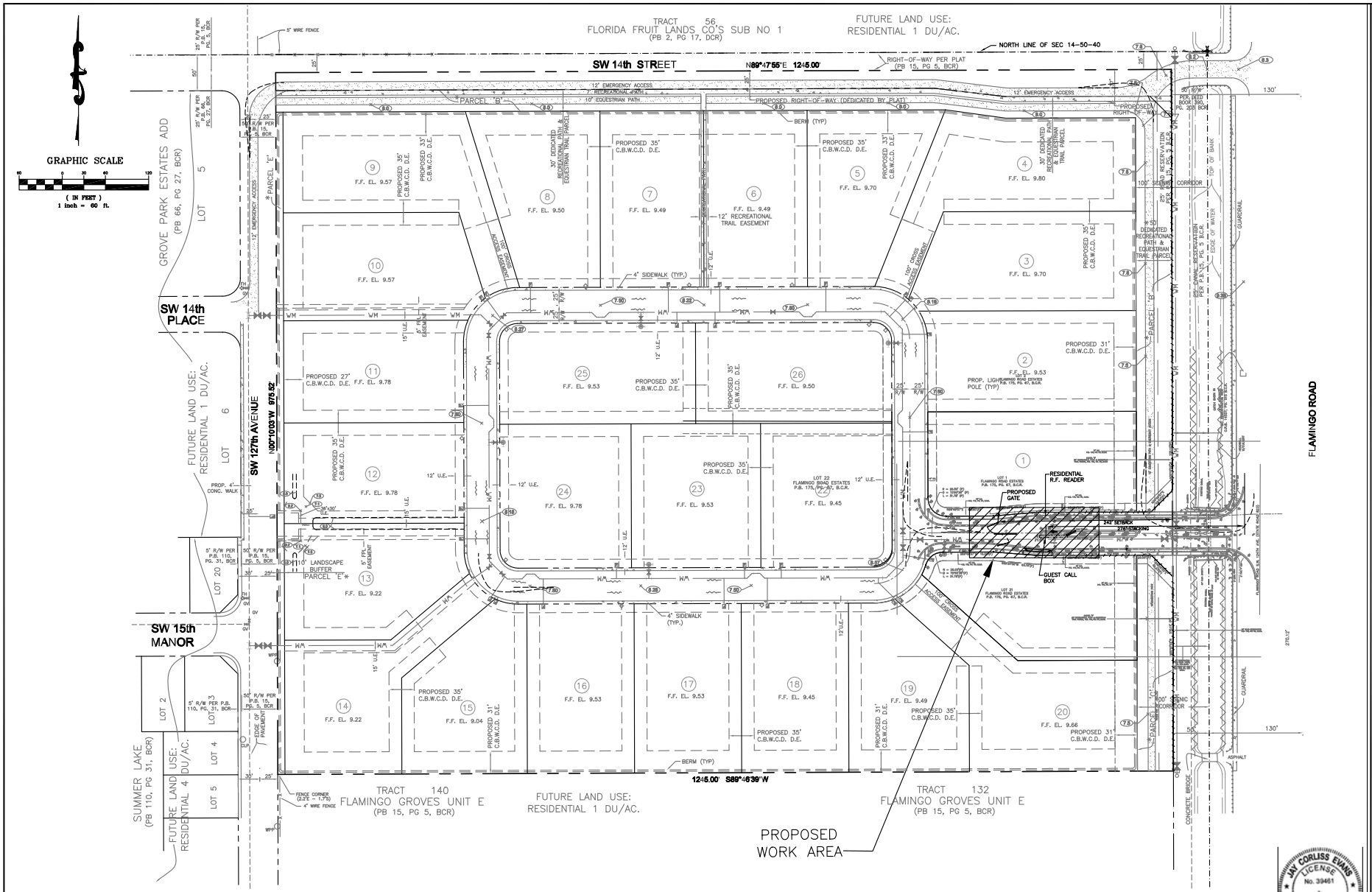
e. Whether there are any other factors affecting the public health, safety, or welfare.

No, there are no other factors affecting the public health, safety or welfare.

If you have any questions or concerns, please let me know.

Respectfully Submitted,
PILLAR CONSULTANTS, INC.

Jason Wilson
Pres./Dir. Of Engineering



LAND DESCRIPTION:

TRACTS 129, 130, 131, 142, 143 AND 144, "FLAMINGO GROVES" UNIT E, SECTION 14, TOWNSHIP 50 SOUTH, RANGE 40 EAST, ACCORDING TO THE PLAT THEREOF AS RECORDED IN PLAT BOOK 15, AT PAGE 5, OF THE PUBLIC RECORDS OF BROWARD COUNTY, FLORIDA. SAID LANDS CONTAINING 1,214,236.06 SQUARE FEET (27.87 ACRES), MORE OR LESS.

JAY CORLISS EVANS
LICENSE No. 39461
STATE OF FLORIDA
PROFESSIONAL ENGINEER

SHEET TITLE

OVERALL SITE PLAN

REVISIONS

PILLAR CONSULTANTS, INC.

Consulting Engineers, Planners, Surveyors, Construction Management, General Contracting

5230 S. University Drive – Suite 104
Davie, Florida 33328

P.E. # 39461 Phone: (954) 680-6533 Fax: (954) 680-0323 LIC.# QB-0015697

PROVENCE ENTRANCE GATE

TOWN OF DAVIE
BROWARD COUNTY, FLORIDA

SCALE: 1"=60'

DATE: 03/01/16

DRAWN BY: MTE

SHEET No.

SP-2

02045M

CITY OF SUNRISE
Community Development - Engineering Division
1601 NW 136 Ave., Bldg. A Sunrise, FL 33323 P: 954.746.3270 F: 954.746.3287

August 5, 2020

Jason Wilson
VP/Director of Engineering
Pillar Consultants, Inc.
5230 S University Dr, Suite 104
Davie, FL 33328

Via Email: jason@pillarconsultants.com

Re: Provence
Aka Flamingo Road Estates, A3-312
Proposed Vacation of Right-of Way

Dear Mr. Wilson:

This letter is being written in response to your email dated April 15, 2020 regarding the request to vacate public right-of-way within the above referenced development. The internal roadway was as a public right-of-way per the recorded plat (PB175-65 BCR). The request for the vacation includes the replacement of the right-of-way with an easement over the common areas including the roadway, as prescribed in the Declarations referenced in your letter.

After discussions with legal counsel and review of the referenced documents, the City of Sunrise has no objection to the vacation of the public right-of-way.

Please be advised that other utilities may exist in this area and that this letter relates only to water and sewer service. Please contact other utilities directly to obtain the appropriate release letters.

Please feel free to contact me at aresta@sunrisefl.gov or (954) 746-3285 if you have any further questions.

Sincerely,

CITY OF SUNRISE

Ashley Resta

Ashley Resta, P.E.
City Engineer

PILLAR CONSULTANTS, INC.

Consulting Engineers, Planners, Surveyors, Construction Management, General Contracting

5230 South University Drive – Suite 104
Davie, Florida 33328
Phone (954) 680-6533

October 28, 2016

Leonard Maxwell
Comcast
2601 SW 145th Avenue, Suite 100
Miramar, FL 33027

Re: **Provence**
Proposed Vacation of Right-of-Way

Dear Leonard,

This letter serves to inform you that the Home Owners Association of the Provence single family home development (aka Flamingo Road Estates), located at 1700 S, Flamingo Road, Davie, is seeking to place a gate at the entrance to their development. The gate will require that the existing internal public right-of-way (see attached for the recorded plat) be vacated and replace it with an ingress, egress, utility and drainage easement. Per the vacation process, we are required to reach out to utility providers that may have facilities within this right-of-way.

Please complete the following, and return the signed and dated form to the above address or email to michael@pillarconsultants.com.

1. _____ We have no objections to the vacation of R/W and replacement with an ingress, egress, utility and drainage easement

2. _____We have an objection to the vacation of R/W and replacement with an ingress, egress, utility and drainage easement and have the following comment(s) and/or reason(s):

_____
_____
_____

_____
Signature

Completed By (Print): _____ Date:_____

If you have any questions, comments, concerns, or require additional documentation, please do not hesitate to contact me at kmenard@pillarconsultants.com or 954-680-6533.

Respectfully Submitted,
PILLAR CONSULTANTS, INC.
Karl Menard
Project Surveyor

PILLAR CONSULTANTS, INC.

Consulting Engineers, Planners, Surveyors, Construction Management, General Contracting

5230 South University Drive – Suite 104
Davie, Florida 33328
Phone (954) 680-6533

October 28, 2016

Vivek Piplva
AT&T
8601 W Sunrise Boulevard
Plantation, FL 33322

Re: **Provence**
Proposed Vacation of Right-of-Way

Dear Vivek,

This letter serves to inform you that the Home Owners Association of the Provence single family home development (aka Flamingo Road Estates), located at 1700 S, Flamingo Road, Davie, is seeking to place a gate at the entrance to their development. The gate will require that the existing internal public right-of-way (see attached for the recorded plat) be vacated and replace it with an ingress, egress, utility and drainage easement. Per the vacation process, we are required to reach out to utility providers that may have facilities within this right-of-way.

Please complete the following, and return the signed and dated form to the above address or email to michael@pillarconsultants.com.

1. ✓ We have no objections to the vacation of R/W and replacement with an ingress, egress, utility and drainage easement

2. _____ We have an objection to the vacation of R/W and replacement with an ingress, egress, utility and drainage easement and have the following comment(s) and/or reason(s):

_____

_____

_____

Signature

Completed By (Print): HERMAN ZAMBRANO Date: 11/8/16

If you have any questions, comments, concerns, or require additional documentation, please do not hesitate to contact me at kmenard@pillarconsultants.com or 954-680-6533.

Respectfully Submitted,
PILLAR CONSULTANTS, INC.
Karl Menard
Project Surveyor

Florida Power & Light Company, 4000 Davie Road Ext, Hollywood, FL 33024
Phone: 954-442-6323, Fax: 954-442-6340

FPL

November 29, 2016

PILLAR CONSULTANTS, INC.
5230 S. University Drive, No. 104
Davie, FL, 33328

Dear Karl Menard,

This letter is in response to your request for the release of a platted road right-of-way.

In meeting with your request, FPL has no objection to releasing our rights in the road right-of-way known as "SW 15th PL" in Plat Book 175, Page 67 of the Public records of Broward County .

The release is restricted to the following description: Parcel 'A" (114,512 SQ FT) on the condition that the replacement, an ingress,egress, drainaige and utility easement, is recorded and provided immediately following the vacation of the existing public right of way.

Should you have any questions or concerns, please do not hesitate to contact Gabriela Vazquez at 954-442-6323.

Sincerely,

Cindy Gomez
Engineering Lead

PILLAR CONSULTANTS, INC.

Consulting Engineers, Planners, Surveyors, Construction Management, General Contracting

5230 South University Drive – Suite 104
Davie, Florida 33328
Phone (954) 680-6533

October 28, 2016

David Rivers
Teco/People's Gas
5101 NW 21st Avenue, Suite 460
Fort Lauderdale, FL 33309

Re: **Provence**
Proposed Vacation of Right-of-Way

Dear David,

This letter serves to inform you that the Home Owners Association of the Provence single family home development (aka Flamingo Road Estates), located at 1700 S, Flamingo Road, Davie, is seeking to place a gate at the entrance to their development. The gate will require that the existing internal public right-of-way (see attached for the recorded plat) be vacated and replace it with an ingress, egress, utility and drainage easement. Per the vacation process, we are required to reach out to utility providers that may have facilities within this right-of-way.

Please complete the following, and return the signed and dated form to the above address or email to michael@pillarconsultants.com.

1. ✓ We have no objections to the vacation of R/W and replacement with an ingress, egress, utility and drainage easement

2. _____ We have an objection to the vacation of R/W and replacement with an ingress, egress, utility and drainage easement and have the following comment(s) and/or reason(s):

_____

_____

_____

Signature

Completed By (Print): David Rivera Date: 11/3/16

If you have any questions, comments, concerns, or require additional documentation, please do not hesitate to contact me at kmenard@pillarconsultants.com or 954-680-6533.

Respectfully Submitted,
PILLAR CONSULTANTS, INC.
Karl Menard
Survey Technician

PILLAR CONSULTANTS, INC.

Consulting Engineers, Planners, Surveyors, Construction Management, General Contracting

5230 South University Drive – Suite 104
Davie, Florida 33328
Phone (954) 680-6533

December 13, 2016

Mr. Michael Crowley
Central Broward Water Control District
8020 Stirling Road
Hollywood, FL 33023

Re: **Provence**
Proposed Vacation of Right-of-Way

Dear Mike,

This letter serves to inform you that the Home Owners Association of the Provence single family home development (aka Flamingo Road Estates), located at 1700 S, Flamingo Road, Davie, is seeking to place a gate at the entrance to their development. The gate will require that the existing internal public right-of-way (see attached for the recorded plat) be vacated and replace it with an ingress, egress, utility and drainage easement. Per the vacation process, we are required to reach out to utility providers that may have facilities within this right-of-way.

Please complete the following, and return the signed and dated form to the above address or email to michael@pillarconsultants.com.

1. _X_ We have no objections to the vacation of R/W and replacement with an ingress, egress, utility and drainage easement

2. _____We have an objection to the vacation of R/W and replacement with an ingress, egress, utility and drainage easement and have the following comment(s) and/or reason(s):

_____

_____

_____

_____
Signature

Completed By (Print): Michael Crowley Date: 12-13-16

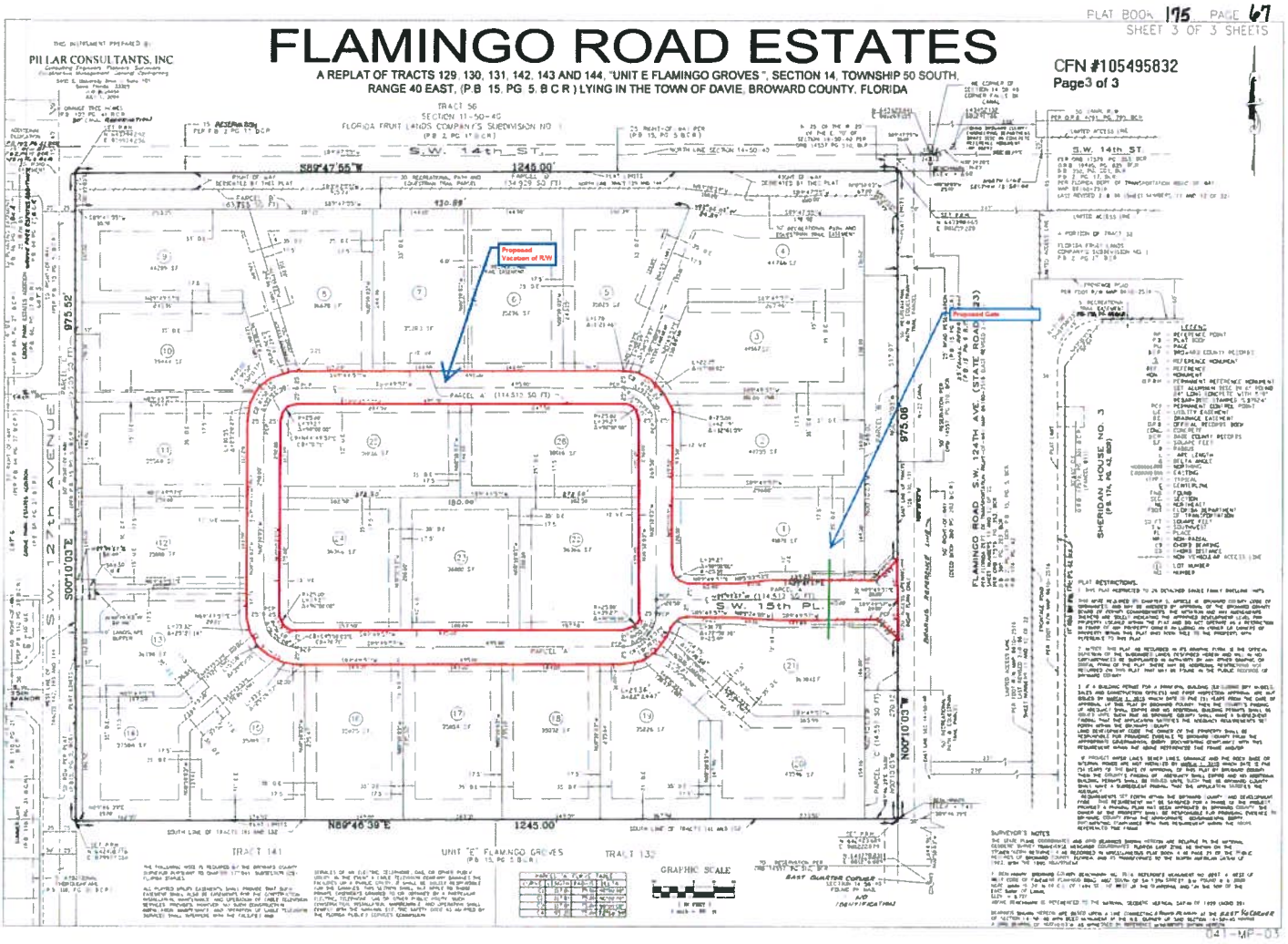
If you have any questions, comments, concerns, or require additional documentation, please do not hesitate to contact me at kmenard@pillarconsultants.com or 954-680-6533.

Respectfully Submitted,
PILLAR CONSULTANTS, INC.
Karl Menard
Survey Technician

FLAMINGO ROAD ESTATES

A REPLAT OF TRACTS 129, 130, 131, 142, 143 AND 144, "UNIT E FLAMINGO GROVES", SECTION 14, TOWNSHIP 50 SOUTH, RANGE 40 EAST, (P.B. 15, PG. 5, B.C.R.) LYING IN THE TOWN OF DAVIE, BROWARD COUNTY, FLORIDA

CFN #105495832
Page3 of 3



04-MP-03

Record and return to:
Neal R. Kalis, Esq.
Kalis & Kleiman, P.A.
7320 Griffin Road, Suite 109
Davie, FL 33314
954-791-0477

Folio #'s: 504012170270,
504012170280, and
504012170290

QUIT CLAIM DEED

THIS QUIT CLAIM DEED made effective this 20th day of March, 2019, between **JUAN PAULO ZULUAGA, a married man,** whose address is 1460 SW 125th Avenue, Davie, FL 33325, **joined by his spouse, CATHERINE COULSON, RICARDO NICOLAS HERNANDEZ RIVERA and ANDREA FRANCO DIAZ, husband and wife,** whose address is 1440 SW 125th Avenue, Davie, FL 33325, **GREGORY GILOT, Individually and GREGORY GILOT, as Trustee of the Revocable Trust Agreement of Gregory Gilot dated the 9th day of October, 2013,** whose address is 1420 SW 125th Avenue, Davie, FL 33325, **JOSE A. CALVEIRO, JR., a single man,** whose address is 1400 SW 125th Avenue, Davie, FL 33325, **FRANCESCO VOLPE and ERIKA GUTIERREZ, husband and wife,** whose address is 12535 SW 14 Place, Davie, FL 33325, **KEVIN V. GREENE and JUSTINA DUNIEC, husband and wife,** whose address is 12555 SW 14 Place, Davie, FL 33325, **LON ROSEN and CHRISTINE ROSEN, husband and wife,** whose address is 12575 SW 14 Place, Davie, FL 33325, **ESTEBAN J. RODRIGUEZ and GLENDA OTERO RODRIGUEZ, husband and wife,** whose address is 16803 SW 87th Avenue, Palmetto Bay, FL 33157-4628, **STANLEY VANDERLEM and PIA VANDERLEM, husband and wife,** whose address is 1405 SW 126th Avenue, Davie, FL 33325, **MARK GELMAN and INNA GELMAN, husband and wife,** whose address is 1425 SW 126th Avenue, Davie, FL 33325, **ANDY BOUTROS and SHEILA BOUTROS, husband and wife,** whose address is 1445 SW 126th Avenue, Davie, FL 33325, **ANTHONY BILLISI, a single man, and FRANK BILLISI and LINDA BILLISI, husband and wife,** whose address is 1465 SW 126th Avenue, Davie, FL 33325, **BARRY R. FORBES and ELIZA J. FORBES, husband and wife,** whose address is 1485 SW 126th Avenue, Davie, FL 33325, **ANDREW S. ELLOWITZ, a single man, and DANELLE KUTNER, a single woman,** whose address is 12600 SW 15 Manor, Davie, FL 33325, **ANTONIO E. ROJAS and LICENIA ROJAS, husband and wife,** whose address is 12580 SW 15 Manor, Davie, FL 33325, **ANTHONY JOHNSON, a married man, joined by his spouse, JOLANTA BLASZCZYNSKI,** whose address is 12560 SW 15 Manor, Davie, FL 33325, **ARKADY REINGOWSKY and PENELOPE REINGOWSKY, husband and wife,** whose address is 12540 SW 15 Manor, Davie, FL 33325, **GRACIELA L. DEL VAL, a married woman,** whose address is 12520 SW 15 Manor, Davie, FL 33325, **joined by her spouse, ENRIQUE WIS RIV-HERNANDEZ, YVES BERNARD MALETTE and PASCALE MALETTE, husband and wife, and JUNIE STINVILLE, a single woman,** whose address is 12500 SW 15 Manor, Davie, FL 33325, **JARED TACHER and JENNIFER TACHER, husband and wife,** whose address is 1520 SW 125th Avenue, Davie, FL 33325, **JERRY CAJINA and KERRI-ANN HEW, husband and wife,** whose address is 1500 SW 125th Avenue, Davie, FL 33325, **JEFF HERMAN and SARAH HERMAN, husband and wife,** whose address is 12525 SW 15th Manor, Davie, FL 33325, **SHRUSAN GRAY and RODRICK LEIGHTON, wife and husband,** whose address is 12545 SW 15th Manor, Davie, FL 33325,

CLINT M. BRIDGES and CORTNEY ROBYN KAISERMAN BRIDGES, husband and wife, whose address is 12565 SW 15th Manor, Davie, FL 33325, **AZIZ U. BHULLAR, a married man, joined by his spouse, SHAZIA BHULLAR,** whose address is 1450 SW 126th Avenue, Davie, FL 33325, **WILLIAM PIERCE and MARIA C. PIERCE, husband and wife,** whose address is 1455 SW 125th Avenue, Davie, FL 33325, (collectively "the Grantors") to **PROVENCE HOMEOWNERS ASSOCIATION, INC., a Florida Not-for-Profit Corporation,** whose post office address is c/o Lynx Property Services, LLC, 12485 SW 137 Ave., Ste. 309, Miami, FL 33186, (the "Grantee"). (The terms "Grantor" and "Grantee" in this instrument includes the respective successors and assigns of said parties).

W I T N E S S E T H:

THAT the Grantors, for and in consideration of the sum of Ten Dollars ($10.00) to it in hand paid by the Grantee, the receipt whereof is hereby acknowledged, does hereby grant, bargain, sell, alien, remise, release, convey and confirm unto the Grantee the property (the "Property") lying and being in Broward County, Florida, and legally described as:

Parcel A of FLAMINGO ROAD ESTATES, according to the Plat thereof, as recorded in Plat Book 175, at page 65, of the Public Records of Broward County, Florida.

Further, the Grantors reaffirm and acknowledge that the Property is subject to the provisions of subsection 14.7 of the Declaration for Provence Public Easements recorded at O.R. book 43493, Page 91996 of the Public Records of Broward County, Florida, which states "Fire, police, school transportation, health, sanitation and other public service and utility company personnel and vehicles shall have a permanent and perpetual easement for ingress and egress over and across the Common Areas. In addition, Telecommunications Providers shall also have the right to use all paved roadways for ingress and egress to and from Telecommunications Systems within Provence".

N.B. The Preparer of this instrument has not performed any title services in connection with the preparation of this instrument, nor have the Grantor requested the Preparer to perform an Opinion of Title. The Preparer has not given an opinion as to the current fee simple ownership, effect of this instrument on other interests in the subject property or the adequacy of the legal description. The preparer has relied solely on information provided by the Grantor in the preparation of this instrument.

TOGETHER with all the tenements, hereditaments and appurtenances belonging or in any way appertaining to said Property.

TO HAVE AND TO HOLD the same together with all and singular the appurtenances thereunto belonging or in anywise appertaining, and all the estate, right, title, interest, lien, equity and claim whatsoever of Grantors, either in law or equity, to the only proper use and benefit of Grantee forever.

(Owner(s) of Lot 1, FLAMINGO ROAD ESTATES)

IN WITNESS WHEREOF, the Grantors have caused this Quit Claim Deed to be executed in their name the day and year first above written.

Signed, sealed and delivered in the presence of:

Witness Signature

Erick Gutierrez
Print Name of Witness

Witness Signature

Maria C Pierce
Print Name of Witness

Witness Signature

Erick Gutierrez
Print Name of Witness

Witness Signature

Maria C Pierce
Print Name of Witness

JUAN PAULO ZULUAGA
1460 SW 125th Avenue, Davie, FL 33325,

Print Name:
1460 SW 125th Avenue, Davie, FL 33325,

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

Notary Public State of Florida
Erick Gutierrez
Commission GG 101034
Exp 09/01/2021

The foregoing instrument was acknowledged before me this 20th day of March, 2019, by JUAN PAULO ZULUAGA, married, who is personally known to me or has produced _____ as identification.

Print or Stamp Name: _____
Notary Public, State of Florida
Commission No.:
My Commission Expires:

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

Notary Public State of Florida
Ericka Gutierrez
My Commission GG 101034
Expires 09/01/2021

The foregoing instrument was acknowledged before me this 20th day of March, 2019, by Catherine Coulson, a married woman, who is personally known to me or has produced _____ as identification.

Print or Stamp Name: _____
Notary Public, State of Florida
Commission No.:

My Commission Expires

(Owner(s) of Lot 2, FLAMINGO ROAD ESTATES)

IN WITNESS WHEREOF, the Grantors have caused this Quit Claim Deed to be executed in their name the day and year first above written.

Signed, sealed and delivered in the presence of:

Witness Signature

Ericka Gutierrez
Print Name of Witness

Witness Signature

Marc C. Pierce
Print Name of Witness

Witness Signature

Marc Pierce
Print Name of Witness

Witness Signature

Ericka Gutierrez
Print Name of Witness

RICARDO NICOLAS HERNANDEZ RIVERA
1440 SW 125th Avenue, Davie, FL 33325

ANDREA FRANCO DIAZ
1440 SW 125th Avenue, Davie, FL 33325

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

Notary Public State of Florida
Ericka Gutierrez
My Commission GG 101034
Expires 09/01/2021

The foregoing instrument was acknowledged before me this 12 day of December, 2018, by **RICARDO NICOLAS HERNANDEZ RIVERA** who is personally known to me or has produced _____ as identification.

Print or Stamp Name: _____
Notary Public, State of Florida
Commission No.:
My Commission Expires:

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

Notary Public State of Florida
Ericka Gutierrez
My Commission GG 101034
Expires 09/01/2021

The foregoing instrument was acknowledged before me this 12 day of December, 2018 by **ANDREA FRANCO DIAZ** who is personally known to me or has produced _____ as identification.

_____
Print or Stamp Name: _____
Notary Public, State of Florida
Commission No.:
My Commission Expires:

(Owner(s) of Lot 3, FLAMINGO ROAD ESTATES)

IN WITNESS WHEREOF, the Grantors have caused this Quit Claim Deed to be executed in their name the day and year first above written.

Signed, sealed and delivered in the presence of:

Witness Signature

Sarah Herman
Print Name of Witness

Witness Signature

Marc C Pierce
Print Name of Witness

Witness Signature

Sarah Herman
Print Name of Witness

Witness Signature

Marc C Pierce
Print Name of Witness

GREGORY GILOT, Individually

1420 SW 125th Avenue, Davie, FL 33325

GREGORY GILOT, as Trustee of the Revocable Trust Agreement of Gregory Gilot dated the 9th day of October, 2013
1420 SW 125th Avenue, Davie, FL 33325

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

The foregoing instrument was acknowledged before me this 17 day of December, 2018, by **GREGORY GILOT, Individually** and **GREGORY GILOT, as Trustee of the Revocable Trust Agreement of Gregory Gilot dated the 9th day of October, 2013,** who is personally known to me or has produced _____ as identification.

Print or Stamp Name: _____
Notary Public, State of Florida
Commission No.:
My Commission Expires:

Notary Public State of Florida
Ericka Gutierrez
My Commission GG 101034
Expires 09/01/2021

(Owner(s) of Lot 4, FLAMINGO ROAD ESTATES)

IN WITNESS WHEREOF, the Grantors have caused this Quit Claim Deed to be executed in their name the day and year first above written.

Signed, sealed and delivered in the presence of:

Witness Signature

Print Name of Witness

Witness Signature

Print Name of Witness

JOSE A. CALVEIRO, JR.
1400 SW 125th Avenue, Davie, FL 33325

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

Notary Public State of Florida
Ericka Gutierrez
My Commission GG 101034
Expires 09/01/2021

The foregoing instrument was acknowledged before me this 17 day of December, 2018, by **JOSE A. CALVEIRO, JR., a single man,** who is personally known to me or has produced _____ as identification.

Print or Stamp Name: _____
Notary Public, State of Florida
Commission No.:
My Commission Expires:

(Owner(s) of Lot 5, FLAMINGO ROAD ESTATES)

IN WITNESS WHEREOF, the Grantors have caused this Quit Claim Deed to be executed in their name the day and year first above written.

Signed, sealed and delivered in the presence of:

Witness Signature

Andrea Franco Diaz
Print Name of Witness

Witness Signature

Maria C Pierce
Print Name of Witness

FRANCESCO VOLPE
12535 SW 14 Place, Davie, FL 33325,

Witness Signature

Andrea Franco Diaz
Print Name of Witness

Witness Signature

Maria C Pierce
Print Name of Witness

ERIKA GUTIERREZ
12535 SW 14 Place, Davie, FL 33325,

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

The foregoing instrument was acknowledged before me this 14 day of December 2018, by **FRANCESCO VOLPE,** who is personally known to me or has produced _____ as identification.

ANDREA FRANCO DIAZ
MY COMMISSION # GG 195754
EXPIRES: April 22, 2022
Bonded Thru Notary Public Underwriters

Print or Stamp Name:
Notary Public, State of Florida
Commission No.:
My Commission Expires:

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

The foregoing instrument was acknowledged before me this 14 day of December, 201__, by **ERIKA GUTIERREZ,** who is personally known to me or has produced _____ as identification.

Print or Stamp Name: _____
Notary Public, State of Florida
Commission No.:
My Commission Expires:

ANDREA FRANCO DIAZ
MY COMMISSION # GG 195754
EXPIRES: April 22, 2022
Bonded Thru Notary Public Underwriters

(Owner(s) of Lot 6, FLAMINGO ROAD ESTATES)

IN WITNESS WHEREOF, the Grantors have caused this Quit Claim Deed to be executed in their name the day and year first above written.

Signed, sealed and delivered in the presence of:

Witness Signature

Sarah Herman

Print Name of Witness

Witness Signature

Mary C Pierce

Print Name of Witness

Witness Signature

Sarah Herman

Print Name of Witness

Witness Signature

Mary C Pierce

Print Name of Witness

KEVIN V. GREENE
12555 SW 14 Place, Davie, FL 33325

JUSTINA DUNIEC
12555 SW 14 Place, Davie, FL 33325

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

The foregoing instrument was acknowledged before me this 14 day of January, 2019, by **KEVIN V. GREENE,** who is personally known to me or has produced _____ as identification.

Print or Stamp Name: _____
Notary Public, State of Florida
Commission No.:
My Commission Expires:

Notary Public State of Florida
Ericka Gutierrez
My Commission GG 101034
Expires 09/01/2021

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

The foregoing instrument was acknowledged before me this 12 day of January, 2019 by **JUSTINA DUNIEC,** who is personally known to me or has produced _____ as identification.

Print or Stamp Name: _____
Notary Public, State of Florida
Commission No.:
My Commission Expires:

Notary Public State of Florida
Ericka Gutierrez
My Commission GG 101034
Expires 09/01/2021

(Owner(s) of Lot 7, FLAMINGO ROAD ESTATES)

IN WITNESS WHEREOF, the Grantors have caused this Quit Claim Deed to be executed in their name the day and year first above written.

Signed, sealed and delivered in the presence of:

Sarah Herman
Witness Signature

Sarah Herman
Print Name of Witness

Witness Signature

Mara C. Perce
Print Name of Witness

Sarah Herman
Witness Signature

Sarah Herman
Print Name of Witness

Witness Signature

Mara C. Perce
Print Name of Witness

LON ROSEN
12575 SW 14 Place, Davie, FL 33325

CHRISTINE ROSEN
12575 SW 14 Place, Davie, FL 33325

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

The foregoing instrument was acknowledged before me this 12 day of December, 2018, by **LON ROSEN,** who is personally known to me or has produced _____ as identification.

Notary Public State of Florida
Ericka Gutierrez
My Commission GG 101034
Expires 09/01/2021

Print or Stamp Name: _____
Notary Public, State of Florida
Commission No.:
My Commission Expires:

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

Notary Public State of Florida
Ericka Gutierrez
My Commission GG 101034
Expires 09/01/2021

The foregoing instrument was acknowledged before me this 12 day of December, 201 9 by **CHRISTINE ROSEN,** who is personally known to me or has produced _____ as identification.

_____
Print or Stamp Name: _____
Notary Public, State of Florida
Commission No.:
My Commission Expires:

(Owner(s) of Lot 8, FLAMINGO ROAD ESTATES)

IN WITNESS WHEREOF, the Grantors have caused this Quit Claim Deed to be executed in their name the day and year first above written.

Signed, sealed and delivered in the presence of:

Witness Signature

Ericka Gutierrez
Print Name of Witness

Witness Signature

Maria C. Pierre
Print Name of Witness

ESTEBAN J. RODRIGUEZ
16803 SW 87th Avenue, Palmetto Bay, FL 33157-4628

Witness Signature

Ericka Gutierrez
Print Name of Witness

Witness Signature

Maria C Pierre
Print Name of Witness

GLENDA OTERO RODRIGUEZ
16803 SW 87th Avenue, Palmetto Bay, FL 33157-4628

STATE OF FLORIDA)
) SS:
COUNTY OF Broward)

Notary Public State of Florida
Ericka Gutierrez
My Commission GG 101034
Expires 09/01/2021

The foregoing instrument was acknowledged before me this 16 day of December 2018, by **ESTEBAN J. RODRIGUEZ,** who is personally known to me or has produced _____ as identification.

Print or Stamp Name: _____
Notary Public, State of Florida
Commission No.:
My Commission Expires:

Notary Public State of Florida
Ericka Gutierrez
My Commission GG 101034
Expires 09/01/2021

STATE OF FLORIDA)
) SS:
COUNTY OF Broward)

Notary Public State of Flor
Ericka Gutierrez
My Commission GG 10103
Expires 09/01/2021

The foregoing instrument was acknowledged before me this 17 day of December, 2019, by **GLENDA OTERO RODRIGUEZ,** who is personally known to me or has produced _____ a s identification.

Print or Stamp Name: _____
Notary Public, State of Florida
Commission No.:
My Commission Expires:

(Owner(s) of Lot 9, FLAMINGO ROAD ESTATES)

IN WITNESS WHEREOF, the Grantors have caused this Quit Claim Deed to be executed in their name the day and year first above written.

Signed, sealed and delivered in the presence of:

Witness Signature

Mara C. Pierce

Print Name of Witness

Sarah Herman

Witness Signature

Sarah Herman

Print Name of Witness

STANLEY VANDERLEM
1405 SW 126th Avenue, Davie, FL 33325,

Witness Signature

Mara C. Pierce

Print Name of Witness

Sarah Herman

Witness Signature

Sarah Herman

Print Name of Witness

PIA VANDERLEM
1405 SW 126th Avenue, Davie, FL 33325,

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

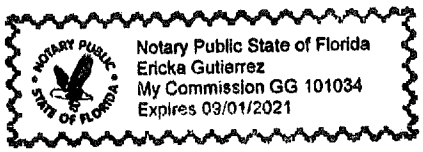
The foregoing instrument was acknowledged before me this 17 day of December, 2018, by **STANLEY VANDERLEM** who is personally known to me or has produced _____ as identification.

Print or Stamp Name: _____
Notary Public, State of Florida
Commission No.:
My Commission Expires:

Notary Public State of Florida
Ericka Gutierrez
My Commission GG 101034
Expires 09/01/2021

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

The foregoing instrument was acknowledged before me this 17 day of December, 2018, by **PIA VANDERLEM** who is personally known to me or has produced _____ as identification.



_____
Print or Stamp Name: _____
Notary Public, State of Florida
Commission No.:
My Commission Expires:

(Owner(s) of Lot 10, FLAMINGO ROAD ESTATES)

IN WITNESS WHEREOF, the Grantors have caused this Quit Claim Deed to be executed in their name the day and year first above written.

Signed, sealed and delivered in the presence of:

Witness Signature

Ericka Gutierrez
Print Name of Witness

Witness Signature

Mar C. Pere
Print Name of Witness

MARK GELMAN
1425 SW 126th Avenue, Davie, FL 33325

Witness Signature

Ericka Gutierrez
Print Name of Witness

Witness Signature

Mar C Pere
Print Name of Witness

INNA GELMAN
1425 SW 126th Avenue, Davie, FL 33325

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

The foregoing instrument was acknowledged before me this 7 day of January, 2019, by **MARK GELMAN,** who is personally known to me or has produced _____ as identification.

Print or Stamp Name: Irina Mitsnefes
Notary Public, State of Florida
Commission No.: 10.21.2018 FF 906277
My Commission Expires:

IRINA MITSNEFES
Notary Public - State of Florida
Commission # FF 906277
My Comm. Expires Oct 21
Bonded through National Notary

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

The foregoing instrument was acknowledged before me this 7 day of January, 2018, by **INNA GELMAN,** who is personally known to me or has produced _____ as identification.

IRINA MITSNEFES
Notary Public - State of Florida
Commission # FF 906277
My Comm. Expires Oct 21, 2019
Bonded through National Notary Assn.

Print or Stamp Name: Irina Mitsnefes
Notary Public, State of Florida
Commission No.: FF906277
My Commission Expires: 10.21.2019

(Owner(s) of Lot 11, FLAMINGO ROAD ESTATES)

IN WITNESS WHEREOF, the Grantors have caused this Quit Claim Deed to be executed in their name the day and year first above written.

Signed, sealed and delivered in the presence of:

Witness Signature

Sarah Herman
Print Name of Witness

Witness Signature

Marie Pierre
Print Name of Witness

Witness Signature

Marie Pierre
Print Name of Witness

Witness Signature

Ericka Gutierrez
Print Name of Witness

ANDY BOUTROS
1445 SW 126th Avenue, Davie, FL 33325

SHEILA BOUTROS
1445 SW 126th Avenue, Davie, FL 33325

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

The foregoing instrument was acknowledged before me this 17 day of December, 2018, by **ANDY BOUTROS,** who is personally known to me or has produced _____ as identification.

Print or Stamp Name: _____
Notary Public, State of Florida
Commission No.:
My Commission Expires:

Notary Public State of Florida
Ericka Gutierrez
My Commission GG 101034
Expires 09/01/2021

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

The foregoing instrument was acknowledged before me this 17 day of December, 2018, by **SHEILA BOUTROS,** who is personally known to me or has produced _____ as identification.

Ericka Gutierrez

Print or Stamp Name: _____
Notary Public, State of Florida
Commission No.:
My Commission Expires:

Notary Public State of Florida
Ericka Gutierrez
My Commission GG 101034
Expires 09/01/2021

(Owner(s) of Lot 12, FLAMINGO ROAD ESTATES)

IN WITNESS WHEREOF, the Grantors have caused this Quit Claim Deed to be executed in their name the day and year first above written.

Signed, sealed and delivered in the presence of:

x _____
Witness Signature
Ivan Nuila
Print Name of Witness
_____
Witness Signature
Carol Mullenski
Print Name of Witness

ANTHONY BILLISI
1465 SW 126th Avenue, Davie, FL 33325

x _____
Witness Signature
Ivan Nuila
Print Name of Witness
_____
Witness Signature
Carol Mullenski
Print Name of Witness

FRANK BILLISI
1465 SW 126th Avenue, Davie, FL 33325

x _____
Witness Signature
Ivan Nuila
Print Name of Witness
_____
Witness Signature
Carol Mullenski
Print Name of Witness

LINDA BILLISI
1465 SW 126th Avenue, Davie, FL 33325

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

The foregoing instrument was acknowledged before me this 13 day of Dec, 2018, by **ANTHONY BILLISI, a single man,** who is personally known to me or has produced _____ as identification.

NANCY RODRIGUEZ
MY COMMISSION # FF 944520
EXPIRES: January 21, 2020
Bonded Thru Budget Notary Services

Print or Stamp Name: _____
Notary Public, State of Florida
Commission No.:
My Commission Expires:

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

The foregoing instrument was acknowledged before me this 13 day of Dec, 2018, by **FRANK BILLISI, a single man,** who is personally known to me or has produced _____ as identification.

Print or Stamp Name: _____
Notary Public, State of Florida
Commission No.:
My Commission Expires:

NANCY RODRIGUEZ
MY COMMISSION # FF 944520
EXPIRES: January 21, 2020
Bonded Thru Budget Notary Services

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

The foregoing instrument was acknowledged before me this 13 day of Dec, 2018, by **LINDA BILLISI, a single man,** who is personally known to me or has produced _____ as identification.

Print or Stamp Name: _____
Notary Public, State of Florida
Commission No.:
My Commission Expires:

NANCY RODRIGUEZ
MY COMMISSION # FF 944520
EXPIRES: January 21, 2020
Bonded Thru Budget Notary Services

(Owner(s) of Lot 13, FLAMINGO ROAD ESTATES)

IN WITNESS WHEREOF, the Grantors have caused this Quit Claim Deed to be executed in their name the day and year first above written.

Signed, sealed and delivered in the presence of:

Witness Signature

CAMILO SEGURA

Print Name of Witness

Witness Signature

Ericka Gutierrez

Print Name of Witness

Witness Signature

CAMILO SEGURA

Print Name of Witness

Witness Signature

Ericka Gutierrez

Print Name of Witness

BARRY R. FORBES
1485 SW 126th Avenue, Davie, FL 33325

ELIZA J. FORBES
1485 SW 126th Avenue, Davie, FL 33325

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

The foregoing instrument was acknowledged before me this 18 day of December, 2018, by **BARRY R. FORBES,** who is personally known to me or has produced FLORIDA DRIVER LICENSE as identification.

Print or Stamp Name: CAMILO SEGUR
Notary Public, State of Florida
Commission No.:
My Commission Expires:

CAMILO SEGURA
Notary Public - State of Florida
Commission # GG 271216
My Comm. Expires Oct 25, 2022

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

The foregoing instrument was acknowledged before me this 18 day of December, 2018, by **ELIZA J. FORBES,** who is personally known to me or has produced Florida Driver License as identification.

Camilo Segura

Print or Stamp Name: Camilo Segura
Notary Public, State of Florida
Commission No.:
My Commission Expires:

CAMILO SEGURA
Notary Public - State of Florida
Commission # GG 271216
My Comm. Expires Oct 25, 2022

(Owner(s) of Lot 14, FLAMINGO ROAD ESTATES)

IN WITNESS WHEREOF, the Grantors have caused this Quit Claim Deed to be executed in their name the day and year first above written.

Signed, sealed and delivered in the presence of:

Witness Signature

Mary C. Pierce
Print Name of Witness

Witness Signature

Sarah Herman
Print Name of Witness

Witness Signature

Ericka Gutierrez
Print Name of Witness

Witness Signature

Mary C Pierce
Print Name of Witness

ANDREW S. ELLOWITZ
12600 SW 15 Manor, Davie, FL 33325

DANELLE ELLOWITZ
12600 SW 15 Manor, Davie, FL 33325

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

Notary Public State of Florida
Ericka Gutierrez
My Commission GG 101034
Expires 09/01/2021

The foregoing instrument was acknowledged before me this 17 day of December, 2018, by **ANDREW S. ELLOWITZ,** who is personally known to me or has produced _____ as identification.

Print or Stamp Name: _____
Notary Public, State of Florida
Commission No.:
My Commission Expires:

WITNESS my hand and official seal in the County and State last aforesaid this 15 day of January, 2019.

Notary Public
Print Name:
My Commission Expires:

SEAL: Notary Public State of Florida Ericka Gutierrez My Commission GG 101034 Expires 09/01/2021

As to Danelle Kutner:

STATE OF FLORIDA :
SS:
COUNTY OF Broward :

I hereby certify that on this day before me, an officer duly authorized to take acknowledgments, personally appeared Danelle Kutner, the person named in the foregoing instrument, that she acknowledged executing same in the presence of two subscribing witnesses freely and voluntarily, and that she is personally known to me or has produced _____ as identification and who did/did not take an oath.

WITNESS my hand and official seal in the County and State last aforesaid this 15 day of January, 2019.

Notary Public
Print Name:
My Commission Expires:

SEAL: Notary Public State of Florida Ericka Gutierrez My Commission GG 101034 Expires 09/01/2021

F:\Barbara\OFFICE\WPWIN\Provence\Consent and Joinder by Owner - Lot 14.wpd

(Owner(s) of Lot 15, FLAMINGO ROAD ESTATES)

IN WITNESS WHEREOF, the Grantor has caused this Quit Claim Deed to be executed in their name the day and year first above written.

Signed, sealed and delivered in the presence of:

Witness Signature

Print Name of Witness

Witness Signature

Print Name of Witness

ANTONIO E. ROJAS
12580 SW 15 Manor, Davie, FL 33325

Witness Signature

Print Name of Witness

Witness Signature

Print Name of Witness

LICENIA ROJAS
12580 SW 15 Manor, Davie, FL 33325

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

The foregoing instrument was acknowledged before me this 17 day of December, 2018, by **ANTONIO E. ROJAS** who is personally known to me or has produced _____ as identification.

Print or Stamp Name:
Notary Public, State of Florida
Commission No.:
My Commission Expires:

YELENA D. CANALES
Notary Public – State of Florida
Commission # GG 081999
My Comm. Expires Jul 4, 2021
Bonded through National Notary Assn.

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

The foregoing instrument was acknowledged before me this 17 day of December, 2018, by **LICENIA ROJAS** who is personally known to me or has produced _____ as identification.

Yelena Canales

Print or Stamp Name: Yelena Canales
Notary Public, State of Florida
Commission No.:
My Commission Expires:

YELENA D. CANALES
Notary Public – State of Florida
Commission # GG 081999
My Comm. Expires Jul 4, 2021
Bonded through National Notary Assn.

(Owner(s) of Lot 16, FLAMINGO ROAD ESTATES)

IN WITNESS WHEREOF, the Grantor has caused this Quit Claim Deed to be executed in their name the day and year first above written.

Signed, sealed and delivered in the presence of:

Witness Signature

Marac Piece
Print Name of Witness

Witness Signature

Ericka Gutierrez
Print Name of Witness

ANTHONY JOHNSON
12560 SW 15 Manor, Davie, FL 33325

Witness Signature

Marac Piece
Print Name of Witness

Witness Signature

Ericka Gutierrez
Print Name of Witness

JOLANTA BLASZCZYNSKI
12560 SW 15 Manor, Davie, FL 33325

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

The foregoing instrument was acknowledged before me this 17 day of December 2018, by **ANTHONY JOHNSON,** who is personally known to me or has produced _____ as identification.

Print or Stamp Name: _____
Notary Public, State of Florida
Commission No.:
My Commission Expires:

Notary Public State of Florida
Ericka Gutierrez
My Commission GG 101033
Expires 09/01/2021

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

The foregoing instrument was acknowledged before me this 17 day of December, 2018, by **JOLANTA BLASZCZYNSKI,** who is personally known to me or has produced _____ as identification.

_____
Print or Stamp Name: _____
Notary Public, State of Florida
Commission No.:
My Commission Expires:

Notary Public State of Florida
Ericka Gutierrez
My Commission GG 101034
Expires 09/01/2021

(Owner(s) of Lot 17, FLAMINGO ROAD ESTATES)

IN WITNESS WHEREOF, the Grantor has caused this Quit Claim Deed to be executed in their name the day and year first above written.

Signed, sealed and delivered in the presence of:

Witness Signature

Print Name of Witness

Witness Signature

Print Name of Witness

ARKADY REINGOWSKY
12540 SW 15 Manor, Davie, FL 33325

Witness Signature

Print Name of Witness

Witness Signature

Print Name of Witness

PENELOPE REINGOWSKY
12540 SW 15 Manor, Davie, FL 33325

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

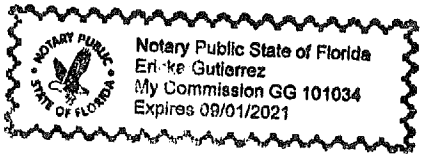
The foregoing instrument was acknowledged before me this 12 day of December, 2019, by **ARKADY REINGOWSKY,** who is personally known to me or has produced _____ as identification.

Print or Stamp Name: _____
Notary Public, State of Florida
Commission No.:
My Commission Expires:

Notary Public State of Florida
Ericka Gutierrez
My Commission GG 101034
Expires 09/01/2021

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

The foregoing instrument was acknowledged before me this 12 day of December, 2018, by **PENELOPE REINGOWSKY,** who is personally known to me or has produced _____ as identification.



_____
Print or Stamp Name: _____
Notary Public, State of Florida
Commission No.:
My Commission Expires:

(Owner(s) of Lot 18, FLAMINGO ROAD ESTATES)

IN WITNESS WHEREOF, the Grantor has caused this Quit Claim Deed to be executed in their name the day and year first above written.

Signed, sealed and delivered in the presence of:

Witness Signature

Ericka Gutierrez
Print Name of Witness

Witness Signature

Mara c Pierre
Print Name of Witness

Witness Signature

Ericka Gutierrez
Print Name of Witness

Witness Signature

Mara c Pierre
Print Name of Witness

GRACIELA L. DEL VAL
12520 SW 15 Manor, Davie, FL 33325

ENRIQUE WIS RIV-HERNANDEZ

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

The foregoing instrument was acknowledged before me this 20th day of March, 2019, by **GRACIELA L. DEL VAL,** who is personally known to me or has produced _____ as identification.

Print or Stamp Name: _____
Notary Public, State of Florida
Commission No.:
My Commission Expires:

Notary Public State of Florida
Ericka Gutierrez
My Commission GG 101034
Expires 09/01/2021

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

Notary Public State of Florida
Ericka Gutierrez
My Commission GG 101034
Expires 09/01/2021

The foregoing instrument was acknowledged before me this 20 day of March, 2019, by Enrique Wis Riv-Hernandez, who is personally known to me or has produced _____ as identification.

Carlos Camp

Print or Stamp Name: _____
Notary Public, State of Florida
Commission No.:
My Commission Expires:

(Owner(s) of Lot 19, FLAMINGO ROAD ESTATES)

IN WITNESS WHEREOF, the Grantor has caused this Quit Claim Deed to be executed in their name the day and year first above written.

Signed, sealed and delivered in the presence of:

Witness Signature

James Olivo
Print Name of Witness

Witness Signature

Elio Alvarado
Print Name of Witness

YVES BERNARD MALETTE
12500 SW 15 Manor, Davie, FL 33325

Witness Signature

James Olivo
Print Name of Witness

Witness Signature

Elio Alvarado
Witness Signature

James Olivo
Print Name of Witness

PASCALE MALETTE
12500 SW 15 Manor, Davie, FL 33325

Witness Signature

Print Name of Witness

Witness Signature

Elio Alvarado
Print Name of Witness

JUNIE STINVILLE
12500 SW 15 Manor, Davie, FL 33325

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

The foregoing instrument was acknowledged before me this 28 day of December, 2018, by **YVES BERNARD MALETTE** who is personally known to me or has produced Driver License as identification.

Elio A. Alvarado
NOTARY PUBLIC
STATE OF FLORIDA
Comm# FF952046
Expires 1/20/2020

Print or Stamp Name: Elio Alvarado
Notary Public, State of Florida
Commission No.: FF952046
My Commission Expires: 01/20/2020

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

The foregoing instrument was acknowledged before me this 28 day of December, 2018, by **PASCALE MALETTE** who is personally known to me or has produced Driver License as identification.

Elio A. Alvarado
NOTARY PUBLIC
STATE OF FLORIDA
Comm# FF952046
Expires 1/20/2020

Print or Stamp Name: Elio Alvarado
Notary Public, State of Florida
Commission No.: FF952046
My Commission Expires: 01/20/2020

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

The foregoing instrument was acknowledged before me this 28th day of December, 2018, by **JUNIE STINVILLE** who is personally known to me or has produced Driver License as identification.

Elio A. Alvarado
NOTARY PUBLIC
STATE OF FLORIDA
Comm# FF952046
Expires 1/20/2020

Print or Stamp Name: Elio Alvarado
Notary Public, State of Florida
Commission No.: FF952046
My Commission Expires: 01/20/2020

(Owner(s) of Lot 20, FLAMINGO ROAD ESTATES)

IN WITNESS WHEREOF, the Grantor has caused this Quit Claim Deed to be executed in their name the day and year first above written.

Signed, sealed and delivered in the presence of:

Witness Signature

Print Name of Witness

Witness Signature

Print Name of Witness

JARED TACHER
1520 SW 125th Avenue, Davie, FL 33325

Witness Signature

Print Name of Witness

Witness Signature

Print Name of Witness

JENNIFER TACHER
1520 SW 125th Avenue, Davie, FL 33325

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

The foregoing instrument was acknowledged before me this 12 day of December, 201 9, by **JARED TACHER,** who is personally known to me or has produced _____ as identification.

Print or Stamp Name: _____
Notary Public, State of Florida
Commission No.:
My Commission Expires:

Notary Public State of Florida
Ericka Gutierrez
My Commission GG 101034
Expires 09/01/2021

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

The foregoing instrument was acknowledged before me this 12 day of December 2018, by **JENNIFER TACHER,** who is personally known to me or has produced _____ as identification.

_____

Print or Stamp Name: _____
Notary Public, State of Florida
Commission No.:
My Commission Expires:

Notary Public State of Florida
Ericka Gutierrez
My Commission GG 101034
Expires 09/01/2021

(Owner(s) of Lot 21, FLAMINGO ROAD ESTATES)

IN WITNESS WHEREOF, the Grantor has caused this Quit Claim Deed to be executed in their name the day and year first above written.

Signed, sealed and delivered in the presence of:

Witness Signature

Maria C Pierce
Print Name of Witness

Witness Signature

Sarah Herman
Print Name of Witness

JERRY CAJINA
1500 SW 125th Avenue, Davie, FL 33325

Witness Signature

Maria C Pierce
Print Name of Witness

Witness Signature

Sarah Herman
Print Name of Witness

KERRI-ANN HEW
1500 SW 125th Avenue, Davie, FL 33325

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

The foregoing instrument was acknowledged before me this 12 day of December, 2019 by **JERRY CAJINA,** who is personally known to me or has produced _____ as identification.

Print or Stamp Name: Ericka Gutierrez.
Notary Public, State of Florida
Commission No.: 101034
My Commission Expires: 09/01/2021

Notary Public State of Florida
Ericka Gutierrez
My Commission GG 101034
Expires 09/01/2021

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

The foregoing instrument was acknowledged before me this 12 day of December, 2018 by **KERRI-ANN HEW,** who is personally known to me or has produced _____ as identification.

Notary Public State of Florida
Ericka Gutierrez
My Commission GG 101034
Expires 09/01/2021

Print or Stamp Name: Ericka Gutierrez
Notary Public, State of Florida
Commission No.: 101034
My Commission Expires: 09/01/2021

(Owner(s) of Lot 22, FLAMINGO ROAD ESTATES)

IN WITNESS WHEREOF, the Grantor has caused this Quit Claim Deed to be executed in their name the day and year first above written.

Signed, sealed and delivered in the presence of:

Witness Signature

Ericka Gutierrez
Print Name of Witness

Witness Signature

Mara C Pierce
Print Name of Witness

Witness Signature

Kimberly P. Fahr
Print Name of Witness

Barbara Cook
Witness Signature

Barbara Cook
Print Name of Witness

JEFF HERMAN
12525 SW 15th Manor, Davie, FL 33325

SARAH HERMAN
12525 SW 15th Manor, Davie, FL 33325

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

The foregoing instrument was acknowledged before me this 12 day of December, 2018, by **JEFF HERMAN,** who is personally known to me or has produced _____ as identification.

Print or Stamp Name: Ericka Gutierrez
Notary Public, State of Florida
Commission No.: 101034
My Commission Expires: 09/01/2021

Notary Public State of Florida
Ericka Gutierrez
My Commission GG 101034
Expires 09/01/2021

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

The foregoing instrument was acknowledged before me this 7 day of December, 2018, by **SARAH HERMAN,** who is personally known to me or has produced FL Drivers License as identification.

Barbara Cook

Print or Stamp Name: _____
Notary Public, State of Florida
Commission No.:
My Commission Expires:

BARBARA COOK
Notary Public - State of Florida
Commission # FF 954025
My Comm. Expires Feb 14, 2020

(Owner(s) of Lot 23, FLAMINGO ROAD ESTATES)

IN WITNESS WHEREOF, the Grantor has caused this Quit Claim Deed to be executed in their name the day and year first above written.

Signed, sealed and delivered in the presence of:

Witness Signature

Print Name of Witness

Witness Signature

Print Name of Witness

Witness Signature

Print Name of Witness

Witness Signature

Print Name of Witness

SHRUSAN GRAY
12545 SW 15th Manor, Davie, FL 33325

RODRICK LEIGHTON
12545 SW 15th Manor, Davie, FL 33325

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

The foregoing instrument was acknowledged before me this 17 day of December, 2018, by **SHRUSAN GRAY,** who is personally known to me or has produced _____ as identification.

Print or Stamp Name: _____
Notary Public, State of Florida
Commission No.:
My Commission Expires:

Notary Public State of Florida
Ericka Gutierrez
My Commission GG 101034
Expires 09/01/2021

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

The foregoing instrument was acknowledged before me this 17 day of December, 2018, by **RODRICK LEIGHTON,** who is personally known to me or has produced _____ as identification.

Print or Stamp Name: _____
Notary Public, State of Florida
Commission No.:
My Commission Expires:

Notary Public State of Florida
Ericka Gutierrez
My Commission GG 101034
Expires 09/01/2021

(Owner(s) of Lot 24, FLAMINGO ROAD ESTATES)

IN WITNESS WHEREOF, the Grantor has caused this Quit Claim Deed to be executed in their name the day and year first above written.

Signed, sealed and delivered in the presence of:

Witness Signature

Harry Bayliss

Print Name of Witness

Witness Signature

Cortney D'Costa

Print Name of Witness

CLINT M. BRIDGES
12565 SW 15th Manor, Davie, FL 33325

Witness Signature

Harry Bayliss

Print Name of Witness

Witness Signature

Cortney D'Costa

Print Name of Witness

Cortney R. Kaiserman Bridges

CORTNEY ROBYN KAISERMAN BRIDGES
12565 SW 15th Manor, Davie, FL 33325

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

The foregoing instrument was acknowledged before me this 21st day of December, 2018, by **CLINT M. BRIDGES,** who is personally known to me or has produced _____ as identification.

Rebecca Bryson

Print or Stamp Name: _____
Notary Public, State of Florida
Commission No.:
My Commission Expires:

REBECCA BRYSON
MY COMMISSION # GG 058599
EXPIRES: April 28, 2021
Bonded Thru Notary Public Underwriters

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

The foregoing instrument was acknowledged before me this 21st day of December, 2018, by **CORTNEY ROBYN KAISERMAN BRIDGES,** who is personally known to me or has produced _____ as identification.

Rebecca Bryson
Print or Stamp Name: _____
Notary Public, State of Florida
Commission No.:
My Commission Expires:

REBECCA BRYSON
MY COMMISSION # GG 058599
EXPIRES: April 28, 2021
Bonded Thru Notary Public Underwriters

(Owner(s) of Lot 25, FLAMINGO ROAD ESTATES)

IN WITNESS WHEREOF, the Grantor has caused this Quit Claim Deed to be executed in their name the day and year first above written.

Signed, sealed and delivered in the presence of:

Witness Signature

Mara C Pierce
Print Name of Witness

Witness Signature

Ericka Gutierrez
Print Name of Witness

AZIZ U. BHULLAR
1450 SW 126th Avenue, Davie, FL 33325

Witness Signature

Mara C Pierce
Print Name of Witness

Witness Signature

Ericka Gutierrez
Print Name of Witness

SHAZIA BHULLAR
1450 SW 126th Avenue, Davie, FL 33325

STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

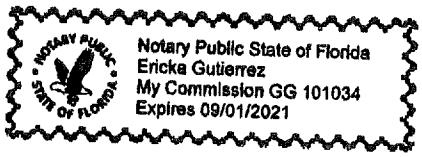
The foregoing instrument was acknowledged before me this 15 day of January, 2019, by **AZIZ U. BHULLAR,** who is personally known to me or has produced _____ as identification.

Print or Stamp Name: _____
Notary Public, State of Florida
Commission No.:
My Commission Expires:

Notary Public State of Florida
Ericka Gutierrez
My Commission GG 101034
Expires 09/01/2021

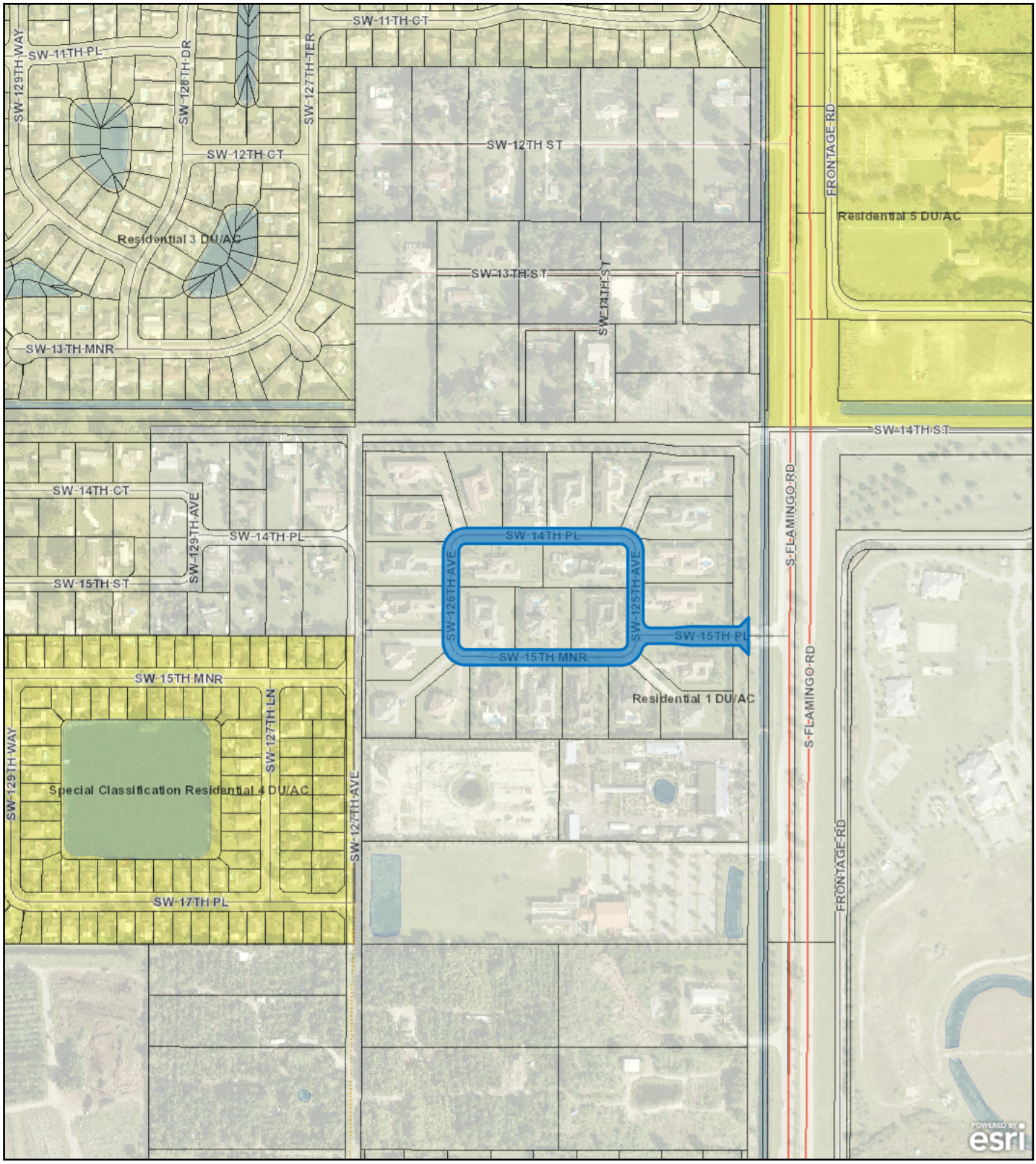
STATE OF FLORIDA)
) SS:
COUNTY OF BROWARD)

The foregoing instrument was acknowledged before me this 15 day of January, 2019, by **SHAZKIA BHULLAR,** who is personally known to me or has produced _____ as identification.



Print or Stamp Name: _____
Notary Public, State of Florida
Commission No.:
My Commission Expires:

Land Use Map



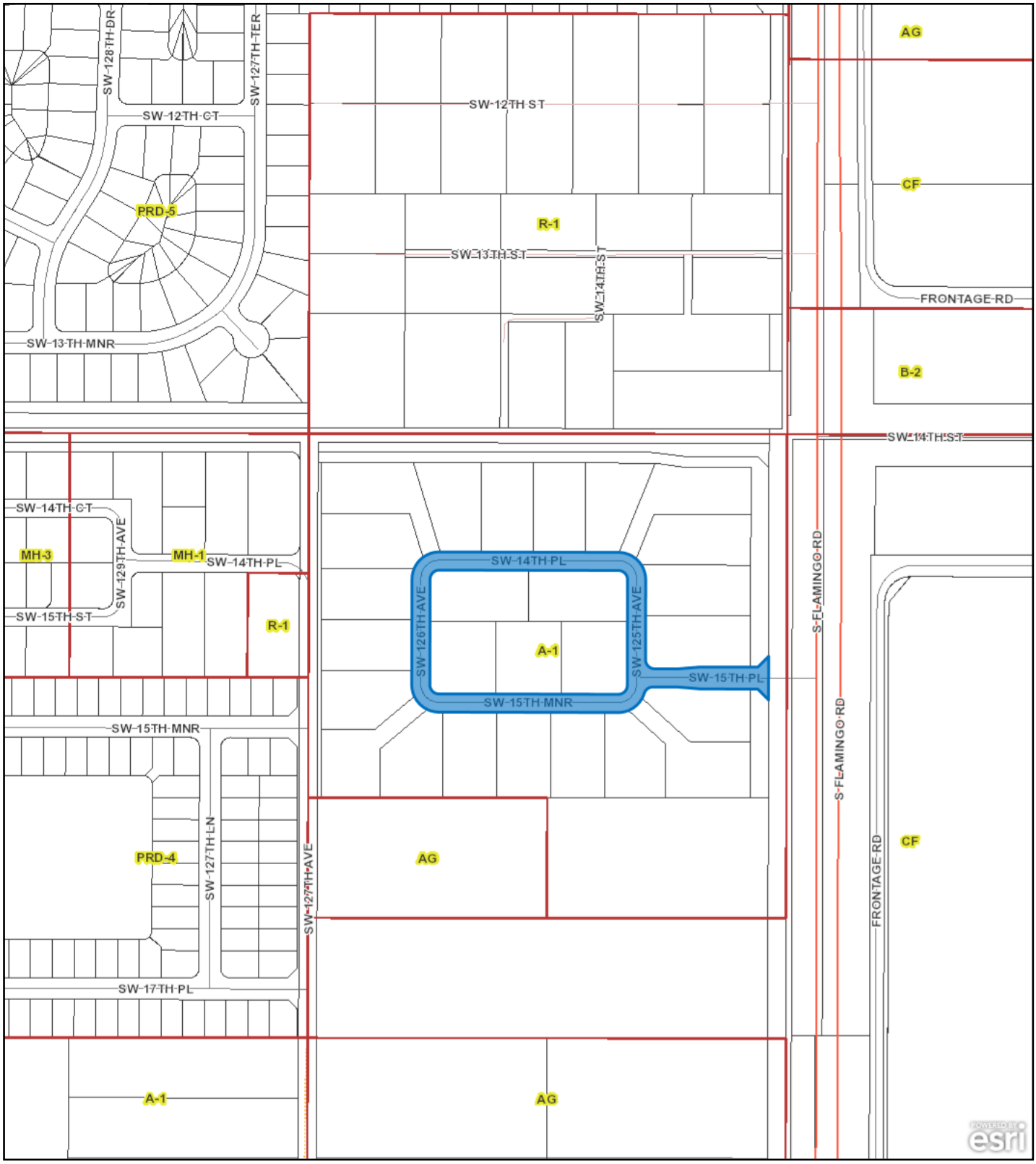
498 ft

GIS MAP DISCLAIMER

The information on this map is for graphical purposes only. It does not represent a legal survey and has not been prepared or is it suitable for legal, engineering, or surveying purposes. While every effort has been made to ensure that these data are accurate and reliable the Town of Davie cannot assume liability for any damages caused by any errors or omissions in the data.

Powered by VANTAGEPOINTS

Zoning Map



426 ft

GIS MAP DISCLAIMER

The information on this map is for graphical purposes only. It does not represent a legal survey and has not been prepared or is it suitable for legal, engineering, or surveying purposes. While every effort has been made to ensure that these data are accurate and reliable the Town of Davie cannot assume liability for any damages caused by any errors or omissions in the data.

Powered by VANTAGEPOINTS

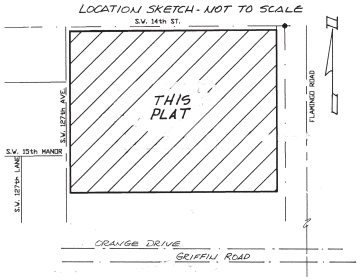
THIS INSTRUMENT PREPARED BY:
PILLAR CONSULTANTS, INC.
Consulting Engineers, Planners, Surveyors, Construction Management, General Contracting
5400 S. University Drive – Suite 101
Davie, Florida 33328

JOB #02021
OCTOBER, 2002

FLAMINGO ROAD ESTATES

A REPLAT OF TRACTS 129, 130, 131, 142, 143, 144 OF "UNIT'E'-FLAMINGO GROVES", SECTION 14, TOWNSHIP 50 SOUTH, RANGE 40 EAST, (P.B. 15, PG. 5, B.C.R.), LYING IN THE TOWN OF DAVIE, BROWARD COUNTY, FLORIDA.

LOCATION SKETCH - NOT TO SCALE



CFN # 105495832,
Page1 of 3
Recorded 11/03/2005 at 01:58 PM

DEDICATION:

STATE OF FLORDA
COUNTY OF BROWARD } SS

KNOW ALL MEN BY THESE PRESENTS: THAT LOWELL AT PROVENCE, INC., OWNER OF THE LAND DESCRIBED AND SHOWN HEREON AS "FLAMINGO ROAD ESTATES" A REPLAT, HAS CAUSED SAID LANDS TO BE SURVEYED AND PLATTED IN THE MANNER SHOWN HEREON, AND DO HEREBY DEDICATE AS FOLLOWS:

IN WITNESS WHEREOF: S. LAWRENCE KAHN III HAS CAUSED THESE PRESENTS TO BE SET THIS 3RD DAY OF MAY, 2005

WITNESS - ALBERT COHEN

WITNESS - STEPHEN K. SEELEY

BY: S. LAWRENCE KAHN III, PRESIDENT
LOWELL AT PROVENCE, INC.

1. UTILITY EASEMENTS SHOWN HEREON ARE HEREBY DEDICATED FOR PERPETUAL USE OF THE PUBLIC FOR PROPER PURPOSES.
2. THE DRAINAGE EASEMENTS AS SHOWN ARE FOR THE CONSTRUCTION AND MAINTENANCE OF DRAINAGE SYSTEMS. SAID EASEMENTS ARE HEREBY DEDICATED IN PERPETUITY TO THE CENTRAL BROWARD WATER CONTROL DISTRICT. SAID EASEMENTS ARE THE PERPETUAL MAINTENANCE OBLIGATION OF THE LOT OWNER(S), ITS SUCCESSORS OR ASSIGNS.
3. PARCEL 'E' IS HEREBY DEDICATED TO HOMEOWNERS ASSOCIATION AND IS THE PURPETUAL MAINTENANCE OBLIGATION OF SAID HOMEOWNERS ASSOCIATION.
4. PARCELS 'A' 'B' AND 'C' AND ROAD RIGHTS-OF-WAY ARE HEREBY DEDICATED TO THE TOWN OF DAVIE.
5. THE CROSS ACCESS EASEMENTS SHOWN HEREON ARE HEREBY DEDICATED FOR THE PERPETUAL USE OF THE OWNERS OF LOTS 3, 4, 5, 8, 9, 10, 19, 20 AND 21 FOR PROPER PURPOSES. SAID CROSS ACCESS EASEMENTS ARE THE PERPETUAL MAINTENANCE OBLIGATION OF THE AFOREMENTIONED LOT OWNERS.
6. THE 12 FOOT RECREATIONAL TRAIL EASEMENT SHOWN HEREON IS HEREBY DEDICATED TO THE TOWN OF DAVIE.

ACKNOWLEDGMENT:

STATE OF FLORIDA
COUNTY OF BROWARD } SS

I HEREBY CERTIFY THAT ON THIS 3RD DAY OF MAY, 2005 PERSONALLY APPEARED BEFORE ME, AN OFFICER DULY AUTHORIZED TO ADMINISTER OATHS AND TAKE ACKNOWLEDGEMENTS, S. LAWRENCE KAHN III, PRESIDENT OF LOWELL AT PROVENCE, INC. WHO IS PERSONALLY KNOWN TO ME OR WHO PRODUCED _____ AS IDENTIFICATION, AND WHO EXECUTED THE FOREGOING INSTRUMENT AND ACKNOWLEDGED THE EXECUTION THEREOF TO BE HIS FREE ACT AND DEED AS SUCH OFFICER FOR THE PURPOSE HEREIN EXPRESSED.

My commission expires _____
Commission No. _____

BY: _____
Notary Public – State of Florida
Print Name H. Alfonso

CENTRAL BROWARD WATER CONTROL DISTRICT:

THIS IS TO CERTIFY THAT THIS PLAT IS HERBY APPROVED AND ACCEPTED BY THE CENTRAL BROWARD DRAINAGE DISTRICT THIS 7th day of Jan, 2005 PRIOR TO DEVELOPMENT OF THIS PROPERTY, OWNER SHALL CONTACT THE CENTRAL BROWARD DRAINAGE DISTRICT FOR DETERMINATION OF ADDITIONAL DRAINAGE/FLOWAGE/LAKE/CANAL EASEMENTS AND/OR OTHER DEDICATIONS WHICH MAY BE REQUIRED BY THE CENTRAL BROWARD DRAINAGE DISTRICT FOR DRAINAGE PURPOSES.

THIS PLAT WAS APPROVED BY THE CENTRAL BROWARD DRAINAGE DISTRICT ON THE FOLLOWING DATES:

BY: _____ 7-7-04
CHAIRPERSON DATE

BY: _____ 10-18-04
DISTRICT MANAGER/SECRETARY DATE

PLANNING AND ZONING BOARD:

THIS IS TO CERETIFY THAT THE PLANNING AND ZONING BOARD OF THE TOWN OF DAVIE HAS APPROVED AND ACCEPTED THIS PLAT THIS 5th DAY OF January, 2005

BY: _____
CHAIRPERSON

TOWN COUNCIL:

TTHIS IS TO CERTIFY THAT THIS PLAT WAS APPROVED AND ACCEPTED BY THE TOWN COUNCIL OF DAVIE BY SAID RESOLUTION ADOPTED THIS 5th DAY OF January, 2005

NO BUILDING PERMITS SHALL BE ISSUED FOR THE CONSTRUCTION, EXPANSION AND/OR CONVERSION OF A BUILDING WITHIN THIS PLAT UNTIL SUCH TIME AS THE DEVELOPER PROVIDES THIS MUNICIPALITY WITH WRITTEN CONFIRMATION FROM BROWARD COUNTY THAT ALL APPLICABLE IMPACT FEES HAVE BEEN PAID OR ARE NOT DUE.

ATTEST: _____
TOWN CLERK

BY: _____
MAYOR

LEGAL DESCRIPTION:

TRACTS 129, 130, 131, 142, 143 AND 144 OF UNIT'E'-FLAMINGO GROVES SECTION 14, TOWNSHIP 50 RANGE 40 EAST, ACCORDING TO THE PLAT THEREOF RECORDED IN PLAT BOOK 15, PAGE 5, OF THE PUBLIC RECORDS OF BROWARD COUNTY, FLORIDA.
SAID LANDS SITUATED IN THE TOWN OF DAVIE, BROWARD COUNTY, FLORIDA.
CONTAINING 27.87 ACRES, MORE OR LESS.

BROWARD COUNTY DEPARTMENT OF URBAN PLANNING AND REDEVELOPMENT

THIS PLAT IS HEREBY APPROVED AND ACCEPTED FOR RECORD.

BY: _____
DIRECTOR/DESIGNEE

DATE 10-31-05

BROWARD COUNTY PLANNING COUNCIL:

THIS IS TO CERTIFY THAT THE BROWARD COUNTY PLANNING COUNCIL APPROVED THIS PLAT SUBJECT TO ITS COMPLIANCE WITH DEDICATION OF RIGHT-OF-WAYFOR TRAFFIC WAYS THIS 28 DAY OF October, 2004

BY: _____
CHAIRPERSON

DATE

THIS PLAT COMPLIES WITH THE APPROVAL OF BROWARD COUNTY PLANNING COUNCIL OF THE ABOVE DATE AND IS APPROVED AND ACCEPTED FOR RECORD THIS 31 DAY OF OCTOBER, 2005

BY: _____ 10/31/05
EXECUTIVE DIRECTOR OR DESIGNEE DATE

BROWARD COUNTY HIGHWAY CONSTRUCTION AND ENGINEERING DIVISION:

THIS PLAT IS APPROVED AND ACCEPTED FOR RECORD.

BY: _____ 10/25/2005
ROBERT R. LEGG JR. DATE
PROFESSIONAL SURVEYOR AND MAPPER
STATE OF FLORIDA REGISTRATION NUMBER LS #4405

BY: _____ 10-20-05
HENRY P. COOK DATE
DIRECTOR OF ENGINEERING
REGISTERED PROFESSIONAL ENGINEER #12506
STATE OF FLORIDA

BROWARD COUNTY FINANCE & ADMINISTRATIVE SERVICES DEPARTMENT COUNTY RECORDS DIVISION – RECORDING SECTION:

THIS INSTRUMENT WAS FILED FOR RECORD THIS 3rd DAY OF November, 2005 AND RECORDED IN PLAT BOOK 175, AT PAGE 65, RECORD VERIFIED.

ATTEST: BERTHA HENRY
INTERIM COUNTY ADMINISTRATOR

BY: _____
DEPUTY

COUNTY COMMISSIONERS CREATED OCT. 1ST 1915 BROWARD COUNTY, FLORIDA

BROWARD COUNTY FINANCE & ADMINISTRATIVE SERVICES DEPARTMENT COUNTY RECORDS DIVISION – MINUTES SECTION:

THIS IS TOCERTIFY THAT THIS PLAT COMPLIES WITH THE PROVISIONS OF CHAPTER 177, FLORIDA STATUTES, AND WAS ACCEPTED FOR RECORD BY THE BOARD OF COUNTY COMMISSIONERS OF BROWARD COUNTY, FLORIDA, THIS 1st DAY OF March, 2006

ATTEST: BERTHA HENRY
INTERIM COUNTY ADMINISTRATOR

BY: _____
DEPUTY

BY: _____
MAYOR – COUNTY COMMISSION

SURVEYOR'S CERTIFICATION:

THIS IS TO CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE PLAT SHOWN HEREON IS A TRUE AND CORRECT REPRESENATION OF THE LANDS SURVEYED, THAT PERMANENT REFERENCE MONUMENTS (P.R.M.'s) HAVE BEEN SET AS INDICATED HEREON; THAT THE SURVEY WAS PREPARED UNDER MY RESPONSIBLE DIRECTION AND SUPERVISION, AND THAT THE SURVEY DATA COMPLIES WITH ALL THE SURVEY REQUIREMENTS OF FLORIDA STATUTES, CHAPTER 177, PART 1, AND APPLICABLE SECTIONS OF CHAPTER 61G17-6, AS SET FORTH BY THE FLORIDA BOARD OF PROFESSIONAL LAND SURVEYORS AND MAPPERS IN CHAPTER 61G17-6, FLORIDA ADMINISTRATIVE CODE, PUSUANT TO SECTION 472.027, FLORIDA STATUTES.

BENCHMARK ELEVATIONS SHOWN HEREON ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM (N.G.V.D.) OF 1929 ESTABLISHED IN CONFORMITY WITH THE STANDARDS AS ESTABLISHED BY THE NATIONAL OCEAN SURVEY FOR THIRD ORDER VERTICAL CONTROL.
THE PERMANENT CONTROL POINTS (P.C.P.s) WILL BE SET WITHIN ONE YEAR OF THE DATE THIS PLAT IS RECORDED OR PRIOR TO THE EXPIRATION OF THE BOND OR OTHER SURETY INSURING CONSTRUCTION OF THE REQUIRED SUBDIVISION IMPROVEMENTS.

PILLAR CONSULTANTS, INC
5400 SOUTH UNIVERSITY DRIVE – SUITE 101
DAVIE, FLORIDA 33328
CERTIFICATION OF AUTHORIZATION #LB 7024

DATED 12/2/04 BY: _____
STEPHEN K. SEELEY
PROFESSIONAL SURVEYOR AND MAPPER #4574
STATE OF FLORIDA

CORPORATE SEAL	CITY ENGINEER	COUNTY SURVEYOR	COUNTY ENGINEER	COUNTY COMMISSION	SURVEYOR

THIS INSTRUMENT PREPARED BY:
PILLAR CONSULTANTS, INC.
Consulting Engineers, Planners, Surveyors, Construction Management, General Contracting
5400 S. University Drive – Suite 101
Davie, Florida 33328

JOB #02045
OCTOBER, 2002

FLAMINGO ROAD ESTATES

CFN #105495832
Page2 of 3

TRACTS 129, 130, 131, 142, 143, 144 OF "FLAMINGO GROVES UNIT E", SECTION 14, TOWNSHIP 50 SOUTH, RANGE 40 EAST, (P.B. 15, PG 5, B.C.R.), LYING IN THE TOWN OF DAVIE, BROWARD COUNTY, FLORIDA.

DEDICATION BY MORTGAGEE:

STATE OF OHIO
COUNTY OF CUYAHOGA } SS

KNOW ALL MEN BY THESE PRESENTS: THAT OHIO SAVINGS BANK HEREBY CERTIFIES THAT IT IS THE HOLDER OF A MORTGAGE UPON THE PROPERTY DESCRIBED HEREON AND DOES HEREBY JOIN IN AND CONSENT TO THE DEDICATION OF THE LANDS HEREON DESCRIBED IN SAID DEDICATION AND AGREES THAT ITS MORTGAGE WHICH IS RECORDED IN OFFICIAL RECORDS BOOK _____ PAGE _____, OF THE PUBLIC RECORDS OF BROWARD COUNTY, FLORIDA, SHALL BE SUBORDINATED TO THE DEDICATION SHOWN HEREON.

IN WITNESS WHEREOF: Steven S. Swartz AS Vice President OF OHIO SAVINGS BANK HAS CAUSED THESE PRESENTS TO BE SIGNED THIS 26th DAY OF April, 2005.

WITNESS
WITNESS

BY: Steven S. Swartz, Vice President
ATTEST: Donald E. Miehls, Asst. Secretary

ACKNOWLEDGMENT:

STATE OF ~~FLORIDA~~ OHIO
COUNTY OF ~~BROWARD~~ CUYAHOGA } SS

THE FORGOING INSTRUMENT WAS ACKNOWLEDGED BEFORE ME THIS 26th DAY OF April, 2005 BY Steven S. Swartz AS Vice President OF OHIO SAVINGS BANK, WHO IS PERSONALLY KNOWN TO ME AND DID NOT TAKE AN OATH.

MY COMMISSION EXPIRES
COMMISSION NO. January 26, 2010

BY: _____
NOTARY PUBLIC – STATE OF ~~FLORIDA~~ OHIO

PRINT NAME Sharlyna K. Mc Queen

TOWN OF DAVIE
PLANNING & ZONING DIVISION
6591 ORANGE DRIVE • DAVIE, FLORIDA 33314-3399
Phone: 954.797.1103 • www.davie-fl.gov

PLANNING REPORT

Project Type Number and Name
ZB20-129 The Edge

Application	
Petitioner/Representative	Walsh Properties, Inc. / Richard Coker, Esq.
Owner	Saber Griffin Two LLC
Project Planner	Matthew Coyle
Date of Report	August 26, 2020
Date of Public Participation	July 31, 2020 (completed via online presentation)
Date of Public Notification	August 25, 2020
Date of Board Review	September 8, 2020
Date of Town Council Review	October 7, 2020

Location/Site	
Folio/Identification Number	504136010040
Address (General Location)	4815 S State Road 7
Nearest North/South Road	State Road 7 (441)
Nearest East/West Road	Griffin Road
Size (Approx. Acres)	7.45 acres
Existing Use	Shopping Center
Future Land Use	Transit Oriented Corridor
Zoning	Griffin Corridor State Road 7 Node (SR7N)
Council District	District 1
Redevelopment Area	Community Redevelopment Agency (CRA)
Overlay District	N/A
Design Regulation	N/A
Flexibility Zone	81
Planning Area	6
Right-of-way Acquisition	N/A
Utilities Provider	Broward County Utilities
Drainage District	Central Broward Water Control District (CBWCD)
Nearby Equestrian Trail	N/A
Nearby Recreational Trail	N/A
Nearby Park	Sunny Lake Bird Sanctuary
Nearby Bus Route	Route 18 (State Road 7) and Route 15 (Airport Tri-Rail Station)

Key Points

- The request is to rezone the subject property from Griffin Corridor State Road 7 Node (SR7N) to Transit Oriented Corridor – South (TOC-S) District.
- On March 4, 2020 the Town Council amended the Land Development Regulations to include Division 12 Transit Oriented Corridor District.

- The Division is specifically intended to encourage the redevelopment of lands designated as Transit Oriented Corridor on the Future Land Use Map.
- Pursuant to Section 12-440C.2. the TOC-S zoning district is the only district this property could be rezoned to.
- The rezoning application includes a conceptual master plan that depicts a mixed-used residential and commercial development with 735 residential dwelling units with a wide range of amenities and 23,000 square feet of commercial retail uses. The master plan depicts two 8-story buildings that connect to an 8-story parking garage.
- Aside from the proposed rezoning, a site plan and possibly other applications will be required to redevelop the property. A formal site plan application has not yet been submitted.
- The applicant has satisfied the public participation requirements (see attached).

History

1. Related Zoning Information:
    - On September 7, 2005 the Town Council approved the SR7/441 Corridor Master Plan adopted a master plan for the TOC area.
    - On August 19, 2009 the Town Council amended the Comprehensive Plan to add the Land Use designation Transit Oriented Corridor and changed the Future Land Use Map of certain lands to Transit Oriented Corridor.
    - On March 4, 2020 the Town Council amended the Land Development Regulations to include Division 12 Transit Oriented Corridor District.
2. Previous Requests: N/A
3. Concurrent Request(s): N/A

Analysis

The following information is staff's analysis based on the criteria established in the Town of Davie's, Land Development Code, Section 12-307(A)(1) for rezoning application. The Planning and Zoning Board shall make a recommendation upon the application to the Town Council, based upon its consideration of, where applicable, whether or not:

(a) The proposed change is contrary to the adopted comprehensive plan, as amended, or any element or portion thereof;
The proposed rezoning would be consistent with the existing land use designation of Transit Oriented Corridor and with the Comprehensive Plan.

(b) The proposed change would create an isolated zoning district unrelated and incompatible with adjacent and nearby districts;
Based on the Comprehensive Plan and Transit Oriented Corridor Land Development Regulations this property can only be rezoned to Transit Oriented Corridor – South (TOC-S) as the applicant has proposed. The proposed change would not create an isolated zoning district unrelated and incompatible with adjacent and nearby districts. The Town expects other properties to rezone to the TOC-S district over time.

(c) Existing zoning district boundaries are illogically drawn in relation to existing conditions on the property proposed for change;

The existing zoning district boundaries are logically drawn but existing conditions have changed. The Town has developed new TOC zoning districts to encourage the redevelopment of lands designated as Transit Oriented Corridor on the Future Land Use Map.

(d) The proposed change will adversely affect living conditions in the neighborhood;
The TOC land use and zoning districts provide a mix of land uses, density, and design flexibility that is intended to encourage the creation of an environment that will promote and support transit and pedestrian usage, create a sense of place and capture the corridor's economic potential. The proposed change is not anticipated to adversely affect living conditions in the neighborhood.

(e) The proposed change will create or excessively increase automobile and vehicular traffic congestion, above that which would be anticipated with permitted intensities or densities of the underlying land use plan designation, or otherwise affect public safety;
The proposed change is not anticipated to increase automobile and vehicular traffic congestion, above the which would be anticipated permitted intensities or densities of the underlying land use plan designation. The Transit Oriented Corridor (TOC) land use designation was established to facilitate mixed use development and support transit and pedestrian activity with access to transit stations or stops along existing and planned high performance transit service corridors such as the Broward County Transit 441 Breeze route. This property can be accessed from two major roadways and high performance transit service along State Road 7/441.

(f) The proposed change will adversely affect other property values;
The proposed rezoning is consistent with the governing land use of Transit Oriented Corridor and is not expected to negatively affect property values in the area.

(g) The proposed change will be a deterrent to the improvement or development of other property in accord with existing regulations;
The TOC zoning districts were recently adopted to be a catalyst for redevelopment in the Transit Oriented Corridor. The proposed change is not expected to be a deterrent to the improvement or development of other property.

(h) The proposed change will constitute a grant of special privilege to an individual owner as contrasted with the welfare of the general public;
The proposal is not considered a special privilege because is the TOC-S district is consistent with the Transit Oriented Corridor land use designation.

(i) There are substantial reasons why the property cannot be used in accord with existing zoning.
The property is currently zoned Griffin Corridor State Road 7 Node and could be redeveloped following those regulations. However, the TOC zoning code discourages landowners from making significant improvements which would be inconsistent with TOC zoning.

(j) The proposed rezoning designation is the most appropriate designation to enhance the Town's tax base given the site's location relative to the pattern of land use designations established on the future land use plan map, appropriate land use planning practice, and comprehensive plan policies directing land use location.
The proposed rezoning designation is the most appropriate designation to enhance the Town's tax base. The TOC zoning districts were adopted to provide a catalyst to redevelopment for properties in the Transit Oriented Corridor (TOC) land use designation.

Recommendations
Staff finds the application complete and suitable for further review.

Attachments
1. Petitioner Documentation
2. Related Maps
3. Public Participation Documents
4. Noticing Information

Law Offices
COKER & FEINER
1404 South Andrews Avenue
Fort Lauderdale, FL 33316-1840

Telephone: (954) 761-3636
Facsimile: (954) 761-1818

Richard G. Coker, Jr., P.A.
Rod A. Feiner
Kathryn R. Coker

rgcoker@coker-feiner.com
rafeiner@coker-feiner.com
krcoker@coker-feiner.com

July 14, 2020

THE EDGE AT DAVIE

PROJECT NARRATIVE AND REZONING CRITERIA LETTER

Property Description and Location.

The property to be rezoned is a 7.4575 acres parcel of land located on the southwest corner of Griffin Road and State Road 7. It currently is developed as a BrandsMart anchored shopping center of approximately 79,500 square feet known as Broward Plaza. The property is abutting the Driftwood Acres mobile home park on the west and is approximately 1,800 feet north of the Seminole Hard Rock Casino and the Guitar Hotel.

Existing and Proposed Zoning.

The property is currently zoned Griffin Corridor District (SR). The property is within the TOC land use district and is proposed to be rezoned to the TOC-S zoning district. The rezoning of the property is in accordance with and contemplated by the comprehensive plan.

The Edge at Davie Project Summary.

The current application is for the rezoning of the property but the developer has prepared preliminary plans for review by the Town. The proposed project will be a mixed-use residential and commercial development consisting of the following:

- 735 Residential Dwelling Units consisting of 156 studio units, 347 one-bedroom units, 210 two-bedroom units and 22 three-bedroom units.
- Approximately 23,000 sf of Retail/service uses.

- The residential units will be developed in two eight story buildings that each connect to an 8 story parking garage.
- The retail/service space is integrated into the residential buildings and pedestrian friendly open spaces.
- The project is planned to be built in two phases with approximately one-half of the residential units and one half the parking garage, along with the bulk of the retail/service space, to be built in phase 1 and the balance to be built in phase 2.
- Each residential building will have a wide array of amenities including club houses, pools, gyms and meeting rooms.

The Edge at Davie is designed to meet the needs of the modern workforce with an emphasis on quality development, first-class amenities and affordability in a centrally located area close to employment opportunities as well as entertainment venues.

Rezoning Criteria. (Section 12-307(A)(1)):

a. The proposed change is contrary to the adopted comprehensive plan, as amended, or any element or portion thereof;

The proposed change is consistent with the comprehensive plan. The new proposed zoning district was developed by the Town to be consistent with the comprehensive plan and to be applied to the property.

b. The proposed change would create an isolated zoning district unrelated and incompatible with adjacent and nearby districts;

The proposed change will help create an integrated and well-designed zoning scheme consistent with the TOC land use district.

c. Existing zoning district boundaries are illogically drawn in relation to existing conditions on the property proposed for change;

The existing zoning district is outdated and meant to be replaced with the proposed zoning district when properties are developed.

d. The proposed change will adversely affect living conditions in the neighborhood;

There will be no adverse impact on the adjacent properties. Adjacent properties will be benefited by the rezoning and the development of the property in a manner consistent with and contemplated by the comprehensive plan.

e. The proposed change will create or excessively increase automobile and vehicular traffic congestion, above that which would be anticipated with permitted intensities or densities of the underlying land use plan designation, or otherwise affect public safety;

The property is located at the intersection of two major transportation corridors and the vehicular access to and from the property will be onto these major corridors with no access onto or through any adjoining properties or neighborhoods. The vehicular access will be evaluated during the site plan and plat review process and the project will meet all requirements of Broward County and FDOT.

f. The proposed change will adversely affect other property values;

The proposed change is anticipated to have a positive affect on surrounding property values. The proposed development will replace a old shopping center with new residential and retail development which will attract similar development in the area.

g. The proposed change will be a deterrent to the improvement or development of other property in accord with existing regulations;

The proposed change will be a catalyst for future quality development consistent with the TOC land use designation.

h. The proposed change will constitute a grant of special privilege to an individual owner as contrasted with the welfare of the general public;

No special privilege will be granted to the applicant in that the property is being rezoning to be consistent with the comprehensive plan.

i. There are substantial reasons why the property cannot be used in accord with existing zoning;

It is contemplated in the comprehensive plan that this property will be rezoned to the TOC-S zoning district.

j. The proposed zoning designation is the most appropriate designation to enhance the town's tax base given the site location relative to the pattern of land use designations established on the

future land use plan map, appropriate land use planning practice, and comprehensive plan policies directing land use location.

The proposed zoning district is the district most appropriate for the property as provided in the comprehensive plan.

k. Any such application for open space design shall be evaluated and approved based upon the criteria listed above and the following criteria:

i. How the proposed development contributes towards the creation of a network of open space and promotes accessibility from residential areas to green space;

ii. How the proposed development locates the required open space to benefit both the development and the community of Davie.

iii. How the proposed development addresses the long-term maintenance of proposed open space, landscape and nature conservation areas.

Not Applicable

Very truly yours,

RICHARD G. COKER, JR.
For the Firm

The School Board of Broward County, Florida

SCHOOL CONSISTENCY REVIEW REPORT

REZONING
SBBC-2894-2020
County No: N/A
The Edge at Davie

July 22, 2020

Growth Management
Facility Planning and Real Estate Department
600 SE 3rd Avenue, 8th Floor
Fort Lauderdale, Florida 33301
Tel: (754) 321-2177 Fax: (754) 321-2179
www.browardschools.com

SCHOOL CONSISTENCY REVIEW REPORT - REZONING

PROJECT INFORMATION	
Date:	July 22, 2020
Name:	The Edge at Davie
SBBC Project Number:	SBBC-2894-2020
County Project Number:	N/A
Municipality Project Number:	TBD
Owner/Developer:	Saber Griffin Two LLC
Jurisdiction:	Davie

IMPACT OF PROPOSED CHANGE			
Units Permitted	0	Units Proposed	735
NET CHANGE (UNITS):			735

Students	Permitted	Proposed	NET CHANGE
Elem	0	10	10
Mid	0	5	5
High	0	7	7
Total	0	22	22

PROPERTY INFORMATION	
Existing Land Use:	TOC
Proposed Land Use:	TOC
Current Zoning	Griffin Corridor (SR)
Proposed Zoning:	TOC-5
Section:	36
Township:	50
Range:	41

SHORT RANGE - 5-YEAR IMPACT

Currently Assigned Schools	Gross Capacity	LOS* Capacity	Benchmark** Enrollment	Over/Under LOS	Classroom Equivalent Needed to Meet LOS	% of LOS*** Capacity
Driftwood Elementary	758	758	601	-157	-6	79.3%
Driftwood Middle	1,729	1,837	1,395	-441	-20	75.9%
Hollywood Hills High	2,667	2,667	1,967	-699	-30	73.8%

Currently Assigned Schools	Adjusted Benchmark	Over/Under LOS-Adj. Benchmark Enrollment	% LOS Capacity Adjusted Benchmark	Projected Enrollment				
				20/21	21/22	22/23	23/24	24/25
Driftwood Elementary	601	-157	79.3%	601	598	596	593	591
Driftwood Middle	1,396	-441	76.0%	1,381	1,372	1,363	1,354	1,345
Hollywood Hills High	1,968	-699	73.8%	1,935	1,923	1,912	1,900	1,889

Students generated are based on the student generation rates contained in the currently adopted Broward County Land Development Code.
A traditional cohort survival methodology is used to project school-by-school District traditional school enrollment out over the next five years, and a proportional share of charter school enrollment is used to project future charter school enrollment by school level Districtwide. For more information: http://www.broward.k12.fl.us/dsa/EnrollmentProj.shtml. The annual benchmark enrollment is used to apply individual charter school enrollment impacts against school facility review processes.
* This number already represents the higher of 100% gross capacity or 110% permanent capacity. ** The first Monday following Labor Day. *** Greater than 100% represents above the adopted Level Of Service (LOS)
INFORMATION CONTAINED HEREIN IS CURRENT AS OF THE DATE OF REVIEW

LONG RANGE - TEN-YEAR IMPACT

Impacted Planning Area	School District's Planning Area Data			Aggregate Projected Enrollment				
	Aggregate School Capacity	Aggregate Enrollment	Aggregate Over/(Under) Enrollment	24/25	25/26	26/27	27/28	28/29
Area G - Elementary	17,938	13,977	-3,961	15,194	15,349	15,505	15,660	15,816
Area G - Middle	6,942	5,110	-1,832	5,544	5,544	5,543	5,543	5,542
Area G - High	9,107	7,554	-1,553	8,052	8,092	8,133	8,173	8,214

CHARTER SCHOOL INFORMATION

Charter Schools within 2-mile radius	2019-20 Contract Permanent Capacity	2019-20 Benchmark** Enrollment	Over/(Under)	Projected Enrollment		
				20/21	21/22	22/23
Somerset Academy Davie K_5	800	152	-648	**152**	**152**	**152**

Students generated are based on the student generation rates contained in the currently adopted Broward County Land Development Code.
A traditional cohort survival methodology is used to project school-by-school District traditional school enrollment out over the next five years, and a proportional share of charter school enrollment is used to project future charter school enrollment by school level Districtwide. For more information: http://www.broward.k12.fl.us/dsa/EnrollmentProj.shtml. The annual benchmark school enrollment is used to apply individual charter school enrollment impacts against school facility review processes.

**The first Monday following Labor Day
INFORMATION CONTAINED HEREIN IS CURRENT AS OF THE DATE OF REVIEW

PLANNED AND FUNDED CAPACITY ADDITION IN THE ADOPTED DISTRICT EDUCATIONAL FACILITIES PLAN
(Years 1 - 5)

School(s)	Description of Capacity Additions
Driftwood Elementary	There are no scheduled classroom additions in the Adopted DEFP that would increase the reflected FISH capacity of the school.
Driftwood Middle	There are no scheduled classroom additions in the Adopted DEFP that would increase the reflected FISH capacity of the school.
Hollywood Hills High	There are no scheduled classroom additions in the Adopted DEFP that would increase the reflected FISH capacity of the school.

PLANNED CAPACITY ADDITION IN THE ADOPTED DISTRICT EDUCATIONAL FACILITIES PLAN
(Years 6 - 10)

Capacity Additions for Planning Area G

School Level	Comments
Elementary	None
Middle	None
High	None

INFORMATION CONTAINED HEREIN IS CURRENT AS OF THE DATE OF REVIEW

Comments

Information contained in the application indicates that the approximately 7.4575-acre site is generally located at the southwest corner of the intersection of SW 48th Street and State Road 7 in the Town of Davie. The current zoning designation for the site is Griffin Corridor (SR), which allows no residential units. The applicant proposes to change the zoning designation to TOC-S to allow 503 (one or less bedroom) and 232 (two or more bedroom) mid-rise residential units, which are anticipated to generate an additional 22 students (10 elementary, 5 middle, and 7 high) into Broward County Public Schools.

This application was reviewed based on its location in the School District's Long Range Seven Planning Areas, and Ten-Year Long Range Plan contained in the Adopted District Educational Facilities Plan (DEFP). However, the statistical data regarding the Level of Service (LOS) standard status of the actual schools impacted by this land use application in the initial five years of the ten-year period is depicted herein for informational purposes only.

Schools serving the amendment site in the 2019-20 school year are Driftwood Elementary, Driftwood Middle, and Hollywood Hills High. Based on the District's Public School Concurrency Planning Document, all the schools are operating below the adopted LOS of the higher of 100% gross capacities or 110% permanent capacities in the 2019-20 school year. Incorporating the cumulative students anticipated from approved and vested developments anticipated to be built within the next three years (2019 -20 – 2021-22), all the schools are expected to operate below the adopted LOS of the higher of 100% gross capacities or 110% permanent capacities through the 2021-22 school year. It should be noted that the school capacity or Florida Inventory of School Houses (FISH) for the impacted schools reflects compliance with the class size constitutional amendment and the permanent capacity additions that are planned for the schools within the first three years of the Five-Year Adopted DEFP, FY 2019-20 – 2023-24. In addition, to ensure maximum utilization of the impacted Concurrency Service Areas, the Board may utilize other options such as school boundary changes to accommodate students generated from developments in the County. Charter school located within a two-mile radius of the subject site in the 2019-20 school year is depicted herein.

Capital Improvements scheduled in the long-range section of the currently Adopted DEFP Fiscal Years 2019-20 – 2023-24 regarding pertinent impacted schools are depicted above. Based on the School District's Seven Long Range Planning Areas, the amendment site is located within School District Planning Area "G" and the elementary, middle, and high schools currently serving Planning Area "G" and their cumulative student enrollments, cumulative capacities, and pertinent student enrollment projections are depicted herein. Therefore, Planning Area "G" is anticipated to have sufficient excess capacity to support the students generated by the residential units proposed in the Planning Area.

Please be advised that if approved, the units from this project will be subject to a public school concurrency review at the plat, site plan (or functional equivalent) phase of development review, whichever comes first.

INFORMATION CONTAINED HEREIN IS CURRENT AS OF THE DATE OF REVIEW

The School Board of Broward County, Florida

SCHOOL CONSISTENCY REVIEW REPORT

PROJECT NUMBER: SBBC-2894-2020

Reviewed By:

July 22, 2020

Date

Signature

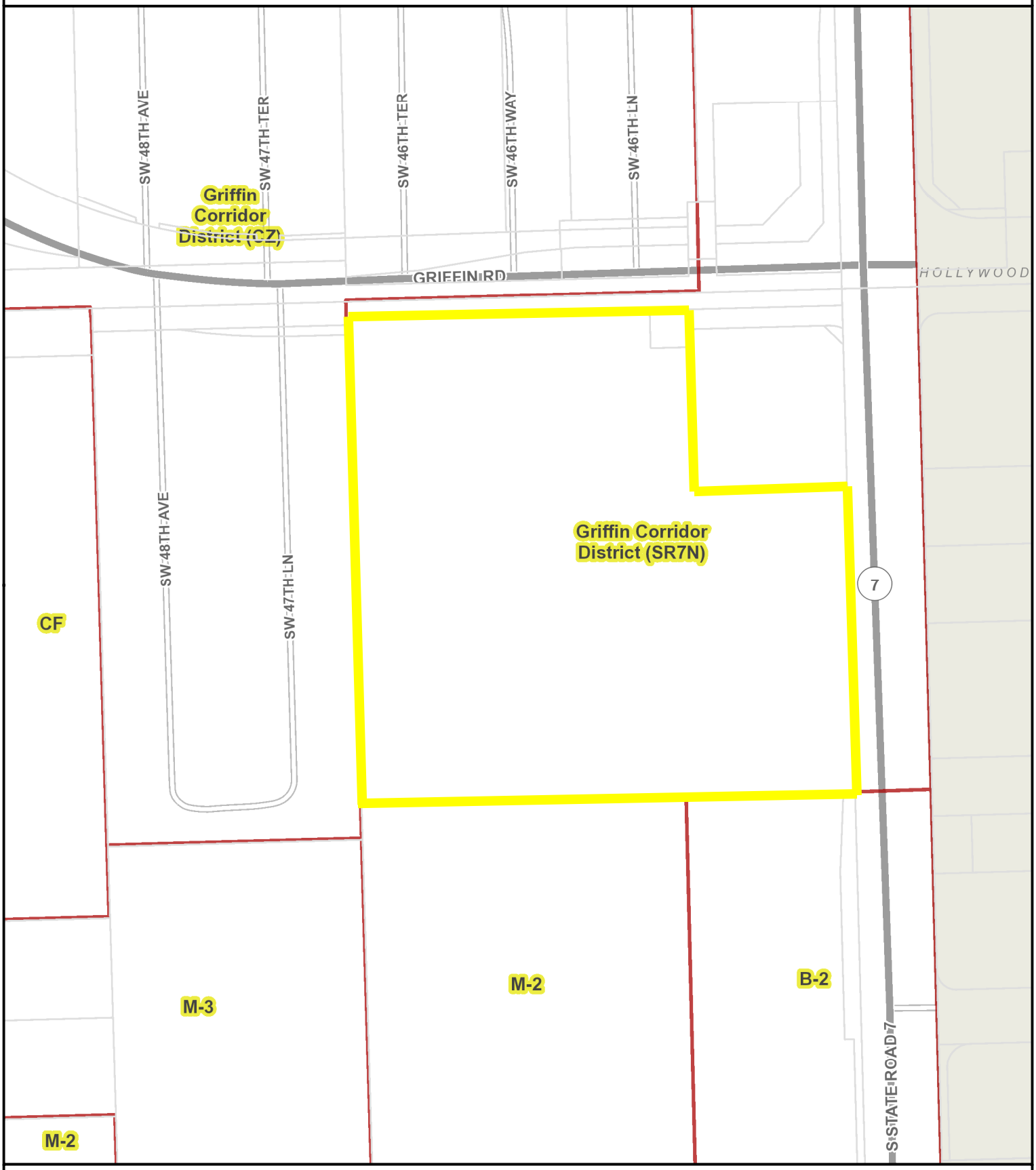
Mohammed Rasheduzzaman, AICP

Name

Planner

Title

Zoning Map

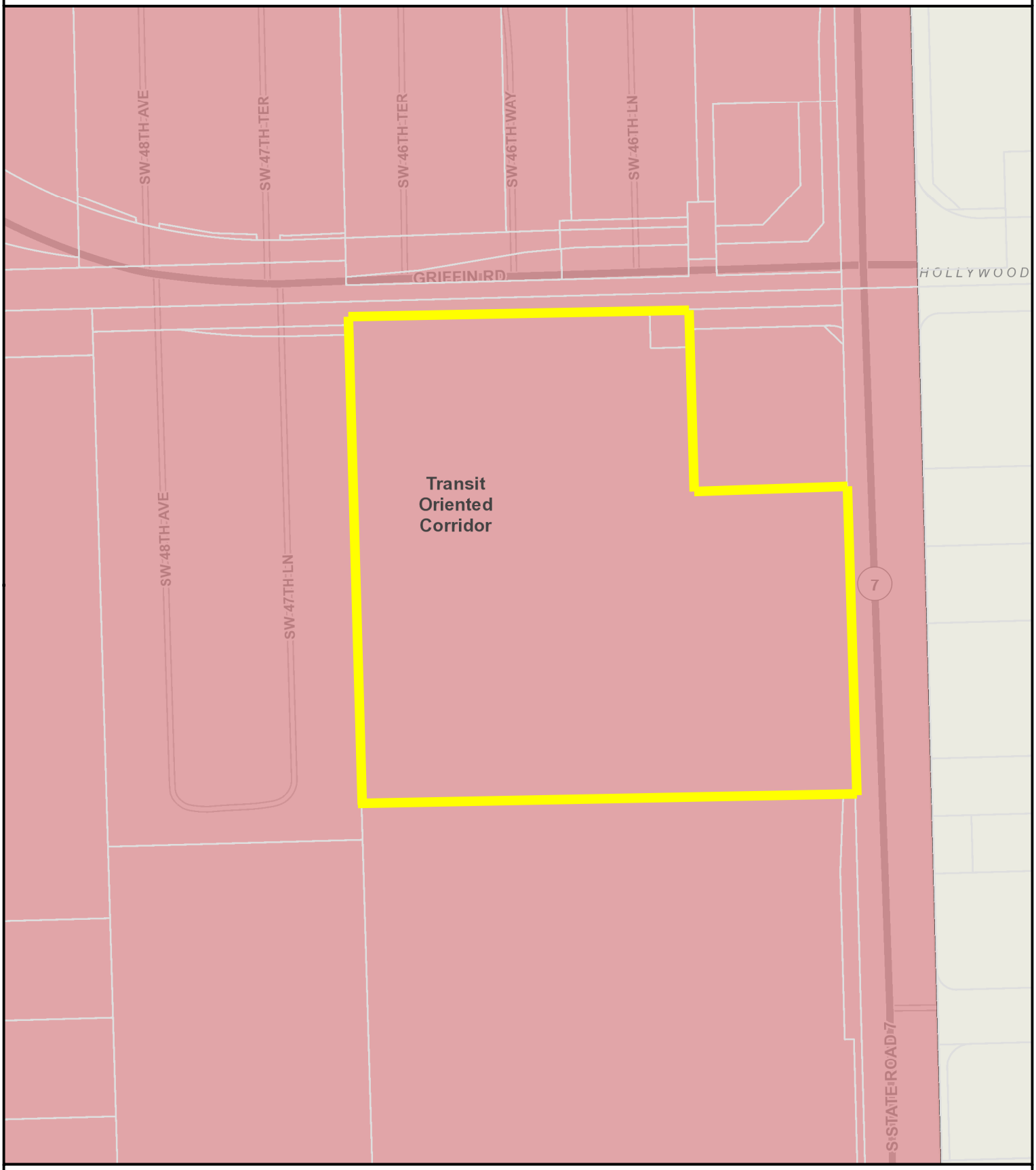


GIS MAP DISCLAIMER
The information on this map is for graphical purposes only. It does not represent a legal survey and has not been prepared or is it suitable for legal, engineering, or surveying purposes. While every effort has been made to ensure that these data are accurate and reliable the Town of Davie cannot assume liability for any damages caused by any errors or omissions in the data.

8/26/2020, 4:20:24 PM

0 0.0175 0.035 0.07 mi
0 0.03 0.06 0.12 km

Land Use Map



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0 0.0175 0.035 0.07 mi
0 0.03 0.06 0.12 km

TOWN OF DAVIE
PLANNING & ZONING DIVISION
6591 ORANGE DRIVE • DAVIE, FLORIDA 33314-3399
Phone: 954.797.1103 • www.davie-fl.gov

PUBLIC PARTICIPATION PLAN

FOR PLANNING & ZONING OFFICE USE ONLY

Project Name	**Project Number(s)**
The Edge	ZB20-129

Project Location (parcel identification numbers)

5	0	4	1	3	6	0	1	0	0	4	0		5		4									
5		4											5		4									

Project Address

4815 S State Road 7

Project Description (scope of work)

To rezone the property from Griffin Corridor State Road 7 Node (SR7N) District to Transit Oriented Corridor-South (TOC-S) District.

Basis for Requirement (check one)	
✔	Site Plan, Special Permit, Rezoning or Land Use Plan Amendment
	Plat or Plat-related Amendment (involving a substantial development entitlement not accompanied by a site plan)

Required Notifications (check all that apply)			
✔	Property Owners within 1,000 ft.	X	Town Council
✔	Addresses within 1,000 ft.	X	Town Administration
✔	Broward County Administrator	X	Sunshine Board
✔	Adjacent Municipalities: Hollywood, Dania Beach	X	Town of Davie Parks and Recreation Director
	Affected Governmental Entities:		Affected Homeowner's Associations (HOA):
	Other:		

Applicant Presentation	
✔	Presentation must be made available online on a publicly accessible website with no fee or login required. Must be available 24hrs. a day for a minimum of 21 consecutive days as outlined in the notification letter. Presentation must be close captioned.

Public Participation Report to Include	
✔	Summary of the presentation, and public comments received; identifying the actions necessary to address public comments.
✔	Copy of correspondences received by the Applicant
✔	A record of phone calls received by Applicant (date, caller, and brief summary)
✔	**The public participation process must conclude no more than one (1) year prior to a Town Council meeting.*

PUBLIC PARTICIPATION OPPORTUNITY NOTICE

Date: July 29, 2020

Re: Public Participation Opportunity Notice for: (The Edge at Davie)
Project Number: (2020-00050129)

To Whom It May Concern:

This letter is to invite you to participate in the review of a proposed rezoning application for a project known as The Edge at Davie, located at southwest corner of Griffin Road and State Road 7 with the address of 4815 South State Road 7 and the Folio Number of 504136010040. The property is 7.4575 acres in size and is currently developed as a retail center known as Broward Plaza. The property is abutting the Driftwood Acres mobile home park on the west and is approximately 1,800 feet north of the Seminole Hard Rock Casino and the Guitar Hotel.

The property is currently zoned Griffin Corridor State Road 7 Node District. The property is within the Transit Oriented Corridor land use district and is proposed to be rezoned to the TOC-S zoning district. The rezoning of the property is in accordance with and contemplated by the comprehensive plan. At the present time there are no other development applications before the Town.

Per the Town of Davie Code of Ordinances, the applicant of this project is required to conduct a thorough public participation process in order to ensure that property owners and residents most likely to be affected by the development have an opportunity to review and comment on the proposal prior to any formal public meetings or hearings by the Town.

Due to the Covid-19 public health emergency, in-person meetings will not be held. Instead, the applicant has prepared a video presentation of the project and will accept comments by phone, email, or letter. The online presentation will be available at the following location for at least 21 days from the date of this letter:

https://youtu.be/_AX_5BLsseA

Please direct any inquiries regarding this project to:

Richard Coker
Coker & Feiner
1404 South Andrews Avenue
Fort Lauderdale, FL 33316
Telephone: 954-761-3636
Email: rgcoker@coker-feiner.com

Please feel free to contact the Town of Davie Planning and Zoning Division at 954-797-1103 if you are unable to access the online presentation or for any other assistance.

Attachments: Project Location Map

Mailout Map

7/28/2020, 3:56:33 PM

GIS MAP DISCLAIMER
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0 0.05 0.1 0.2 mi
0 0.075 0.15 0.3 km

NOTICE OF PUBLIC HEARING FOR:
REZONING APPLICATION

The Town of Davie proposes to conduct a public hearing to consider the following ordinance:

AN ORDINANCE OF THE TOWN OF DAVIE, FLORIDA, APPROVING REZONING APPLICATION ZB20-129 THE EDGE, CHANGING THE ZONING DESIGNATION OF CERTAIN LANDS WITHIN THE TOWN OF DAVIE FROM GRIFFIN CORRIDOR STATE ROAD 7 NODE (SR7N) DISTRICT TO TRANSIT ORIENTED CORRIDOR-SOUTH (TOC-S) DISTRICT; AMENDING THE TOWN ZONING MAP TO COMPLY THEREWITH; PROVIDING FOR CONFLICT; PROVIDING FOR SEVERABILITY; AND PROVIDING FOR AN EFFECTIVE DATE.

The public hearing by the Planning and Zoning Board will be conducted as follows:

Date: September 8, 2020, beginning at 6:30 p.m. or as soon thereafter as practicable

Manner: The hearing will be conducted by means of telephonic/video conferencing. Interested parties wishing to be heard with respect to this item may submit their comments prior to 5:00 PM on the date of the hearing by emailing: lrobinson@davie-fl.gov (comments may not exceed 400 words) or by leaving a voicemail message at (954) 797-1103 (Voice messages may not exceed three (3) minutes). For access to the hearing agenda, ordinance, backup information, and instructions on joining the meeting, please use the following link: www.davie-fl.gov/367/Planning-Zoning-Board

The Town Council hearing on this matter will be advertised separately.

PETITIONER/OWNER:	Walsh Properties, Inc./Saber Griffin Two LLC
PROPERTY LOCATION:	4815 S State Road 7 (Parcel Folio No. 5041-36-01-0040)
REZONING APPLICATION:	To rezone the property from Griffin Corridor State Road 7 Node (SR7N) District to Transit Oriented Corridor-South (TOC-S) District.
SAID APPLICATIONS SHOULD BE REFERRED AS:	Rezoning ZB20-129 The Edge

Any person wishing to appeal any decision made by this board or committee with respect to any matter considered at such meetings or hearings will need a record of the proceedings, and for such purposes may need to ensure that a verbatim record of the proceeding is made, which record include the testimony and evidence upon which the appeal is made.

Persons with disabilities requiring accommodations in order to participate should contact the Town Clerk at 797-1023 at least five business days prior to the meeting to request such accommodation. If you are hearing or speech impaired, please contact the Florida Relay Service by using the following numbers: 1-800-955-8770 (voice) or 1-800-955-8771 (TDD).

NAME_LINE_1	MAILING_ADDRESS_1	MAILING_ADDRESS_2	MAILING_CITY	MAILING_STATE	MAILING_ZIP
44TH AVENUE HOLDINGS LLC	201 SE 19 ST		FORT LAUDERDALE	FL	33301
PUBLIC LAND	100 W DANIA BEACH BLVD		DANIA BEACH	FL	33004
LINCOLN SQUARE CENTER LLC	1060 E 33 ST		HIALEAH	FL	33013
BROWARD COUNTY	115 S ANDREWS AVE RM 501-RP		FORT LAUDERDALE	FL	33301
FAIR ROCK INVESTMENTS LLC	12500 US HIGHWAY 19 N		CLEARWATER	FL	33764
DIXON,H & JEANNAE	1345 TYLER ST		HOLLYWOOD	FL	33019
TEMPLE BETH EL OF HOLLYWOOD	1351 S 14 AVE		HOLLYWOOD	FL	33020
DAVIE PETRO HOLDINGS LLC	17240 NORTHWAY CIR		BOCA RATON	FL	33496
MONTOYA,ANDREA	1799 HARBOR POINTE CIR		WESTON	FL	33327
SLOLY,BASIL	1803 GARDENIA RD		PLANTATION	FL	33317
HENRY,MICHAEL H & DENICE	1915 CARTWRIGHT DR		KERNERSVILLE	NC	27284
DEW1014 INVESTMENTS LLC	1920 E HALLANDALE BCH BLVD #906		HALLANDALE BEACH	FL	33309
ZACCO,MARIO & KARON	2011 SW 70 AVE STE A12		DAVIE	FL	33317
D N Y HOLDINGS LLC	20600 NW 47 AVE		MIAMI	FL	33055
5100 S R 7 SHOPPING CENTER LLC	21055 YACHT CLUB DR #1704		AVENTURA	FL	33180
RODRIGUEZ,MARLON	2120 SW 52 TER		PLANTATION	FL	33317
KURTZ FAM REV TR	219 YACHT CLUB DR		NICEVILLE	FL	32578
TIBI,DANIEL	2275 SW 105 TER		DAVIE	FL	33324
ALVAREZ,MELIZA	2321 SW 50 TER		FORT LAUDERDALE	FL	33317
SCHWARTZ,JOSEPH LEONARD	2435 HOLLYWOOD BLVD		HOLLYWOOD	FL	33020
TRAVERS,MICHAEL E	2543 KEY LARGO LN		FORT LAUDERDALE	FL	33312
5090 GROUP LLC	2555 NE 206 LN		MIAMI	FL	33180
NG,JANET	2597 SW 102 DR		DAVIE	FL	33324
JORDAN,H & S P & EMERT,K & R	2600 HOLLYWOOD BLVD #206		HOLLYWOOD	FL	33020
PUBLIC LAND % CITY OF HOLLYWOOD	2600 HOLLYWOOD BLVD #206		HOLLYWOOD	FL	33020
WIERZBA,DARIUSZ J	2684 W ORCHARD CIR		DAVIE	FL	33328
BUHBUT,ASHER	2746 TREASURE COVE CIR		FORT LAUDERDALE	FL	33312
ZE MANAGEMENT LLC	3009 NE 19TH ST		FORT LAUDERDALE	FL	33305
FLORIDA DEPT OF TRANSPORTATION	3400 W COMMERCIAL BLVD		FORT LAUDERDALE	FL	33309
FYR SFR BORROWER LLC	3505 KOGER BLVD #400		DULUTH	GA	30096
BOHADANAH,ELI	3950 SW 6 ST		FORT LAUDERDALE	FL	33312
GOMEZ,MARGOTH	4020 N 65 AVE		HOLLYWOOD	FL	33024
SILVERS,WILSON ERAZO	4041 SW 50 ST		DANIA BEACH	FL	33314
CARDONA,MARCELA	4381 SW 49 CT		DANIA BEACH	FL	33314
ZUBER,CHRISTOPHER	4381 SW 51 ST		DANIA BEACH	FL	33314
HERNANDEZ,IVAN & MILAGROS	4383 SW 51 ST		DANIA BEACH	FL	33314
HALL,ROXANE	4385 SW 51 ST		DANIA BEACH	FL	33314
VALVERDE,MAURICIO	4412 SW 49 CT		DANIA BEACH	FL	33314
ORASMA,YANINO J	4413 SW 50 ST		DANIA BEACH	FL	33314
PINHAS,NAHAR	4415 SW 49 CT		DANIA BEACH	FL	33314
PANTOJA,AMANDA LEERAE	4424 SW 49 CT		DANIA BEACH	FL	33314
MAYEDO,MICHEL H/E	4425 SW 50 ST		DANIA BEACH	FL	33314

MCCOY,DOUGLAS G	4429 SW 49 CT	DANIA BEACH	FL	33314
5030 INVESTMENTS LLC	4430 SW 24 AVE	FORT LAUDERDALE	FL	33312
RIVERA,ANGEL LE	4436 SW 50 ST	FORT LAUDERDALE	FL	33314
DAVILA,CLARA	4437 SW 50 ST	DANIA BEACH	FL	33314
PINO,BRYAN ENRIQUE	4448 SW 50 ST	DANIA BEACH	FL	33314
VERGEL,OSCAR E	4460 SW 49 CT	DANIA BEACH	FL	33314
ESPINOZA,DAVID R &	4460 SW 50 ST	DANIA BEACH	FL	33314
PAIKIN,CHERYL L	4461 SW 50 ST	DANIA BEACH	FL	33314
CASTILLO,ELIZABETH H/E	4465 SW 49 COURT	DANIA BEACH	FL	33314
BURROUGHS,BARRYN	4472 SW 49 CT	FORT LAUDERDALE	FL	33314
SCHENKER,ROBERT M & TERRY W	4473 SW 50 ST	DANIA BEACH	FL	33314
DEEN,MEER A	4484 SW 49 CT	DANIA BEACH	FL	33314
AGUIAR,JUAN MIGUEL	4484 SW 50 ST	DANIA BEACH	FL	33314
ALVAREZ,LUIS H & CECILIA	4485 SW 50 ST	DANIA BEACH	FL	33314
HABER,BRIAN MARTIN & LENORE	4496 SW 49 CT	DANIA BEACH	FL	33314
JACQUES,ROBERT & LISE	4496 SW 50 ST	DANIA BEACH	FL	33314
JOHNSON,RONALD EARL	4497 SW 50 ST	DANIA BEACH	FL	33314
SUNSET RENTALS III LLC	4501 SW 43 AVE	FORT LAUDERDALE	FL	33314
JACQUES,JONATHAN & YAREMYS	4517 SW 51 ST	DANIA BEACH	FL	33314
Current Occupant	4520 SW 47 TER	DAVIE	FL	33314
Current Occupant	4520 SW 48 AVE	DAVIE	FL	33314
Current Occupant	4521 SW 47 TER	DAVIE	FL	33314
Current Occupant	4530 SW 47 TER	DAVIE	FL	33314
Current Occupant	4530 SW 48 AVE	DAVIE	FL	33314
Current Occupant	4531 SW 47 TER	DAVIE	FL	33314
Current Occupant	4540 SW 47 TER	DAVIE	FL	33314
Current Occupant	4540 SW 48 AVE	DAVIE	FL	33314
Current Occupant	4541 SW 47 TER	DAVIE	FL	33314
Current Occupant	4541 SW 48 AVE	DAVIE	FL	33314
Current Occupant	4550 SW 47 TER	DAVIE	FL	33314
Current Occupant	4550 SW 48 AVE	DAVIE	FL	33314
Current Occupant	4551 SW 47 TER	DAVIE	FL	33314
Current Occupant	4551 SW 48 AVE	DAVIE	FL	33314
Current Occupant	4560 SW 47 TER	DAVIE	FL	33314
Current Occupant	4560 SW 48 AVE	DAVIE	FL	33314
Current Occupant	4561 SW 47 TER	DAVIE	FL	33314
Current Occupant	4561 SW 48 AVE	DAVIE	FL	33314
Current Occupant	4600 SW 47 TER	DAVIE	FL	33314
Current Occupant	4600 SW 48 AVE	DAVIE	FL	33314
JET AUTO PLAZA INC	4601 S STATE ROAD 7	DAVIE	FL	33314
Current Occupant	4601 SW 47 TER	DAVIE	FL	33314
Current Occupant	4601 SW 48 AVE	DAVIE	FL	33314
RENEWLAND LLC	4609 SW 44 AVE	DANIA BEACH	FL	33314

Current Occupant	4610 SW 47 TER		DAVIE	FL	33314
Current Occupant	4610 SW 48 AVE		DAVIE	FL	33314
Current Occupant	4611 S STATE ROAD 7		DAVIE	FL	33314
Current Occupant	4611 SW 47 TER		DAVIE	FL	33314
Current Occupant	4611 SW 48 AVE		DAVIE	FL	33314
Current Occupant	4615 GRIFFIN RD		DAVIE	FL	33314
Current Occupant	4620 SW 47 TER		DAVIE	FL	33314
Current Occupant	4620 SW 48 AVE		DAVIE	FL	33314
Current Occupant	4621 S STATE ROAD 7		DAVIE	FL	33314
Current Occupant	4621 SW 47 TER		DAVIE	FL	33314
Current Occupant	4621 SW 48 AVE		DAVIE	FL	33314
Current Occupant	4630 SW 47 TER		DAVIE	FL	33314
Current Occupant	4630 SW 48 AVE		DAVIE	FL	33314
Current Occupant	4631 S STATE ROAD 7		DAVIE	FL	33314
Current Occupant	4631 SW 47 TER		DAVIE	FL	33314
Current Occupant	4631 SW 48 AVE		DAVIE	FL	33314
Current Occupant	4640 SW 47 TER		DAVIE	FL	33314
Current Occupant	4640 SW 48 AVE		DAVIE	FL	33314
Current Occupant	4641 S STATE ROAD 7		DAVIE	FL	33314
Current Occupant	4641 SW 47 TER		DAVIE	FL	33314
Current Occupant	4641 SW 48 AVE		DAVIE	FL	33314
Current Occupant	4650 SW 47 TER		DAVIE	FL	33314
Current Occupant	4650 SW 48 AVE		DAVIE	FL	33314
Current Occupant	4651 S STATE ROAD 7		DAVIE	FL	33314
Current Occupant	4651 SW 47 TER		DAVIE	FL	33314
Current Occupant	4651 SW 48 AVE		DAVIE	FL	33314
Current Occupant	4651 SW 51 ST	UNIT 809	DAVIE	FL	33314
Current Occupant	4651 SW 51 ST	UNIT 802	DAVIE	FL	33314
Current Occupant	4651 SW 51 ST	UNIT 804	DAVIE	FL	33314
Current Occupant	4651 SW 51 ST	UNIT 803	DAVIE	FL	33314
Current Occupant	4651 SW 51 ST	UNIT 805	DAVIE	FL	33314
Current Occupant	4651 SW 51 ST	UNIT 801	DAVIE	FL	33314
Current Occupant	4651 SW 51 ST	UNIT 808	DAVIE	FL	33314
Current Occupant	4651 SW 51 ST	UNIT 811	DAVIE	FL	33314
Current Occupant	4651 SW 51 ST	UNIT 810	DAVIE	FL	33314
Current Occupant	4651 SW 51 ST	UNIT 812	DAVIE	FL	33314
Current Occupant	4651 SW 51 ST	UNIT 807	DAVIE	FL	33314
Current Occupant	4651 SW 51 ST	UNIT 806	DAVIE	FL	33314
Current Occupant	4660 SW 47 TER		DAVIE	FL	33314
Current Occupant	4660 SW 48 AVE		DAVIE	FL	33314
Current Occupant	4661 S STATE ROAD 7		DAVIE	FL	33314
Current Occupant	4661 SW 47 TER		DAVIE	FL	33314
Current Occupant	4661 SW 48 AVE		DAVIE	FL	33314

Current Occupant	4670 SW 47 TER		DAVIE	FL	33314
Current Occupant	4670 SW 48 AVE		DAVIE	FL	33314
Current Occupant	4671 S STATE ROAD 7		DAVIE	FL	33314
Current Occupant	4671 SW 47 TER		DAVIE	FL	33314
Current Occupant	4671 SW 48 AVE		DAVIE	FL	33314
F & F LLC	4680 S ORANGE BLOSSOM TRL		ORLANDO	FL	32839
Current Occupant	4681 S STATE ROAD 7		DAVIE	FL	33314
Current Occupant	4700 SW 47 TER		DAVIE	FL	33314
Current Occupant	4700 SW 48 AVE		DAVIE	FL	33314
Current Occupant	4700 SW 51 ST	UNIT 217	DAVIE	FL	33314
Current Occupant	4700 SW 51 ST	UNIT 210	DAVIE	FL	33314
Current Occupant	4700 SW 51 ST	UNIT 206	DAVIE	FL	33314
Current Occupant	4700 SW 51 ST	UNIT 213	DAVIE	FL	33314
Current Occupant	4700 SW 51 ST	UNIT 200	DAVIE	FL	33314
Current Occupant	4700 SW 51 ST	UNIT 219	DAVIE	FL	33314
Current Occupant	4700 SW 51 ST	UNIT 207	DAVIE	FL	33314
Current Occupant	4700 SW 51 ST	UNIT 214	DAVIE	FL	33314
Current Occupant	4700 SW 51 ST	UNIT 203	DAVIE	FL	33314
Current Occupant	4700 SW 51 ST	UNIT 212	DAVIE	FL	33314
Current Occupant	4700 SW 51 ST	UNIT 205	DAVIE	FL	33314
Current Occupant	4700 SW 51 ST	UNIT 208	DAVIE	FL	33314
Current Occupant	4700 SW 51 ST	UNIT 201	DAVIE	FL	33314
Current Occupant	4700 SW 51 ST	UNIT 218	DAVIE	FL	33314
Current Occupant	4700 SW 51 ST	UNIT 209	DAVIE	FL	33314
Current Occupant	4700 SW 51 ST	UNIT 202	DAVIE	FL	33314
Current Occupant	4700 SW 51 ST	UNIT 211	DAVIE	FL	33314
Current Occupant	4700 SW 51 ST	UNIT 215	DAVIE	FL	33314
Current Occupant	4700 SW 51 ST	UNIT 216	DAVIE	FL	33314
Current Occupant	4700 SW 51 ST	UNIT 204	DAVIE	FL	33314
Current Occupant	4701 S STATE ROAD 7		DAVIE	FL	33314
Current Occupant	4701 SW 47 TER		DAVIE	FL	33314
Current Occupant	4701 SW 48 AVE		DAVIE	FL	33314
Current Occupant	4701 SW 51 ST		DAVIE	FL	33314
Current Occupant	4702 SW 46 TER		DAVIE	FL	33314
Current Occupant	4703 SW 46 TER		DAVIE	FL	33314
Current Occupant	4703 SW 51 ST		DAVIE	FL	33314
Current Occupant	4704 SW 46 TER		DAVIE	FL	33314
Current Occupant	4705 SW 46 TER		DAVIE	FL	33314
Current Occupant	4705 SW 51 ST		DAVIE	FL	33314
Current Occupant	4706 SW 46 TER		DAVIE	FL	33314
Current Occupant	4707 SW 46 TER		DAVIE	FL	33314
Current Occupant	4707 SW 51 ST		DAVIE	FL	33314
Current Occupant	4708 SW 46 TER		DAVIE	FL	33314

Current Occupant	4709 SW 46 TER	DAVIE	FL	33314
Current Occupant	4709 SW 51 ST	DAVIE	FL	33314
Current Occupant	4710 SW 46 TER	DAVIE	FL	33314
Current Occupant	4710 SW 47 TER	DAVIE	FL	33314
Current Occupant	4710 SW 48 AVE	DAVIE	FL	33314
Current Occupant	4711 SW 46 TER	DAVIE	FL	33314
Current Occupant	4711 SW 47 TER	DAVIE	FL	33314
Current Occupant	4711 SW 48 AVE	DAVIE	FL	33314
Current Occupant	4711 SW 51 ST	DAVIE	FL	33314
Current Occupant	4712 SW 46 LN	DAVIE	FL	33314
Current Occupant	4713 SW 46 LN	DAVIE	FL	33314
Current Occupant	4713 SW 46 WAY	DAVIE	FL	33314
Current Occupant	4713 SW 51 ST	DAVIE	FL	33314
Current Occupant	4714 SW 46 LN	DAVIE	FL	33314
Current Occupant	4714 SW 46 TER	DAVIE	FL	33314
Current Occupant	4715 SW 46 TER	DAVIE	FL	33314
Current Occupant	4715 SW 46 WAY	DAVIE	FL	33314
Current Occupant	4715 SW 51 ST	DAVIE	FL	33314
Current Occupant	4716 SW 46 LN	DAVIE	FL	33314
Current Occupant	4716 SW 46 TER	DAVIE	FL	33314
Current Occupant	4717 SW 46 TER	DAVIE	FL	33314
Current Occupant	4717 SW 46 WAY	DAVIE	FL	33314
Current Occupant	4717 SW 51 ST	DAVIE	FL	33314
Current Occupant	4718 SW 46 LN	DAVIE	FL	33314
Current Occupant	4718 SW 46 TER	DAVIE	FL	33314
Current Occupant	4719 SW 46 LN	DAVIE	FL	33314
Current Occupant	4719 SW 46 TER	DAVIE	FL	33314
Current Occupant	4719 SW 46 WAY	DAVIE	FL	33314
Current Occupant	4719 SW 51 ST	DAVIE	FL	33314
Current Occupant	4720 SW 46 LN	DAVIE	FL	33314
Current Occupant	4720 SW 46 TER	DAVIE	FL	33314
Current Occupant	4720 SW 47 TER	DAVIE	FL	33314
Current Occupant	4720 SW 48 AVE	DAVIE	FL	33314
Current Occupant	4721 SW 46 LN	DAVIE	FL	33314
Current Occupant	4721 SW 46 TER	DAVIE	FL	33314
Current Occupant	4721 SW 46 WAY	DAVIE	FL	33314
Current Occupant	4721 SW 47 TER	DAVIE	FL	33314
Current Occupant	4721 SW 48 AVE	DAVIE	FL	33314
Current Occupant	4721 SW 51 ST	DAVIE	FL	33314
Current Occupant	4722 SW 46 LN	DAVIE	FL	33314
Current Occupant	4722 SW 46 TER	DAVIE	FL	33314
Current Occupant	4723 SW 46 LN	DAVIE	FL	33314
Current Occupant	4723 SW 46 TER	DAVIE	FL	33314

Current Occupant	4723 SW 46 WAY	DAVIE	FL	33314
Current Occupant	4723 SW 51 ST	DAVIE	FL	33314
Current Occupant	4724 SW 46 LN	DAVIE	FL	33314
Current Occupant	4724 SW 46 TER	DAVIE	FL	33314
Current Occupant	4725 SW 46 LN	DAVIE	FL	33314
Current Occupant	4725 SW 46 TER	DAVIE	FL	33314
Current Occupant	4725 SW 46 WAY	DAVIE	FL	33314
Current Occupant	4725 SW 51 ST	DAVIE	FL	33314
Current Occupant	4726 SW 46 LN	DAVIE	FL	33314
Current Occupant	4726 SW 46 TER	DAVIE	FL	33314
Current Occupant	4727 SW 46 LN	DAVIE	FL	33314
Current Occupant	4727 SW 46 TER	DAVIE	FL	33314
Current Occupant	4727 SW 46 WAY	DAVIE	FL	33314
Current Occupant	4727 SW 51 ST	DAVIE	FL	33314
Current Occupant	4728 SW 46 LN	DAVIE	FL	33314
Current Occupant	4728 SW 46 TER	DAVIE	FL	33314
Current Occupant	4729 SW 46 LN	DAVIE	FL	33314
Current Occupant	4729 SW 46 TER	DAVIE	FL	33314
Current Occupant	4729 SW 51 ST	DAVIE	FL	33314
Current Occupant	4730 SW 46 TER	DAVIE	FL	33314
Current Occupant	4730 SW 47 TER	DAVIE	FL	33314
Current Occupant	4730 SW 48 AVE	DAVIE	FL	33314
Current Occupant	4731 SW 46 LN	DAVIE	FL	33314
Current Occupant	4731 SW 46 TER	DAVIE	FL	33314
Current Occupant	4731 SW 46 WAY	DAVIE	FL	33314
Current Occupant	4731 SW 47 TER	DAVIE	FL	33314
Current Occupant	4731 SW 48 AVE	DAVIE	FL	33314
Current Occupant	4731 SW 51 ST	DAVIE	FL	33314
Current Occupant	4732 SW 46 TER	DAVIE	FL	33314
Current Occupant	4733 SW 46 LN	DAVIE	FL	33314
Current Occupant	4733 SW 46 TER	DAVIE	FL	33314
Current Occupant	4733 SW 46 WAY	DAVIE	FL	33314
Current Occupant	4733 SW 51 ST	DAVIE	FL	33314
Current Occupant	4734 SW 46 LN	DAVIE	FL	33314
Current Occupant	4734 SW 46 TER	DAVIE	FL	33314
Current Occupant	4735 SW 46 LN	DAVIE	FL	33314
Current Occupant	4735 SW 46 TER	DAVIE	FL	33314
Current Occupant	4735 SW 46 WAY	DAVIE	FL	33314
Current Occupant	4735 SW 51 ST	DAVIE	FL	33314
Current Occupant	4736 SW 46 LN	DAVIE	FL	33314
Current Occupant	4736 SW 46 TER	DAVIE	FL	33314
Current Occupant	4737 SW 46 LN	DAVIE	FL	33314
Current Occupant	4737 SW 46 TER	DAVIE	FL	33314

Current Occupant	4737 SW 51 ST		DAVIE	FL	33314
Current Occupant	4738 SW 46 LN		DAVIE	FL	33314
Current Occupant	4738 SW 46 TER		DAVIE	FL	33314
Current Occupant	4738 SW 46 WAY		DAVIE	FL	33314
Current Occupant	4739 SW 46 LN		DAVIE	FL	33314
Current Occupant	4739 SW 46 TER		DAVIE	FL	33314
Current Occupant	4739 SW 51 ST		DAVIE	FL	33314
Current Occupant	4740 SW 46 LN		DAVIE	FL	33314
Current Occupant	4740 SW 46 TER		DAVIE	FL	33314
Current Occupant	4740 SW 46 WAY		DAVIE	FL	33314
Current Occupant	4740 SW 47 TER		DAVIE	FL	33314
Current Occupant	4741 SW 46 LN		DAVIE	FL	33314
Current Occupant	4741 SW 48 AVE		DAVIE	FL	33314
Current Occupant	4741 SW 51 ST		DAVIE	FL	33314
Current Occupant	4742 SW 46 LN		DAVIE	FL	33314
Current Occupant	4742 SW 46 WAY		DAVIE	FL	33314
Current Occupant	4743 SW 46 LN		DAVIE	FL	33314
Current Occupant	4743 SW 51 ST		DAVIE	FL	33314
Current Occupant	4744 SW 46 LN		DAVIE	FL	33314
Current Occupant	4744 SW 46 WAY		DAVIE	FL	33314
Current Occupant	4745 SW 46 LN		DAVIE	FL	33314
Current Occupant	4745 SW 51 ST		DAVIE	FL	33314
Current Occupant	4746 SW 46 LN		DAVIE	FL	33314
Current Occupant	4746 SW 46 WAY		DAVIE	FL	33314
Current Occupant	4747 SW 46 LN		DAVIE	FL	33314
Current Occupant	4747 SW 51 ST		DAVIE	FL	33314
Current Occupant	4748 SW 46 LN		DAVIE	FL	33314
Current Occupant	4748 SW 46 WAY		DAVIE	FL	33314
Current Occupant	4749 SW 46 LN		DAVIE	FL	33314
Current Occupant	4749 SW 46 WAY	OFFICE/RES	DAVIE	FL	33314
Current Occupant	4749 SW 51 ST		DAVIE	FL	33314
Current Occupant	4750 SW 46 LN		DAVIE	FL	33314
Current Occupant	4750 SW 46 WAY		DAVIE	FL	33314
Current Occupant	4750 SW 47 TER		DAVIE	FL	33314
Current Occupant	4751 SW 46 LN		DAVIE	FL	33314
Current Occupant	4751 SW 48 AVE		DAVIE	FL	33314
Current Occupant	4751 SW 51 ST		DAVIE	FL	33314
Current Occupant	4752 SW 46 LN		DAVIE	FL	33314
Current Occupant	4752 SW 46 WAY		DAVIE	FL	33314
Current Occupant	4753 SW 46 LN		DAVIE	FL	33314
Current Occupant	4753 SW 51 ST		DAVIE	FL	33314
Current Occupant	4755 SW 51 ST		DAVIE	FL	33314
Current Occupant	4757 SW 51 ST		DAVIE	FL	33314

Current Occupant	4759 SW 51 ST		DAVIE	FL	33314
Current Occupant	4771 SW 51 ST		DAVIE	FL	33314
GRIFFIN GARDENS APARTMENTS LLC	4780 N STATE ROAD 7		LAUDERDALE LAKES	FL	33319
AIRCOM MANAGEMENT CORP INC	4791 S STATE ROAD 7		DAVIE	FL	33314
Current Occupant	4800 GRIFFIN RD	LOT T-6	DAVIE	FL	33314
Current Occupant	4800 GRIFFIN RD	LOT T-3	DAVIE	FL	33314
Current Occupant	4800 GRIFFIN RD	LOT T-4	DAVIE	FL	33314
Current Occupant	4800 GRIFFIN RD	LOT T-7	DAVIE	FL	33314
Current Occupant	4800 GRIFFIN RD	LOT T-1	DAVIE	FL	33314
Current Occupant	4800 GRIFFIN RD	LOT T-2	DAVIE	FL	33314
Current Occupant	4800 GRIFFIN RD	LOT T-8	DAVIE	FL	33314
Current Occupant	4800 GRIFFIN RD	LOT T-5	DAVIE	FL	33314
Current Occupant	4800 SW 47 LN		DAVIE	FL	33314
Current Occupant	4800 SW 48 AVE		DAVIE	FL	33314
Current Occupant	4800 SW 51 ST	UNIT 101	DAVIE	FL	33314
Current Occupant	4800 SW 51 ST	UNIT 105	DAVIE	FL	33314
Current Occupant	4800 SW 51 ST	UNIT 102	DAVIE	FL	33314
Current Occupant	4800 SW 51 ST	UNIT 103	DAVIE	FL	33314
Current Occupant	4800 SW 51 ST	UNIT 106	DAVIE	FL	33314
Current Occupant	4800 SW 51 ST	UNIT 104	DAVIE	FL	33314
Current Occupant	4801 S STATE ROAD 7		DAVIE	FL	33314
Current Occupant	4801 SW 47 LN		DAVIE	FL	33314
Current Occupant	4801 SW 51 ST		DAVIE	FL	33314
Current Occupant	4802 SW 48 AVE		DAVIE	FL	33314
Current Occupant	4803 S STATE ROAD 7		DAVIE	FL	33314
Current Occupant	4803 SW 48 AVE		DAVIE	FL	33314
Current Occupant	4805 SW 47 LN		DAVIE	FL	33314
Current Occupant	4806 SW 48 AVE		DAVIE	FL	33314
Current Occupant	4807 S STATE ROAD 7		DAVIE	FL	33314
Current Occupant	4807 SW 48 AVE		DAVIE	FL	33314
Current Occupant	4808 SW 47 LN		DAVIE	FL	33314
Current Occupant	4809 SW 47 LN		DAVIE	FL	33314
Current Occupant	4810 SW 48 AVE		DAVIE	FL	33314
Current Occupant	4811 S STATE ROAD 7		DAVIE	FL	33314
Current Occupant	4811 SW 48 AVE		DAVIE	FL	33314
Current Occupant	4812 SW 47 LN		DAVIE	FL	33314
ORDONEZ NUNEZ,MIRIAM A	4813 SW 44 TER		DANIA BEACH	FL	33314
Current Occupant	4813 SW 47 LN		DAVIE	FL	33314
Current Occupant	4814 SW 48 AVE		DAVIE	FL	33314
Current Occupant	4815 S STATE ROAD 7		DAVIE	FL	33314
Current Occupant	4815 SW 48 AVE		DAVIE	FL	33314
Current Occupant	4816 SW 47 LN		DAVIE	FL	33314
Current Occupant	4817 SW 47 LN		DAVIE	FL	33314

Current Occupant	4818 SW 48 AVE	DAVIE	FL	33314
Current Occupant	4819 SW 48 AVE	DAVIE	FL	33314
WILSON,GERRY CRAIG	4820 SW 44 AVE	DANIA BEACH	FL	33314
Current Occupant	4820 SW 47 LN	DAVIE	FL	33314
RODRIGUEZ CHAPLE,JOSE MANUEL	4821 SW 44 AVE	DANIA BEACH	FL	33314
Current Occupant	4821 SW 47 LN	DAVIE	FL	33314
BALLARD,LYNEE	4822 SW 44 TER	DANIA BEACH	FL	33314
Current Occupant	4822 SW 48 AVE	DAVIE	FL	33314
Current Occupant	4823 SW 48 AVE	DAVIE	FL	33314
Current Occupant	4824 SW 47 LN	DAVIE	FL	33314
Current Occupant	4825 SW 47 LN	DAVIE	FL	33314
Current Occupant	4826 SW 48 AVE	DAVIE	FL	33314
Current Occupant	4827 S STATE ROAD 7	DAVIE	FL	33314
Current Occupant	4827 SW 48 AVE	DAVIE	FL	33314
Current Occupant	4828 SW 47 LN	DAVIE	FL	33314
Current Occupant	4829 SW 47 LN	DAVIE	FL	33314
GOODEN,LAVERNE LE	4830 SW 44 AVE	DANIA BEACH	FL	33314
Current Occupant	4830 SW 48 AVE	DAVIE	FL	33314
FIORE,SAMUELO A LE	4831 SW 44 AVE	DANIA BEACH	FL	33314
Current Occupant	4831 SW 48 AVE	DAVIE	FL	33314
SMITH,IRENE J LE	4832 SW 44 TER	DANIA BEACH	FL	33314
Current Occupant	4832 SW 47 LN	DAVIE	FL	33314
PINO,VICTOR H & PALMIRA R	4833 SW 44 TER	DANIA BEACH	FL	33314
Current Occupant	4833 SW 47 LN	DAVIE	FL	33314
Current Occupant	4834 SW 48 AVE	DAVIE	FL	33314
Current Occupant	4835 S STATE ROAD 7	DAVIE	FL	33314
Current Occupant	4835 SW 48 AVE	DAVIE	FL	33314
DEMPSEY,JOHN ADAMS	4836 SW 45 AVE	DANIA BEACH	FL	33314
Current Occupant	4836 SW 47 LN	DAVIE	FL	33314
Current Occupant	4837 SW 47 LN	DAVIE	FL	33314
Current Occupant	4838 SW 48 AVE	DAVIE	FL	33314
Current Occupant	4839 SW 48 AVE	DAVIE	FL	33314
PAGAN,R & AWILDA	4840 SW 44 AVE	DANIA BEACH	FL	33314
Current Occupant	4840 SW 47 LN	DAVIE	FL	33314
WELLS,FRANK E	4841 SW 44 AVE	DANIA BEACH	FL	33314
Current Occupant	4841 SW 47 LN	DAVIE	FL	33314
PENNEBAKER,EMILY J	4842 SW 44 TER	DANIA BEACH	FL	33314
Current Occupant	4842 SW 48 AVE	DAVIE	FL	33314
GRACE,PATDRICA M	4843 SW 44 TER	DANIA BEACH	FL	33314
Current Occupant	4843 SW 48 AVE	DAVIE	FL	33314
Current Occupant	4844 SW 47 LN	DAVIE	FL	33314
Current Occupant	4845 SW 47 LN	DAVIE	FL	33314
Current Occupant	4846 SW 48 AVE	DAVIE	FL	33314

Current Occupant	4847 SW 48 AVE	DAVIE	FL	33314
Current Occupant	4848 SW 47 LN	DAVIE	FL	33314
Current Occupant	4849 SW 47 LN	DAVIE	FL	33314
Current Occupant	4850 SW 48 AVE	DAVIE	FL	33314
SOUTHERN MOBILE PKS INC	4851 GRIFFIN RD	DAVIE	FL	33314
Current Occupant	4851 SW 48 AVE	DAVIE	FL	33314
Current Occupant	4852 SW 47 LN	DAVIE	FL	33314
LEVESQUE,ROLLANDE H/E	4853 SW 44 TER	DANIA BEACH	FL	33314
Current Occupant	4855 S STATE ROAD 7	DAVIE	FL	33314
Current Occupant	4855 SW 48 AVE	DAVIE	FL	33314
Current Occupant	4860 GRIFFIN RD	DAVIE	FL	33314
MCDONALD,JOHN J III &	4860 SW 45 AVE	DANIA BEACH	FL	33314
OWENS,CLIFFORD & BARBARA	4862 SW 44 TER	DANIA BEACH	FL	33314
BURDICK,NICK	4863 SW 44 TER	DANIA BEACH	FL	33314
Current Occupant	4864 GRIFFIN RD	DAVIE	FL	33314
ST PHILIP EASTERN ORTHODOX	4870 GRIFFIN ROAD	DAVIE	FL	33314
GARCIA,REINA I MEZA	4871 SW 44 AVE	DANIA BEACH	FL	33314
MUNOZ,SANTIAGO A	4872 SW 45 AVE	DANIA BEACH	FL	33314
LOPEZ YESCAS,ELIZABETH	4873 SW 44 TER	DANIA BEACH	FL	33314
Current Occupant	4875 S STATE ROAD 7	DAVIE	FL	33314
WHITLOCK,WAYNE E & KALA R	4880 SW 44 AVE	DANIA BEACH	FL	33314
Current Occupant	4881 GRIFFIN RD	DAVIE	FL	33314
BREEDING,ALLEN N JR	4881 SW 44 AVE	DANIA BEACH	FL	33314
WHALEY,SYBIL A	4883 SW 44 TER	DANIA BEACH	FL	33314
Current Occupant	4885 S STATE ROAD 7	DAVIE	FL	33314
Current Occupant	4895 S STATE ROAD 7	DAVIE	FL	33314
PAGAN,DELIA	4896 SW 45 AVE	DANIA BEACH	FL	33314
Current Occupant	4901 S STATE ROAD 7	DAVIE	FL	33314
JORDAN,THOMAS M	4901 SW 51 ST	DAVIE	FL	33314
HERNDON,PHYLLIS A NICHOLS	4903 SW 51 ST	DAVIE	FL	33314
Current Occupant	4905 S STATE ROAD 7	DAVIE	FL	33314
Current Occupant	4905 SW 51 ST	DAVIE	FL	33314
HERNDON,STEPHEN D & MARIA L	4907 SW 51 ST	DAVIE	FL	33314
GODOY,MYRNA	4908 SW 44 AVE	DANIA BEACH	FL	33314
PIERRE,ODNIEL	4908 SW 45 AVE	DANIA BEACH	FL	33314
DEMETRIUS,ANDREA H/E	4909 SW 44 AVE	DANIA BEACH	FL	33314
JONES,STEPHEN P	4910 SW 44 TER	DANIA BEACH	FL	33314
Current Occupant	4911 S STATE ROAD 7	DAVIE	FL	33314
JOSEPH,MARIE	4916 SW 44 AVE	DANIA BEACH	FL	33314
JARAMILLO,CARMEN &	4916 SW 45 AVE	DANIA BEACH	FL	33314
SANTIAGO,ANTONIA A LE	4919 SW 44 TER	DANIA BEACH	FL	33314
Current Occupant	4921 S STATE ROAD 7	DAVIE	FL	33314
BAGRAJ,DEAN LE H/E	4924 SW 45 AVE	DANIA BEACH	FL	33314

Current Occupant	4925 S STATE ROAD 7		DAVIE	FL	33314
DAVIS,JOHN P & NICOLE	4925 SW 44 AVE		DANIA BEACH	FL	33314
Current Occupant	4931 S STATE ROAD 7		DAVIE	FL	33314
LEDESMA PEREZ,JAVIER H/E	4932 SW 44 AVE		DANIA BEACH	FL	33314
GRAD,VASILE	4932 SW 45 AVE		FORT LAUDERDALE	FL	33314
CAPOCCIA,PETER J	4933 SW 44 AVE		DANIA BEACH	FL	33314
FRIEDMAN,CRAIG EST	4934 SW 44 TER		DANIA BEACH	FL	33314
Current Occupant	4935 S STATE ROAD 7		DAVIE	FL	33314
WEISS,LORRAINE	4935 SW 44 TER		DANIA BEACH	FL	33314
GUERRA,JOSE E	4940 SW 44 AVE		DANIA BEACH	FL	33314
GONZALEZ,YOEL GARCIA H/E	4940 SW 45 AVE		DANIA BEACH	FL	33314
Current Occupant	4941 S STATE ROAD 7		DAVIE	FL	33314
MILLS,BONNIE J	4941 SW 44 AVE		DANIA BEACH	FL	33314
REID,JOHN & WENDY	4943 SW 44 TER		DANIA BEACH	FL	33314
KADOSH,EZER-UZI	4945 SW 33RD AVE		FORT LAUDERDALE	FL	33312
Current Occupant	4951 S STATE ROAD 7		DAVIE	FL	33314
Current Occupant	4955 S STATE ROAD 7		DAVIE	FL	33314
Current Occupant	4961 S STATE ROAD 7		DAVIE	FL	33314
Current Occupant	4963 S STATE ROAD 7		DAVIE	FL	33314
ROWARS,CHARLES M TR	4990 SW 52 ST #201		DAVIE	FL	33314
Current Occupant	4999 S STATE ROAD 7		DAVIE	FL	33314
Current Occupant	5011 S STATE ROAD 7	UNIT 101	DAVIE	FL	33314
Current Occupant	5011 S STATE ROAD 7	METER ROOM	DAVIE	FL	33314
Current Occupant	5011 S STATE ROAD 7	UNIT 105	DAVIE	FL	33314
Current Occupant	5011 S STATE ROAD 7	UNIT 106	DAVIE	FL	33314
Current Occupant	5011 S STATE ROAD 7	UNIT 108	DAVIE	FL	33314
Current Occupant	5011 S STATE ROAD 7	UNIT 102	DAVIE	FL	33314
Current Occupant	5011 S STATE ROAD 7	UNIT 109	DAVIE	FL	33314
Current Occupant	5011 S STATE ROAD 7	UNIT 103	DAVIE	FL	33314
Current Occupant	5011 S STATE ROAD 7	BLD 1	DAVIE	FL	33314
Current Occupant	5011 S STATE ROAD 7	UNIT 104	DAVIE	FL	33314
Current Occupant	5011 S STATE ROAD 7	UNIT 107	DAVIE	FL	33314
LAWSON & CO IV INC	5020 S STATE ROAD 7		HOLLYWOOD	FL	33314
Current Occupant	5021 S STATE ROAD 7	UNIT 204	DAVIE	FL	33314
Current Occupant	5021 S STATE ROAD 7	UNIT 207	DAVIE	FL	33314
Current Occupant	5021 S STATE ROAD 7	UNIT 202	DAVIE	FL	33314
Current Occupant	5021 S STATE ROAD 7	UNIT 209	DAVIE	FL	33314
Current Occupant	5021 S STATE ROAD 7	UNIT 201	DAVIE	FL	33314
Current Occupant	5021 S STATE ROAD 7	UNIT 212	DAVIE	FL	33314
Current Occupant	5021 S STATE ROAD 7	UNIT 205	DAVIE	FL	33314
Current Occupant	5021 S STATE ROAD 7	UNIT 211	DAVIE	FL	33314
Current Occupant	5021 S STATE ROAD 7	UNIT 203	DAVIE	FL	33314
Current Occupant	5021 S STATE ROAD 7	UNIT 206	DAVIE	FL	33314

Current Occupant	5021 S STATE ROAD 7	UNIT 208	DAVIE	FL	33314
Current Occupant	5021 S STATE ROAD 7	UNIT 210	DAVIE	FL	33314
Current Occupant	5021 SW 51 ST	OFFICE	DAVIE	FL	33314
Current Occupant	5021 SW 51 ST	CABIN	DAVIE	FL	33314
Current Occupant	5031 S STATE ROAD 7	UNIT 302	DAVIE	FL	33314
Current Occupant	5031 S STATE ROAD 7	UNIT 301 OFFICE	DAVIE	FL	33314
Current Occupant	5041 S STATE ROAD 7	UNIT 417	DAVIE	FL	33314
Current Occupant	5041 S STATE ROAD 7	UNIT 403	DAVIE	FL	33314
Current Occupant	5041 S STATE ROAD 7	UNIT 414	DAVIE	FL	33314
Current Occupant	5041 S STATE ROAD 7	UNIT 409	DAVIE	FL	33314
Current Occupant	5041 S STATE ROAD 7	UNIT 420	DAVIE	FL	33314
Current Occupant	5041 S STATE ROAD 7	UNIT 406	DAVIE	FL	33314
Current Occupant	5041 S STATE ROAD 7	UNIT 401	DAVIE	FL	33314
Current Occupant	5041 S STATE ROAD 7	UNIT 405	DAVIE	FL	33314
Current Occupant	5041 S STATE ROAD 7	UNIT 411	DAVIE	FL	33314
Current Occupant	5041 S STATE ROAD 7	UNIT 415	DAVIE	FL	33314
Current Occupant	5041 S STATE ROAD 7	UNIT 408	DAVIE	FL	33314
Current Occupant	5041 S STATE ROAD 7	UNIT 423	DAVIE	FL	33314
Current Occupant	5041 S STATE ROAD 7	UNIT 421	DAVIE	FL	33314
Current Occupant	5041 S STATE ROAD 7	UNIT 407	DAVIE	FL	33314
Current Occupant	5041 S STATE ROAD 7	UNIT 424	DAVIE	FL	33314
Current Occupant	5041 S STATE ROAD 7	UNIT 418	DAVIE	FL	33314
Current Occupant	5041 S STATE ROAD 7	UNIT 410	DAVIE	FL	33314
Current Occupant	5041 S STATE ROAD 7	UNIT 419	DAVIE	FL	33314
Current Occupant	5041 S STATE ROAD 7	UNIT 402	DAVIE	FL	33314
Current Occupant	5041 S STATE ROAD 7	UNIT 416	DAVIE	FL	33314
Current Occupant	5041 S STATE ROAD 7	UNIT 422	DAVIE	FL	33314
Current Occupant	5041 S STATE ROAD 7	UNIT 404	DAVIE	FL	33314
Current Occupant	5041 S STATE ROAD 7	UNIT 413	DAVIE	FL	33314
Current Occupant	5041 S STATE ROAD 7	UNIT 412	DAVIE	FL	33314
Current Occupant	5051 S STATE ROAD 7	UNIT 513	DAVIE	FL	33314
Current Occupant	5051 S STATE ROAD 7	UNIT 514	DAVIE	FL	33314
Current Occupant	5051 S STATE ROAD 7	UNIT 509	DAVIE	FL	33314
Current Occupant	5051 S STATE ROAD 7	UNIT 503	DAVIE	FL	33314
Current Occupant	5051 S STATE ROAD 7	UNIT 512	DAVIE	FL	33314
Current Occupant	5051 S STATE ROAD 7	UNIT 517	DAVIE	FL	33314
Current Occupant	5051 S STATE ROAD 7	UNIT 511	DAVIE	FL	33314
Current Occupant	5051 S STATE ROAD 7	UNIT 507	DAVIE	FL	33314
Current Occupant	5051 S STATE ROAD 7	UNIT 501	DAVIE	FL	33314
Current Occupant	5051 S STATE ROAD 7	UNIT 518	DAVIE	FL	33314
Current Occupant	5051 S STATE ROAD 7	UNIT 515	DAVIE	FL	33314
Current Occupant	5051 S STATE ROAD 7	UNIT 516	DAVIE	FL	33314
Current Occupant	5051 S STATE ROAD 7	UNIT 508	DAVIE	FL	33314

Current Occupant	5051 S STATE ROAD 7	UNIT 504	DAVIE	FL	33314
Current Occupant	5051 S STATE ROAD 7	UNIT 510	DAVIE	FL	33314
Current Occupant	5051 S STATE ROAD 7	UNIT 505	DAVIE	FL	33314
Current Occupant	5051 S STATE ROAD 7	UNIT 506	DAVIE	FL	33314
Current Occupant	5051 S STATE ROAD 7	UNIT 502	DAVIE	FL	33314
Current Occupant	5061 S STATE ROAD 7	UNIT 609	DAVIE	FL	33314
Current Occupant	5061 S STATE ROAD 7	UNIT 608	DAVIE	FL	33314
Current Occupant	5061 S STATE ROAD 7	UNIT 603	DAVIE	FL	33314
Current Occupant	5061 S STATE ROAD 7	UNIT 614	DAVIE	FL	33314
Current Occupant	5061 S STATE ROAD 7	UNIT 622	DAVIE	FL	33314
Current Occupant	5061 S STATE ROAD 7	UNIT 605	DAVIE	FL	33314
Current Occupant	5061 S STATE ROAD 7	UNIT 617	DAVIE	FL	33314
Current Occupant	5061 S STATE ROAD 7	UNIT 612	DAVIE	FL	33314
Current Occupant	5061 S STATE ROAD 7	UNIT 606	DAVIE	FL	33314
Current Occupant	5061 S STATE ROAD 7	UNIT 620	DAVIE	FL	33314
Current Occupant	5061 S STATE ROAD 7	UNIT 611	DAVIE	FL	33314
Current Occupant	5061 S STATE ROAD 7	UNIT 615	DAVIE	FL	33314
Current Occupant	5061 S STATE ROAD 7	UNIT 621	DAVIE	FL	33314
Current Occupant	5061 S STATE ROAD 7	UNIT 604	DAVIE	FL	33314
Current Occupant	5061 S STATE ROAD 7	UNIT 610	DAVIE	FL	33314
Current Occupant	5061 S STATE ROAD 7	UNIT 618	DAVIE	FL	33314
Current Occupant	5061 S STATE ROAD 7	UNIT 613	DAVIE	FL	33314
Current Occupant	5061 S STATE ROAD 7	UNIT 602	DAVIE	FL	33314
Current Occupant	5061 S STATE ROAD 7	UNIT 619	DAVIE	FL	33314
Current Occupant	5061 S STATE ROAD 7	UNIT 601	DAVIE	FL	33314
Current Occupant	5061 S STATE ROAD 7	UNIT 607	DAVIE	FL	33314
Current Occupant	5061 S STATE ROAD 7	UNIT 616	DAVIE	FL	33314
Current Occupant	5071 S STATE ROAD 7	UNIT 712	DAVIE	FL	33314
Current Occupant	5071 S STATE ROAD 7	UNIT 717	DAVIE	FL	33314
Current Occupant	5071 S STATE ROAD 7	UNIT 706	DAVIE	FL	33314
Current Occupant	5071 S STATE ROAD 7	UNIT 703	DAVIE	FL	33314
Current Occupant	5071 S STATE ROAD 7	UNIT 718	DAVIE	FL	33314
Current Occupant	5071 S STATE ROAD 7	UNIT 707	DAVIE	FL	33314
Current Occupant	5071 S STATE ROAD 7	UNIT 704	DAVIE	FL	33314
Current Occupant	5071 S STATE ROAD 7	UNIT 701	DAVIE	FL	33314
Current Occupant	5071 S STATE ROAD 7	UNIT 708	DAVIE	FL	33314
Current Occupant	5071 S STATE ROAD 7	UNIT 713	DAVIE	FL	33314
Current Occupant	5071 S STATE ROAD 7	UNIT 702	DAVIE	FL	33314
Current Occupant	5071 S STATE ROAD 7	UNIT 711	DAVIE	FL	33314
Current Occupant	5071 S STATE ROAD 7	UNIT 705	DAVIE	FL	33314
Current Occupant	5071 S STATE ROAD 7	UNIT 714	DAVIE	FL	33314
Current Occupant	5071 S STATE ROAD 7	UNIT 716	DAVIE	FL	33314
Current Occupant	5071 S STATE ROAD 7	UNIT 709	DAVIE	FL	33314

Current Occupant	5071 S STATE ROAD 7	UNIT 715	DAVIE	FL	33314
Current Occupant	5071 S STATE ROAD 7	UNIT 710	DAVIE	FL	33314
Current Occupant	5081 S STATE ROAD 7	UNIT 803	DAVIE	FL	33314
Current Occupant	5081 S STATE ROAD 7	UNIT 818	DAVIE	FL	33314
Current Occupant	5081 S STATE ROAD 7	UNIT 807	DAVIE	FL	33314
Current Occupant	5081 S STATE ROAD 7	UNIT 806	DAVIE	FL	33314
Current Occupant	5081 S STATE ROAD 7	UNIT 821	DAVIE	FL	33314
Current Occupant	5081 S STATE ROAD 7	UNIT 822	DAVIE	FL	33314
Current Occupant	5081 S STATE ROAD 7	UNIT 814	DAVIE	FL	33314
Current Occupant	5081 S STATE ROAD 7	UNIT 801	DAVIE	FL	33314
Current Occupant	5081 S STATE ROAD 7	UNIT 819	DAVIE	FL	33314
Current Occupant	5081 S STATE ROAD 7	UNIT 810	DAVIE	FL	33314
Current Occupant	5081 S STATE ROAD 7	UNIT 820	DAVIE	FL	33314
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Current Occupant	5081 S STATE ROAD 7	UNIT 804	DAVIE	FL	33314
Current Occupant	5081 S STATE ROAD 7	UNIT 816	DAVIE	FL	33314
Current Occupant	5081 S STATE ROAD 7	UNIT 808	DAVIE	FL	33314
Current Occupant	5081 S STATE ROAD 7	UNIT 815	DAVIE	FL	33314
Current Occupant	5081 S STATE ROAD 7	UNIT 805	DAVIE	FL	33314
Current Occupant	5081 S STATE ROAD 7	UNIT 809	DAVIE	FL	33314
Current Occupant	5081 S STATE ROAD 7	UNIT 817	DAVIE	FL	33314
Current Occupant	5081 S STATE ROAD 7	UNIT 802	DAVIE	FL	33314
Current Occupant	5081 S STATE ROAD 7	UNIT 812	DAVIE	FL	33314
Current Occupant	5081 S STATE ROAD 7	UNIT 813	DAVIE	FL	33314
DAN'S DEALS ON WHEELS	5300 S STATE ROAD 7		HOLLYWOOD	FL	33314
PADDOCK REAL ESTATE LLC	5300 SOUTH STATE ROAD 7		HOLLYWOOD	FL	33314
MAWARDI,SHLOMI	5323 SW 34 TER		FORT LAUDERDALE	FL	33312
BH-NV INVESTMENTS 8 LLC	5430 SW 25 AVE		FORT LAUDERDALE	FL	33312
KENNETH & C A DASILVA REV LIV TR	5480 SW 100 AVE		COOPER CITY	FL	33328
STEPHENS,CHRISTOPHER	58 LEONARD ST		GLENS FALLS	NY	12801
JACOB H BISCH REV LIV TR	5866 JULIANN CT		WASHINGTON TWP	MI	48094
DONGAL INVESTMENTS LLC	6220 SW 56 ST		DAVIE	FL	33314
EW LESA LLC	6220 SW 56 ST		DAVIE	FL	33314
JOSE A DASILVA REV TR	6300 SW 58 CT		DAVIE	FL	33314
MARLENE K MAURICE FAM TR	6350 SW 58 CT		DAVIE	FL	33314
DRIFTWOOD ACRES MHP LLC	6400 TELEGRAPH RD #2000		BLOOMFIELD TOWNSHIP	MI	48301
SOUTHERN MOBILE HOME PARK LLC	6400 TELEGRAPH RD #2000		BLOOMFIELD TOWNSHIP	MI	48301
SWAYING PALMS L L C	6400 TELEGRAPH RD #2000		BLOOMFIELD TOWNSHIP	MI	48301
SALAME,SUMRA T	646 SUNRISE RIDGE RD		SPRUCE PINE	NC	28777
MUNOZ,JAIRO & MARIA JOSEFINA	6554 STONEHURST CIR		LAKE WORTH	FL	33467
C & O SEXTON PROPERTY HOLDINGS	6820 SW 56 CT		DAVIE	FL	33314
DAVIE 51 LLC	7071 W COMMERCIAL BLVD #2A		TAMARAC	FL	33319
DAVIE TOO LLC	7071 W COMMERCIAL BLVD #2A		TAMARAC	FL	33319

LL HART DEVELOPMENT LLC	7200 W CAMINO REAL STE 200	BOCA RATON	FL	33433
PRIVCAP GRIFFIN HOSPITALITY LLC	7200 W CAMINO REAL STE 200	BOCA RATON	FL	33433
SABER GRIFFIN TWO LLC	80 BUSINESS PARK DR STE 306	ARMONK	NY	10504
FOUR D'S REALTY LLC	800 SE 3 AVE FLR 5	FORT LAUDERDALE	FL	33316
H J N HOTELS CORP	865 MERRICK AVE STE 50N	WESTBURY	NY	11590
D A INVESTMENTS 777 LLC	8737 ESTADA CIR	HOLLYWOOD	FL	33024
JADE M GORDON REV TR	8920 S LAKE DASHA DR	PLANTATION	FL	33324
SIGMA 3 INC	9709 N NEW RIVER CANAL RD #206	DAVIE	FL	33324
FIG TREE ON 2ND LLC	P O BOX 350123	FORT LAUDERDALE	FL	33335
ARRITITI TR	PO BOX 1720	DANIA BEACH	FL	33004
CCI PROPERTIES 1 LLC	PO BOX 17825	PLANTATION	FL	33318
CORPORATE COACHES INC	PO BOX 17825	PLANTATION	FL	33318
M N AHMAD GALAXY PROPERTIES TR 5	PO BOX 22369	FORT LAUDERDALE	FL	33335
SOUTH FLORIDA WATER MANAGEMENT	PO BOX 24680	WEST PALM BEACH	FL	33416
HARAP,JANE M & SCOTT	PO BOX 292366	DAVIE	FL	33329
HOLLYWOOD COIN LAUNDRY & CLEANE	PO BOX 39809	FORT LAUDERDALE	FL	33339
FLORIDA TURNPIKE ENTERPRISE	PO BOX 613069	OCOEE	FL	34761
SOUTHLAND CORP	PO BOX 711	DALLAS	TX	75221

TOWN OF DAVIE
PLANNING & ZONING DIVISION
6591 ORANGE DRIVE • DAVIE, FLORIDA 33314-3399
Phone: 954.797.1103 • www.davie-fl.gov

MEMORANDUM

TO: Planning and Zoning Board

FROM: Matthew Coyle, Planner II

THROUGH: David Quigley, Planning & Zoning Manager

DATE: August 27, 2020

SUBJECT: Ordinance to amend the Comprehensive Plan; Water Supply Facilities Work Plan and the following elements of the Town's Comprehensive Plan: Infrastructure Element, Parks, Recreation, Open Space & Conservation Element and Intergovernmental Coordination Element (LATXT20-102)

BACKGROUND

The State of Florida has introduced revised legislation over the past decade to strengthen the linkage between growth and water availability based on specific demands identified in the water supply planning process. Local governments are required to revise the Infrastructure Element of their Comprehensive Plan within 18 months of the adoption of their Regional Water Supply Plan. The 2018 Lower East Coast Water Supply Work Plan Update was adopted 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 10-year Water Supply Facilities Work Plan. Each Work Plan is required to address infrastructure, conservation, capital improvements, and intergovernmental coordination in addition to water supplier coordination.

The 2020 Ten-Year Water Supply Facilities Work Plan (WSFWP) was prepared by the Town's consultant (Stantec) in consultation with the Town's Utility Department, Planning and Zoning Division, the South Florida Water Management District (SFWMD), Seminole Tribe of Florida, Tindall Hammock Irrigation and Soil Conservation District, Broward County, City of Hollywood, City of Fort Lauderdale and City of Sunrise. The WSFWP must be adopted by reference into the Infrastructure Element of the Comprehensive Plan. The proposed amendment also includes changes to the Infrastructure Element, Parks, Recreation, Open Space & Conservation Element and Intergovernmental Coordination Element that were identified in the WSFWP.

RECOMMENDATION

Find that the proposed ordinance is consistent with and furthers the Town's comprehensive plan and make such recommendation to Town Council

ORDINANCE NO. _____

AN ORDINANCE OF THE TOWN OF DAVIE, FLORIDA, AMENDING THE TOWN'S WATER SUPPLY FACILITIES WORK PLAN AND THE FOLLOWING ELEMENTS OF THE TOWN'S COMPREHENSIVE PLAN: INFRASTRUCTURE ELEMENT, PARKS, RECREATION, OPEN SPACE & CONSERVATION ELEMENT AND INTERGOVERNMENTAL COORDINATION ELEMENT; PROVIDING FOR CONFLICT, PROVIDING FOR SEVERABILITY, AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, Section 163.3167(9) requires each local government to address in its Comprehensive Plan, the water supply sources necessary to meet and achieve the existing and projected water use demand for an established planning period;

WHEREAS, the Town recognizes the need for integration between land use planning and water supply planning; and

WHEREAS, Section 163.3177, requires local governments to prepare and adopt at least a 10-Year Water Supply Facilities Work Plan; and

WHEREAS, in order to reflect recent updates to state and regional Water Supply Facilities Work Plans, the Town desires to amend its Water Supply Facilities Work Plan and related elements within the Comprehensive Plan; and

WHEREAS, Section 163.3184(2)(a) provides that comprehensive plan amendments adopted by local governments shall follow the expedited state review process; and

WHEREAS, at a public hearing on September 8, 2020, the Planning and Zoning Board reviewed this ordinance and made a recommendation to Town Council; and

WHEREAS, following proper notice to the public and after having received input and participation from interested members of the public and staff, and having considered the recommendation of the Planning and Zoning Board, the Town Council finds this proposed ordinance consistent with its Comprehensive Plan, as amended, as well as Florida and Federal law; and

WHEREAS, the Town Council finds that this Ordinance is necessary for the preservation of the public health, safety and welfare of the Town's residents; and

WHEREAS, the Town Council has held two advertised public hearings in accordance with Florida Statutes; and

WHEREAS, the Town Council deems it to be in the best interest of the citizens and residents of the Town of Davie to adopt the proposed amendments to the Comprehensive Plan.

NOW, THEREFORE, BE IT ORDAINED BY THE TOWN COUNCIL OF THE TOWN OF DAVIE, FLORIDA.

SECTION 1. The foregoing "WHEREAS" clauses are hereby ratified and confirmed as being true and correct and are hereby made a part of this Ordinance.

SECTION 2. The Town of Davie Comprehensive Plan, is hereby amended as set forth in Exhibit "A" (new language is underlined, deleted language is struck through).

SECTION 3. The Water Supply Facilities Work Plan is hereby adopted as set forth in Exhibit "A".

SECTION 4. All ordinances or parts of ordinances in conflict herewith are to the extent of such conflict hereby repealed.

SECTION 5. If any section, subsection, sentence, clause, phrase, or portion of this ordinance is, for any reason, held invalid or unconstitutional by any court of competent jurisdiction, such portion shall be deemed a separate, distinct, and independent provision and such holding shall not affect the validity of the remaining portion of this ordinance.

SECTION 6. The Town Council hereby authorizes the appropriate Town officials to submit the appropriate number of copies of this ordinance and the Town's Comprehensive Plan, as amended herein, to the State Land Planning Agency and to any other governmental agency having jurisdiction with regard to the approval of same in accordance with and pursuant to Chapter 163, Florida Statutes.

SECTION 7. The effective date of this plan amendment, if the amendment is not timely challenged, shall be 31 days after the state land planning agency notifies the local government that the plan amendment package is complete. If the amendment is timely challenged, this amendment shall become effective on the date the state land planning agency or the Administration Commission enters a final order determining this adopted amendment to be in compliance.

PASSED ON FIRST READING THIS _____ DAY OF_____, 2020

PASSED ON SECOND READING THIS _____ DAY OF_____, 2020

_____
MAYOR/COUNCILMEMBER

ATTEST:

_____
TOWN CLERK

APPROVED THIS _____ DAY OF_____, 2020

Approved as to Form and Legality:

_____
TOWN ATTORNEY

3. INFRASTRUCTURE ELEMENT

GOAL 1: Provide for the safe, efficient, and adequate supply of sanitary sewer treatment capacity, solid waste disposal, drainage facilities and potable water service for new and existing developments while maintaining and protecting the functions of natural ecosystems and allowing for development consistent with the Goals, Objectives and Policies of the Land Use Element of the Comprehensive Plan.

…

POTABLE WATER SERVICE

OBJECTIVE 7: The Town shall provide adequate potable water service to the Davie service areas in a manner consistent with regulations promulgated by applicable regulatory agencies.

Policy 7-1 The Level of Service (LOS) sStandard that is supported by and consistent with the Work Plan's data and analysis for potable water facilities is herein adopted to be ~~145~~ 129 gallons per capita per day (gpcd) for the Town's service area., also described as 350 gallons per day (gpd) per equivalent residential connection (ERC). The ERC for non-residential, commercial, industrial and institutional connections shall be based on the flow table included in Policy 1.1, which sets forth the minimum flow rates for evaluating the impact of development. The ERC for various residential dwelling types shall be based upon the potable water flow table below. The LOS standard shall also reflect other level of service standards utilized by the Florida Department of Children and Family Services, through its Public Health Unit, for potable water service. The level of service standard shall be used to determine service adequacy during the earliest of the following processes, as applicable: time of plat approval, site plan approval or building permit review.

ANTICIPATED AVERAGE DAILY FLOW TABLE TYPE OF RESIDENTIAL DWELLING USAGE

RESIDENTIAL	**Average**
Daily Flow/Gallons per day	
SINGLE FAMILY DETACHED	
Three (3) bedrooms	350 GPD
Two (2) bedrooms	300 GPD
Each additional bedroom	50 GPD
TOWNHOUSE (SINGLE-FAMILY ATTACHED)	
Three (3) bedrooms	300 GPD
Two (2) bedrooms	250 GPD
MULTI-FAMILY BLDGS	
425 gallons per acre per day plus:	
Each three (3) bedroom unit	165 GPD
Each two (2) bedroom unit	125 GPD
Each one (1) bedroomunit, efficiency	85 GPD DUPLEXES,
TRIPLEXES OR QUADPLEXES	Same as townhouse above

Policy 7-2 The Level of Service (LOS) Standard that is supported by and consistent with the City of Sunrise 2020 Ten- Year Water Supply Facilities Work Plan data and analysis for potable water facilities is herein adopted to be 102 gallons per capita per day (gpcd).

Policy 7-3 The Level of Service (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 gallons per capita per day (gpcd).

Policy 7-4 The Level of Service (LOS) Standard that is supported by and consistent with the Broward County Water Supply Facilities Work Plan – (2020 Work Plan) data and analysis for potable water facilities is herein adopted to be 127 gallons per capita per day (gpcd).

Policy 7-5 The Level of Service (LOS) Standard that is supported by and consistent with the City of Fort Lauderdale Water Supply Facilities Work Plan – 2019 Update data and analysis for potable water facilities is herein adopted to be 164 gallons per capita per day (gpcd).

Policy 7-~~2~~6 All by-products of the water treatment process shall be disposed of in a manner acceptable to applicable regulatory agencies, and in an environmentally sound manner.

Policy 7-~~3~~7 Potable water facilities shall be extended, to the extent that it is financially feasible,

to those portions of the Davie service areas not currently served by the Town's water system ~~municipal system~~.

Policy 7-~~4~~8 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-~~5~~9 The Town shall coordinate with appropriate entities, including the South Florida Water Management District, in encouraging, implementing and publicizing conservation techniques at all times, not just during water conservation periods.

Policy 7-~~6~~10 Land Development regulations shall encourage the use of native vegetation and ~~xeriscape©~~ Florida-friendly landscaping in new development to reduce dependency on potable water supply.

Policy 7.~~7~~11 ~~The Town of Davie 20-Year Water Supply Facilities Work Plan dated June 2015~~ The Town's 10-Year Water Supply Facilities Work Plan – 2020 Update is adopted by reference into the Comprehensive Plan and shall be updated as needed or within eighteen months of an update to the South Florida Water Management District Regional Water Supply Plan.

OBJECTIVE 8: Areas within the Town not served by the Town of Davie systems shall be assured an adequate level of potable water service.

Policy 8-1 Through the Town's Development Review Process, and pursuant to applicable land development regulations, the Town may assure adequacy of service consistent with the minimum standards for the use of septic systems established by the Florida Department of Children and Family Services, through its Public Health Unit.

Policy 8-2 Prior to approval of a building permit or its functional equivalent, the Town shall consult with any applicable water supplier to determine whether adequate water supplies to serve the new development will be available no later than the anticipated date of issuance by the Town of a certificate of occupancy or its functional equivalent.

Policy 8-3 Amend the Land Development Regulations to require new development provide verification that there will be adequate capacity to serve the project prior to the issuance of a certificate of occupancy. The verification shall be from the water supplier, and shall be provided to the Town prior to the issuance of a building permit.

Policy 8.4 The following Water Supply Facilities Work Plans are adopted by reference into the Comprehensive Plan and shall be updated as needed or within eighteen months of an update to the South Florida Water Management District Regional Water Supply Plan.

- Broward County Water Supply Facilities Work Plan ~~(2014)~~ (2020 Work Plan), Broward County
- City of Fort Lauderdale 10-Year Water Supply Facilities Work Plan ~~(2014)~~ (2019 Update), City of Fort Lauderdale
- City of Hollywood Water Supply Plan Potable Water Sub-Element ~~(2015)~~ (2020 Update), City of Hollywood
- City of Sunrise 2020 ~~10~~Ten-Year Water Supply Facilities Work Plan ~~(2014)~~, City of Sunrise

- Tindall Hammock Irrigation and Soil Conservation District 10-Year Water Supply Facilities Work Plan Update ~~(2015)~~ (2019, THISCD)

OBJECTIVE 9: Discourage urban sprawl by continuing to require the use of municipal potable water service where service is available in a financially feasible manner.

Policy 9-1 Potable water service shall be provided to users within the Davie service areas prior to expansion into new areas.

OBJECTIVE 10: Develop and implement a Town-wide strategy for public water conservation.

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 10-2 Adopt water conservation measures with regard to Town property and Town operations, and comply with any water conservation ordinance in effect in the Town.

Policy 10-3 Coordinate with the South Florida Water Management District concerning strategies to reduce per capita water use.

Policy 10-4 Develop land development regulations requiring the installation of water reuse infrastructure on all new subdivisions, and commercial and multi- family developments.

Policy 10-5 Pursue the establishment and use of reuse systems as part of the Town's water supply.

Policy 10-6 Sanitary sewer, solid waste, drainage, adequate water supplies, and potable water facilities shall be in place and available to serve new development no later than the issuance by the local government of a certificate of occupancy or its functional equivalent, or as may otherwise be provided by State law.

Policy 10-7 The Town's water supply plan will be consistent with the standards and regulations established by the SFWMD, FDEP, State and other jurisdiction agencies.

Policy 10-8 The Town will evaluate the production, expansion capabilities and life expectancy of the water treatment plants in each update to the water supply plan.

Policy 10-9 Davie will continue to provide for new water supply sources from the Floridan aquifer or other alternative water supply sources, other than the Biscayne Aquifer.

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, aquifer storage and recovery (ASR), groundwater recharge and indirect reuse systems.

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 10-12: The Town will coordinate with the various utility providers in the Town of Davie to support their leak detection programs and/or the development of one through semi-annual coordination efforts.

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 10-14 The Town 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 Phased Water Use Restrictions.

INFRASTRUCTURE UTILITIES: GOALS, OBJECTIVES AND POLICIES

All departments in the Town participating in the implementation of this Element shall be required to operate within the framework established by the Goals, Objectives and Policies. All decision-making with regard to capital improvements and expenditures, shall reflect the Goals, Objectives and Policies. Annual budget review and capital improvement programming shall reflect consideration of needs that have been determined with respect to the Goals, Objectives and Policies.

Town land development regulations shall be amended, as necessary, to implement the requirements of this Element.

4. PARKS, RECREATION, OPEN SPACE & CONSERVATION ELEMENT

GOAL 1: To provide sufficient parks, recreational lands and open spaces to satisfy the needs and diverse desires of the existing and future populations.

…

OBJECTIVE 3.3: The Town shall encourage a reduction in water consumption.

Policy 3.3.1 The Town shall review and, as appropriate, amend the regulations which address landscaping, to encourage and promote the use of ~~non water intensive~~ native vegetation and Florida-friendly landscaping ~~(xeriscape ©)~~.

Policy 3.3.2 The Town shall promote public education and awareness concerning water conservation methods and shall implement water conservation measures in accord with the requirements of the South Florida Water Management District or other appropriate regulatory agency.

Policy 3.3.3 The Town will provide measures to protect water quality in any and all traditional and new alternative water supply sources developed.

Policy 3.3.4 The Town shall continue to utilize a water rate structure that promotes water conservation by charging a per gallon rate for single-family residences that exceed a preset volume of water, and adjusts block rate and surcharges during SFWMD declared Phase I and II water restrictions.

Policy 3.3.5 The Town has adopted and will continue to adopt all Broward county-wide ordinances, including the Water Conservation Ordinance 91-8 which provides for water shortage and emergency procedures and permanent restrictions on landscape irrigation systems.

Policy 3.3.6 The Town will continue to abide by Broward County Code Section 39-78, as amended, which stipulates measures to conserve water usage through landscaping and irrigation.

Policy 3.3.7 The Town should conserve water by pursuing implementation of the water conservation practices described in the 10 - Year Water Supply Facilities Work Plan – 2020 Update.

Policy 3.3.8 The Town 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.

8. INTERGOVERNMENTAL COORDINATION ELEMENT

GOAL: Provide effective opportunities for intergovernmental coordination to implement the goals, objectives and policies of the Comprehensive Plan relating to development and the provision of essential services in the Town.

• • •

OBJECTIVE 3: The Town shall continue to coordinate planning and development activities with agencies and other units of local government providing essential services to the Town and which do not have regulatory authority over land use, to ensure coordination in the provision of essential services pursuant to the adopted level of service standards.

Policy 3-1 Notify affected service providers providing services within the corporate limits of the Town of proposed annexations, changes in land use, changes in zoning and/or development phasing, and request they assess the proposed change in impact and advise as to service availability.

Policy 3-2 Continue to coordinate with the Broward County School District in the provision of essential services and facilities. Specifically, the Town and Broward County shall work together to maintain a unified data base that will include population projections, school boundary changes, land use, and public facility capacities. This unified data base will help to ensure the proper sitting of new schools and the collocation of public facilities, such as parks and community centers.

Policy 3-3 Coordinate, at the staff level, with the Broward County School District on any development applications which may affect the safety of public school students, enhance public education or alter the Town's existing or anticipated future needs for public school facilities.

Policy 3-4 The Development Services Department shall, pursuant to the Broward County Administrative Code, continue to provide quarterly demolition reports to the County for use in preparation of population estimates and projections to be used in transportation, School District and other countywide planning activities.

Policy 3-5 The Town shall establish a staff-level Educational Committee that will coordinate with the Broward County School District, as may be necessary, to facilitate expansion of existing or location of additional public school facilities within the Town of Davie, consistent with the policies of the Future Land Use Element of the Comprehensive Plan.

Policy 3-6 The Town shall inform the Broward County School District of any proposed changes to the Town's Comprehensive Plan.

Policy 3-7 The Town shall, to the best of their ability and as permitted by the Town's Land Development Regulations, streamline the development review and permitting process for

new schools. The Town shall also review education facility projects for onsite and offsite impacts and work cooperatively with the Broward County School District to mitigate these impacts.

Policy 3-8: Pursuant to Chapter 163.3177(h) F.S., the County, School Board and the Town shall coordinate their planning and permitting processes consistent with the procedures established within the ILA as follows:

(a) Review and update of the annual DEFP containing the financially feasible schedule of capital improvement for school facilities needed to achieve and maintain the adopted level of service standards in all CSA's.

(b) Coordinate County and municipal land use planning and permitting processes with the School Board's site selection and planning process to ensure future school facilities are consistent and compatible with land use categories and enable a close integration between existing and planned school facilities and the surrounding land uses.

(c) Coordinate the preparation of County and the municipal projections for future development with the School Board's school enrollment projections to ensure consistency between the County and the municipal future land use maps and the long term school planning process.

(d) Coordinate with the School Board through the Staff Working Group and Oversight Committee regarding the preparation of County and municipal annual comprehensive plan updates and the School Board's annual update of the DEFP to ensure consistency between the plans.

(e) Coordinate with the School Board on the planning, siting, land acquisition, permitting and development of new school facilities to ensure the availability of public facilities, services and grounds, especially for purposes of exploring collocation opportunities.

(f) Revise County and municipal land development codes and School Board policies to establish a county-wide public school concurrency system.

Policy 3-9 Continue to coordinate with the FDOT and Broward County Transportation to ensure the maintenance of adopted level of service standards, including multimodal level of service standards and the safety of all residents and visitors to the Town.

Policy 3-10 Coordinate with the County to develop means by which it can be ensured that monies paid into the Transit Improvement Fund of the South Central Transit Oriented Concurrency District from development and redevelopment within the Town are earmarked for transit improvements within the Town.

Policy 3-11 The Town will coordinate with the South Florida Water Management District (SFWMD) and all other water utility providers serving the Town in order to facilitate the sharing and updating of information necessary to meet ongoing water supply needs throughout the Town and meet on a semi-annual basis to review existing population projections and discuss future development within the Town.

Policy 3-12 The Town will coordinate with the SFWMD and all other water utility providers serving the Town in order to implement any and all alternative water supply projects, as well as to establish level of service standards, resource allocations, and changes in service areas necessary for potential annexations.

Policy 3-13 The Town will coordinate with South Florida Water Management District, the City of Sunrise, Broward County, City of Hollywood, City of Fort Lauderdale and Tindall Hammock Irrigation and Soil Conservation District to ensure that the Town's estimates and projections for potable water demand are incorporated into their estimates for demand.

Policy 3-14 The Town will coordinate with the South Florida Water Management District in order to update the Town's Water Supply Facilities Work Plan within 18 months after the South Florida Water Management District updates the Lower East Coast Regional Water Supply Plan Update.

Policy 3-15 Where appropriate and feasible, the Water Supply Facilities Work Plan shall include collaborative approaches with other local governments for long term alternative water supply source use and water treatment technology. The Town will hold annual meetings with local governments in the Town's Water Service Area and the and the South Florida Water Management District 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.

TOWN OF DAVIE

Ten (10) -Year

Water Supply Facilities

Work Plan

2020

2020 Ten-Year Water Supply Facilities Work Plan

May 8, 2020

Prepared for: Town of Davie

Prepared by: Stantec Consulting Services, Inc.

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1.0 CHAPTER 1 - INTRODUCTION

The State of Florida has introduced revised legislation over the past decade to strengthen the linkage between growth and water availability based on specific demands identified in the water supply planning process. This 10-Year Water Supply Facilities Work Plan (WSFWP) has been prepared for the Town of Davie (Town), 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 "Infrastructure Element" 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.

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 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 2018 Lower East Coast Water Supply Plan Update (2018 LEC Plan Update) was adopted 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 10-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 10-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.

Appendix A; Growth Policy; County and Municipal Planning; Land Development Regulation, Chapter 163, Part II, F.S. Related to Water Supply Planning, provides a summary of regulatory requirements that impact local governments and their water supply planning efforts. It should be noted that 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 (F.A.C.) was repealed in 2011.

1.2 PURPOSE

The purpose of the WSFWP is to assess the Town's and the water service providing utilities (i.e. City of Sunrise, Broward County, City of Fort Lauderdale, City of Hollywood and Tindal Hammock Soil and Water Conservation District (a.k.a. Tindall Hammock) existing water resources and water supply facilities and evaluate the adequacy to meet the projected potable 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 LEC Plan Update. The Work Plan must also cover at least a 20-year planning period and identify alternative and traditional water supply development as well as conservation and reuse projects needed to meet the Town's projected future demands. The WSFWP will outline Alternative Water Supply (AWS) required to meet projected shortfalls and provide a schedule for implementing the AWS Projects and summarize the amount of treated water deficiencies and treated water supply available by implementing the AWS Projects if necessary. The WSFWP will analyze and describe the Capital Improvement Plans (CIP) needed for current and future water supply needs and will incorporate the Town's five-year (5) CIP funding plan if necessary. This WSFWP will also provide coordination efforts needed for the water supply and land use planning. Development of this work plan requires coordination between the Town's Planning and Zoning Department and Utility Department, the South Florida Water Management District (SFWMD), the receiving municipalities from the Town (Seminole Tribe of Florida and Tindall Hammock), and the providing utilities (Broward County, City of Hollywood, City of Fort Lauderdale, and City of Sunrise).

1.3 RELEVANT REGIONAL ISSUES

In accordance with 2018 LEC Plan Update, following items may affect water supply planning efforts in the LEC Planning area including all of Palm Beach, Broward, and Miami-Dade counties, most of Monroe County, and portions of eastern Hendry and Collier counties. Relevancy of these issues to the Town of Davie are also provided after each item.

- Increased withdrawals from the SAS are limited due to potential impacts on the regional system, wetlands, and existing legal water uses and due to the potential for saltwater intrusion.
    - Town of Davie has ongoing efforts to help alleviate this issue: 1) The Town has implemented various conservation efforts to lower the water demands. 2) The Town identifies alternative water supply and reuse programs necessary to meet water needs identified in the 2018 LEC Plan Update. 3) Town has a policy that supports use of alternative water supply sources other than Biscayne Aquifer (Please see Potable Water Service, Policy 10-09).
- Surface water allocations from Lake Okeechobee and hydraulically connected surface waters are limited by the Lake Okeechobee Service Area RAA criteria.
    - Not Applicable to the Town of Davie

- While the 2008 Lake Okeechobee Regulation Schedule (LORS) is in effect, surface water users in the Lake Okeechobee Service Area have a reduced (1-in-6 year) level of certainty.
    - Not Applicable to the Town of Davie
- During dry conditions, surface water availability and current storage capacity sometimes is insufficient to meet water demands and environmental needs.
    - Not Applicable to the Town of Davie
- Additional storage (i.e., ASR systems and reservoirs) is required for the regional system to attenuate damaging peak flow events from Lake Okeechobee.
    - Regional ASR system is not applicable to the Town.
    - Town has a policy that supports aquifer storage and recovery systems (ASR), groundwater recharge and indirect reuse systems (Please see Potable Water Service, Policy 10-09).
- Expanded use of reclaimed water is necessary to meet future water supply demands and the Ocean Outfall Law.
    - Since 2014 the Town owns a Water Reclamation Facility. Reclaimed water produced at this facility is used for public access irrigation. The reclaim water facility and system can potentially augment irrigation to offset potable water for irrigation in future if it was economically deemed feasible.
- Expanded use of brackish groundwater from the Floridan aquifer system requires careful planning and wellfield management to prevent undesirable changes in water quality.
    - In 2014 the Town has constructed the new Floridan water supply wells. This has provided the Town a better understanding of the water quality and the geologic formation. The Town is continuing to monitor the water quality from these wells.

2.0 CHAPTER 2 – WATER SERVICE AREA

2.1 INTRODUCTION

The Town of Davie is located in southeastern portion of Broward County, and was incorporated in 1960. The Town is bounded by the City of Weston to the west, Pembroke Pines, City of Hollywood, Southwest Ranches, and City of Cooper City to the south, City of Plantation and City of Sunrise to the north, Dania Beach, Unincorporated Broward County, and City of Fort Lauderdale to the east. **Figure 2-1** shows the Town of Davie Location Map. The Town's water service area encompasses an area of 11.5 square miles. The Town provides water service to approximately one third of its local government area.

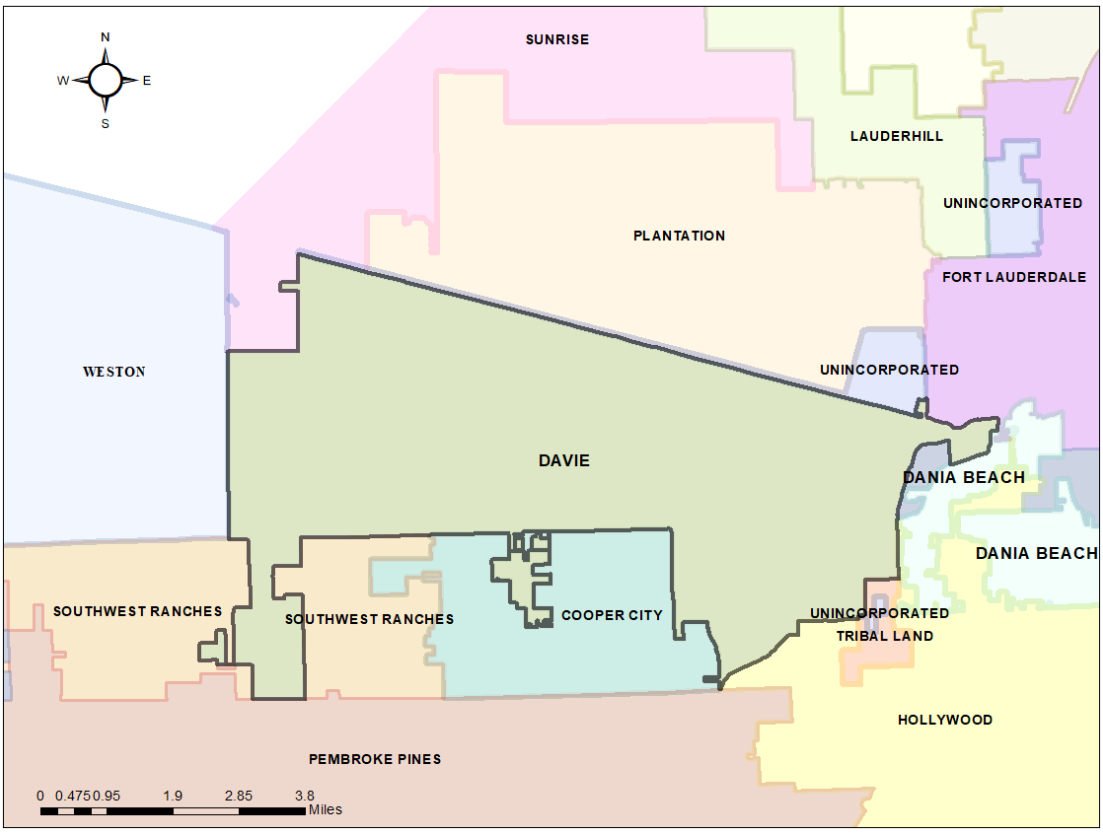


Figure 2-1. Town of Davie Location Map (Source: Town of Davie, 2019)

2.2 WATER SERVICE AREA

The Town currently provides water services to approximately 35,500 people. The Town's existing utility service area is shown in **Figure 2-2**. The Town's service area is bounded on the north by State Road 84, on the south side by Stirling Road, on the east by State Road 7, Tindall Hammock, Hacienda Village and the Seminole Indian Reservation, and on the west by Hiatus Road and University Drive. The Town 's utility

service area includes the majority of eastern Town of Davie and the Hard Rock Hotel complex located in the Seminole Tribe of Florida Reservation. The Town Utilities Department currently owns and operates two (2) Water Treatment Plants (WTP) consisting of System III and System V, with a total treatment capacity of 10.0 million gallons per day (MGD).

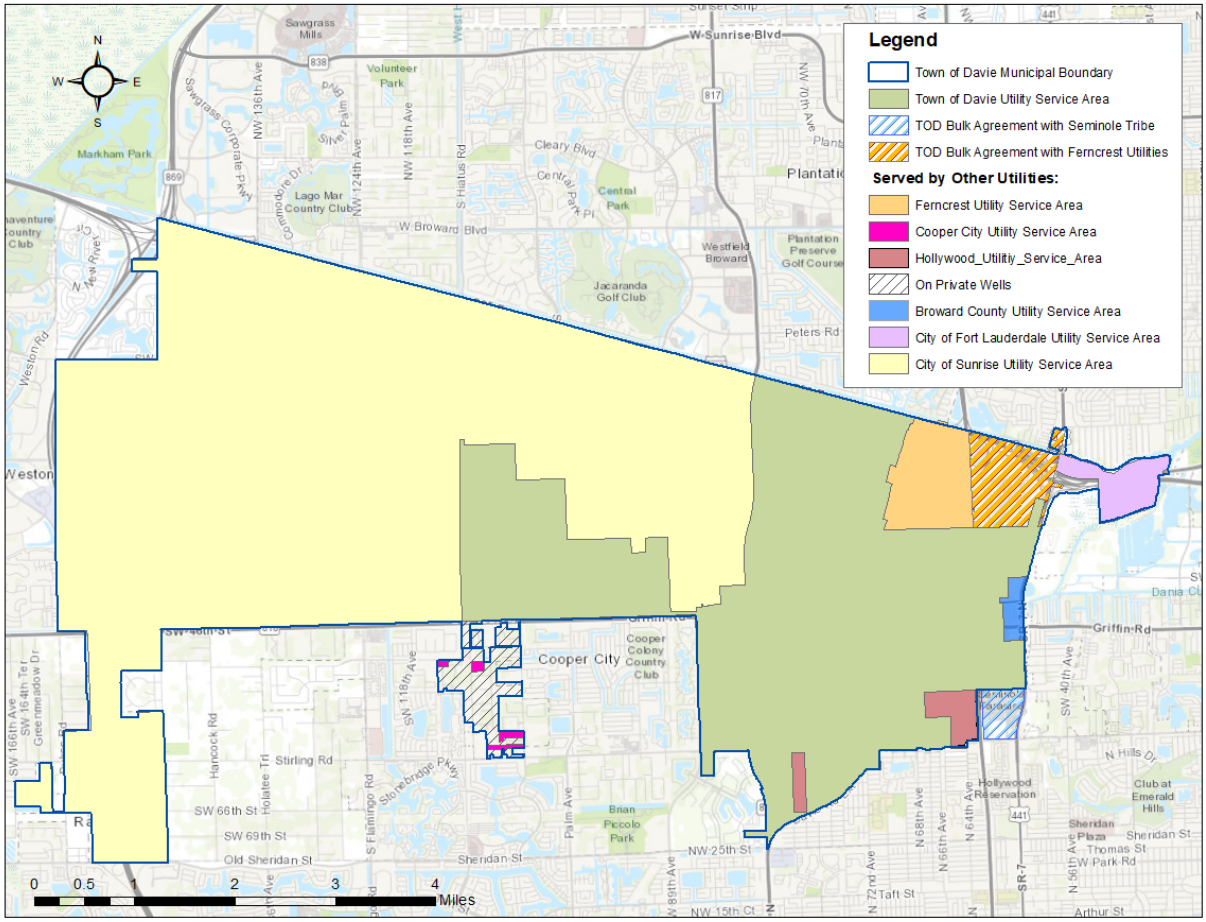


Figure 2-2. Boundaries of the Existing Utility Service Providers within the Town's Municipal Limits

(Source: Town of Davie, 2019)

2.2.1 Water Service Providers

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 Tindall Hammock, City of Hollywood, Broward County, City of Fort Lauderdale, Cooper City, and City of Sunrise. In addition, in case of emergencies, the Town is able to receive water from other providers via interconnects, including: City of Hollywood, Broward County Utilities, City of Sunrise, and City of Cooper City.

Tindall Hammock is a private utility company with its service area located in the corporate limits of the Town of Davie east of the Florida Turnpike and north of Oaks Road. Ferncrest water treatment facility does not

have adequate capacity to provide the required potable water to all residents within Tindall Hammock. The Town provides water and wastewater service to the eastern portion of Tindall Hammock pursuant to a Bulk Water and Sewage User Agreement. In case of emergency, Town of Davie is able to provide water to the western portion of Tindall Hammock, west of the Florida Turnpike, via a metered interconnect.

Based on an existing agreement between the City of Fort Lauderdale and the Town of Davie, the Town purchases potable water from the City of Fort Lauderdale to serve the portion of the Town located along the State Road 84, east of State Road 7, in the area previously known as Hacienda Village. In case of emergency, the Town is able to provide water to Hacienda Village via an interconnect.

The City of Hollywood utility service area includes an area north of Sterling Road, west of Florida Turnpike, and an additional small area south of Stirling Road and North of Davie Road.

A small portion of the eastern edge of the Town at Griffin Road and Orange Drive is served by Broward County. As shown in **Figure 2-2**, portion of the Town adjacent to City of Cooper City is mainly on private wells and only a few parcels are served by City of Cooper City. The majority of required potable water for the western portions of the Town (approximately two thirds of the Town) is provided by City of Sunrise.

2.3 SERVICE WITHIN OTHER LOCAL GOVERNMENT JURISDICTIONS

The Town of Davie utilities provides potable water to two (2) users within the Town's municipal boundary including the Seminole Tribe of Florida and the Tindall Hammock.

2.3.1 Tindall Hammock Irrigation and Soil Conservation District

The Town has an agreement dated July 7th, 1999 with Tindall Hammock, where Town provides a maximum average flow of 200,000 gallons per day. The area to be serviced by the Tindall Hammock are situated in the corporate limits of the Town of Davie east of Florida Turnpike and north of Oakes Road. The Town provides water via two connections located 5 miles apart, none of connections has a master meter installed. Billing for this area is handled by the Town while Tindall Hammock are responsible for individual meters reading. This agreement is included in **Appendix C**.

2.3.2 Seminole Tribe of Florida Water Agreement

The Town has an agreement dated November 20, 2001 with the Seminole Tribe of Florida, where the Town provides bulk water service in the amount of maximum average flow of 300,000 gallons per day per month to the Hard Rock Hotel and Entertainment Complex on the Seminole Tribe of Florida Reservation. The connection has meter installed. The agreement allows either party to terminate the agreement upon issuance of twelve month notice of intent to terminate by either party. This agreement was terminated on July 29th, 2019.

2.4 POTENTIAL FUTURE SERVICE AREA

A portion of the Town in proximity of its existing service area is currently on private wells. The Town has the capability to provide water service in this area currently served by private wells. As shown in **Figure 2-3**, this portion is also adjacent to the City of Cooper City local government. Few parcels in this portion is currently served by the City of Cooper City. The Town had the forethought to include its parcels that are currently served by other water providers, including Cooper City, Fort Lauderdale, Broward County, and Hollywood in its potential future service area (Please see **Table 4-3** for a summary of the population projections). **Figure 2-3** shows the Town's potential future service area. The Town has an availability and is evaluating the physical connection cost to serve Hacienda Village directly instead of it being served by the City of Fort Lauderdale. The Town has availability and had the forethought to include to serve the portions of its local government which is currently being served by Broward County and the City of Hollywood in future. Details related to population projections resulting from planned changes in service area are described in **Section 4.5**. **Section 5** of this report considers demand projections based on the service area expansion timeline shown in **Section 4.5**.

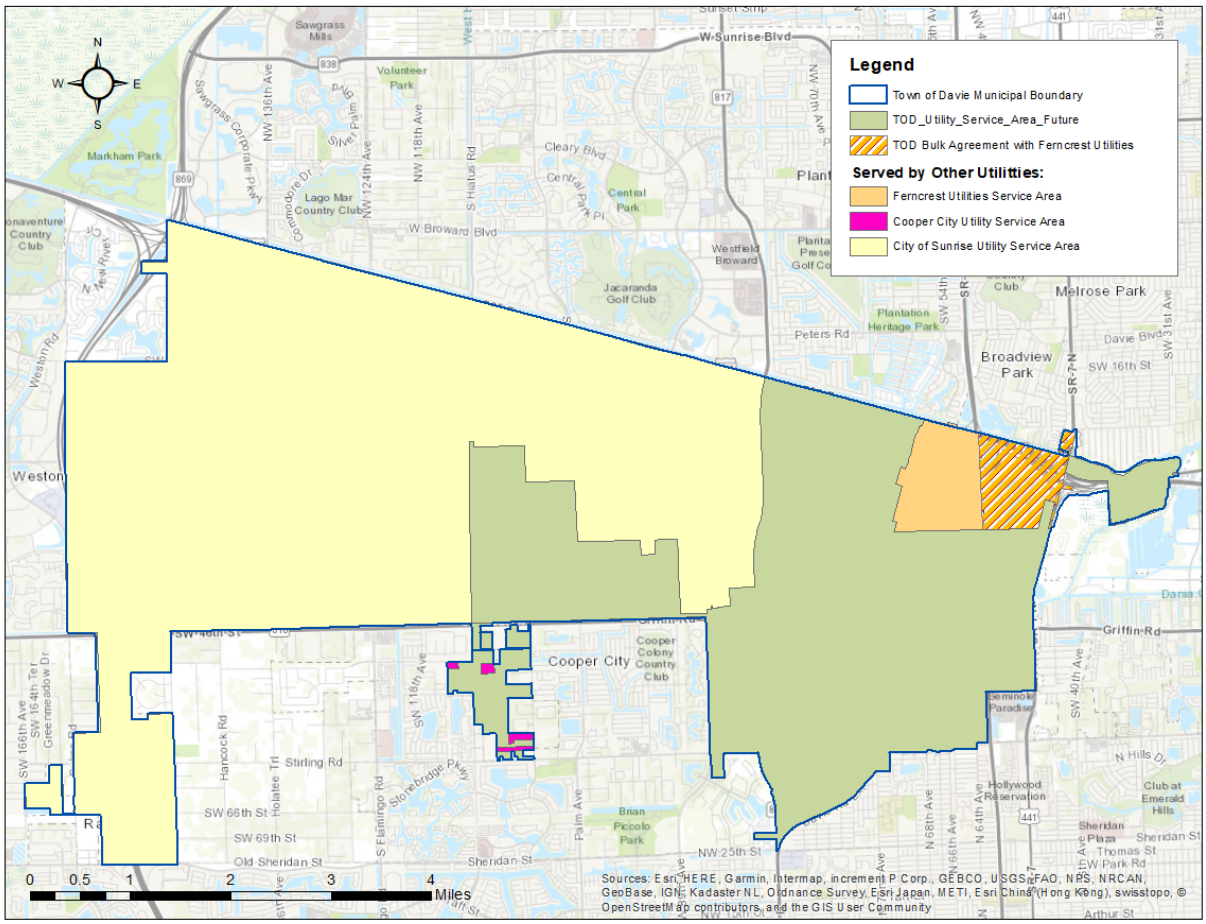


Figure 2-3. Town's Potential Future Service Area (Source: Town of Davie, 2019)

2.5 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 course, crops, nurseries, residential landscaping or industrial. Individual and general permit wells within Town's municipal boundary is shown in **Figure 2-4. Appendix B** provides an inventory list of all individual and general permit wells that are mapped in **Figure 2-4.** There are five individual users in Town of Davie that are outside of the Town's existing service area and are on domestic self-supply system. The Town plans to provide water service to the domestic self-supply systems in this area starting 2030.

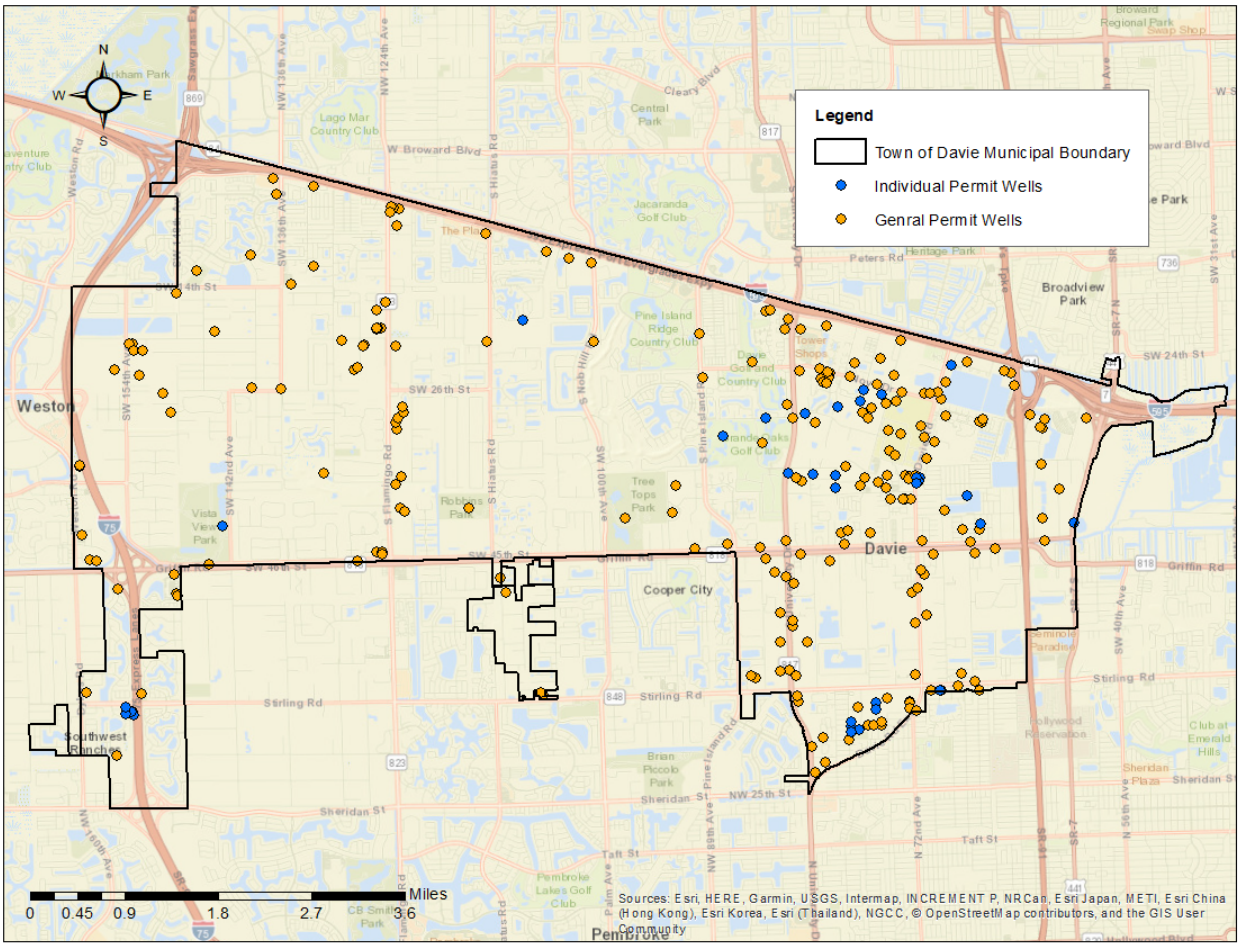


Figure 2-4. Location of Individual and General Permitted Wells within the Town of Davie Municipal Boundary

(Source: SFWMD Geospatial Open Data Website, 2019)

3.0 CHAPTER 3 – TREATMENT, STORAGE, TRANSMISSION AND DISTRIBUTION

3.1 INTRODUCTION

This section provides an overview of the Town's existing WTPs, water supply facilities, and distribution system. The Town has two (2) active wellfields, two (2) WTPs and maintains approximately 165.4 miles of water mains, 1387 valves, and 1400 fire hydrants. The Town has emergency interconnections with the City of Sunrise, City of Fort-Lauderdale, Broward County, City of Hollywood, City of City of Cooper City, and Tindall Hammock. Detailed information about the interconnections are shown in **Table 3-1.** The Town provided water service to the Seminole Tribe of Florida. Starting from July 2019 the water service can be provided in case of emergency as listed in the interconnection table below. In addition, the Town provides water service to the portions of Tindall Hammock located east of the Florida Turnpike on a regular basis.

Table 3-1. Town of Davie Water Supply System Emergency Interconnections

ID	City	From/ To	Size (Inch)	Metered (Yes/No)	Comments	Location
1	City of Hollywood	From	10	Yes	Davie Rd Ext South of Stirling Rd East side	Davie Rd & Stirling Rd
2	Broward County Utilities	Both	8	No		SW 47 Ave
3	City of Sunrise	From	8	Yes	West side of Hiatus Rd	Hiatus Rd & SW 26 St
4	City of Sunrise	Both	12	Yes	NW corner S. University and SW 30 Street	University Dr & SW 30 St
5	City of Cooper City	From	8	Yes	SW corner 100 Ave and Griffin Road	SW 100 Ave & Griffin
6	City of Cooper City	From	8	Yes	Pine Island & SW 57 St	Pine Island & SW 57 St
7	Hacienda Village – TOD Consecutive Water System	TO	8	No	TOD Emergency Interconnected to Supply HV (During FTL System Failure)	US 441 Oaks Rd Fires Station
Current Town of Davie Bulk Users Customers and/or Connection						
1	Tindall Hammock	TO	8	No	TOD provides daily (constant) water supply to Tindall Hammock located East of Turnpike through two (2) open connections (valves), billing is done by TOD (no master meter)	Connection 1/2: Oaks/47 Ave
2	Tindall Hammock	TO	8	No		Connection 2/2: Oaks/Kean Rd (aka Hacienda Bivd)
3	Seminole Tribe of Florida	TO	8	Yes	Daily (constant) water service to supply Seminole Tribe of Florida ended on 7/29/19, connection in place for STOF emergencies usage	US441/ Lucky Street
Current Wholesale Providers of Town of Davie						
1	City of Fort Lauderdale	FROM	8	Yes	Daily (Constant) Water Service to Supply Hacienda Village (TOD Consecutive Water System)	St Rd 7 & St Rd 84

Source: Town of Davie, 2019

3.2 WATER SUPPLY FACILITIES

The Town of Davie Utilities water system compromises of System III and System V WTPs which withdraw water from the Biscayne and the Floridan Aquifers, respectively. In addition to these existing WTPs, the Town owns the System I WTP which was decommissioned in 2014; however, has not been demolished yet. The Town is continuing to maintain production wells B1-1, B1-2, B1-3, and B1-4 permitted to withdraw groundwater from the North Wellfield to serve (System I WTP). The other existing wellfield within the Town is the South Wellfield that serves System III and maintains four (4) production wells including B3-5, B3-6, B3-7, B3-10. In addition to these wells, two (2) Biscayne Aquifer wells including B3-8 and B3-9 were abandoned and are no longer in service. **Table 3-2** provides detailed information about the existing Biscayne and Floridan wells located within the Town.

System V WTP currently withdraws water from Floridan Aquifer using five (5) production wells. There are also five (5) proposed wells form Floridan Aquifer. Location of all Biscayne and Floridan wells including the existing, abandoned, and proposed wells are shown in **Figure 3-1**. Detailed information of the Town's existing Biscayne and Floridan wells is summarized in **Table 3-2**.

Table 3-2. Existing Biscayne and Floridan Wells

Aquifer	System	Well No.	Diameter (in)	Depth (ft)	Pump Capacity (GPM)	Year Drilled	Status
Biscayne	System I	B1-1	10	110	550	1959	No Active
		B1-2	10	110	550	1961	No Active
		B1-3	12	150	1050	1972	No Active
		B1-4	12	140	1050	1972	No Active
	System III	B3-5	16	165	900	1995	Active
		B3-6	20	165	900	1995	Active
		B3-7	20	125	1600	1986	Active
		B3-10	18	120	1500	2001	Active
Floridan	System V	FA-PW1	16	1580	1460	2011	Active
		FA-PW2	16	1580	1460	2011	Active
		FA-PW3	16	1570	1460	2011	Active
		FA-PW4	16	1582	1460	2009	Active
		FA-PW5	16	1400	1460	2012	Active

Source: Town of Davie Consumptive Use Permit No. 0600134-W

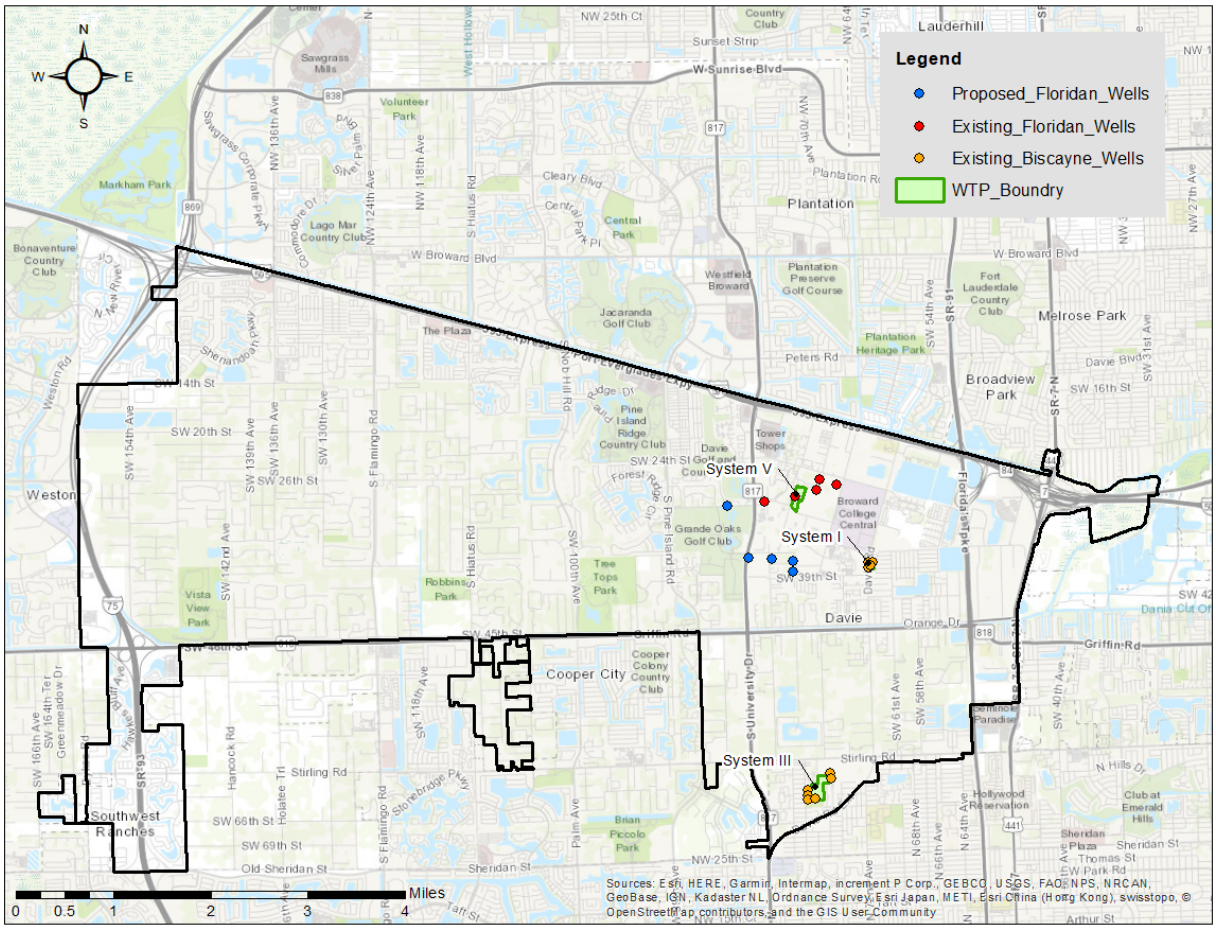


Figure 3-1. Town of Davie Water Treatment Plants and Biscayne and Floridan Wells Locations

(Source: Town of Davie Consumptive Use Permit No. 0600134-W)

3.3 CONSUMPTIVE USE PERMIT (CUP)

The use of groundwater from the Biscayne Aquifer and Floridan aquifer system for public water supply use is regulated by SFWMD through Consumptive Use Permit (CUP). Consumptive Use Permit No. 0600134-W was issued on October 18, 2010 to the Town pursuant to the provision of Chapter 373, Part II, Floridan Statutes (F.S.), Rule 40E-1-603 and Chapter 40E-2, Florian Administrative (F.A.C.). 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 7244 MG, and maximum monthly allocation shall not exceed 652 MG. Pursuant to Basis of Review for Water Use Permit Applications 1.7.2.2. the use of Biscayne aquifer is restricted between January 1, 2014 and October 24, 2030 to Annual allocation less than 1830.8 MG and maximum monthly allocation less than 164.8 MG. In addition, the use of Floridan Aquifer System is limited between October 24, 2010 and October 24, 2030 to annual allocation less than 5413.3 MG and maximum monthly allocation less than 487.2 MG. In addition to a maximum month allocation, the CUP also identifies a maximum day withdrawal for each aquifer in **Table 3-3.**

Table 3-3. CUP 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 Consumptive Use Permit No. 0600134-W

3.4 WATER TREATMENT FACILITIES

The Town's Utilities Department currently has two (2) WTPs including System III and System V with a total treatment capacity of 10 MGD. Both plants operate based on specific permits and general guidelines for Florida Department of Environmental Protection Agency (FDEP) and Environmental Protection Agency (EPA) drinking water standards. Both plants operate 24 hours / 7 days a week. Treatment capacity of each plant is shown in **Table 3-4.** Location of WTPs are shown in **Figure 3-1.**

Table 3-4. Town of Davie Existing Water Treatment Plant Capacity

System	Total Installed Capacity (MGD)	Total Firm Capacity (MGD)
System III	4	4
System V	6	6

Source: Town of Davie Consumptive Use Permit No. 0600134-W

3.4.1 System III Water Treatment Plant

System III WTP is a conventional Lime Softening treatment plant using Anion Exchange for color removal with a rated capacity of 4.0 MGD This plant withdraws water from the Biscayne Aquifer and is located South of Stirling Road, at the end of NW 76th Ave. The approximate area served by the System III lies within south of Orange Drive on east side of the University Drive and north and south of Orange Drive on the west side on University Drive, within the Town boundaries. There are four (4) production wells located at the WTP site.

3.4.2 System V Water Treatment Plant

System V WTP is a Reverse Osmosis treatment facility that draws water from the Floridan Aquifer with a rated capacity of 6 MGD. This WTP was commissioned in 2014 and located at 3500 Northwest 76th Avenue. The approximate area served by the System V WTP lies within east of University Drive and north of Orange drive within the Town boundaries. There are five (5) production wells located at the WTP site.

3.4.3 System I Water Treatment Plant

System I Water Treatment Plant was purchased by the Town from a private party in 1981. The plant is located at 3790 SW 64 Ave. Although this plant was decommissioned in 2014, there are four (4) Biscayne production wells located on the System I WTP Site, and these are currently maintained by the Town.

3.5 WATER STORAGE FACILITIES

The Town has Two (2) 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. The location of storage tanks is shown in **Figure 3-2**.

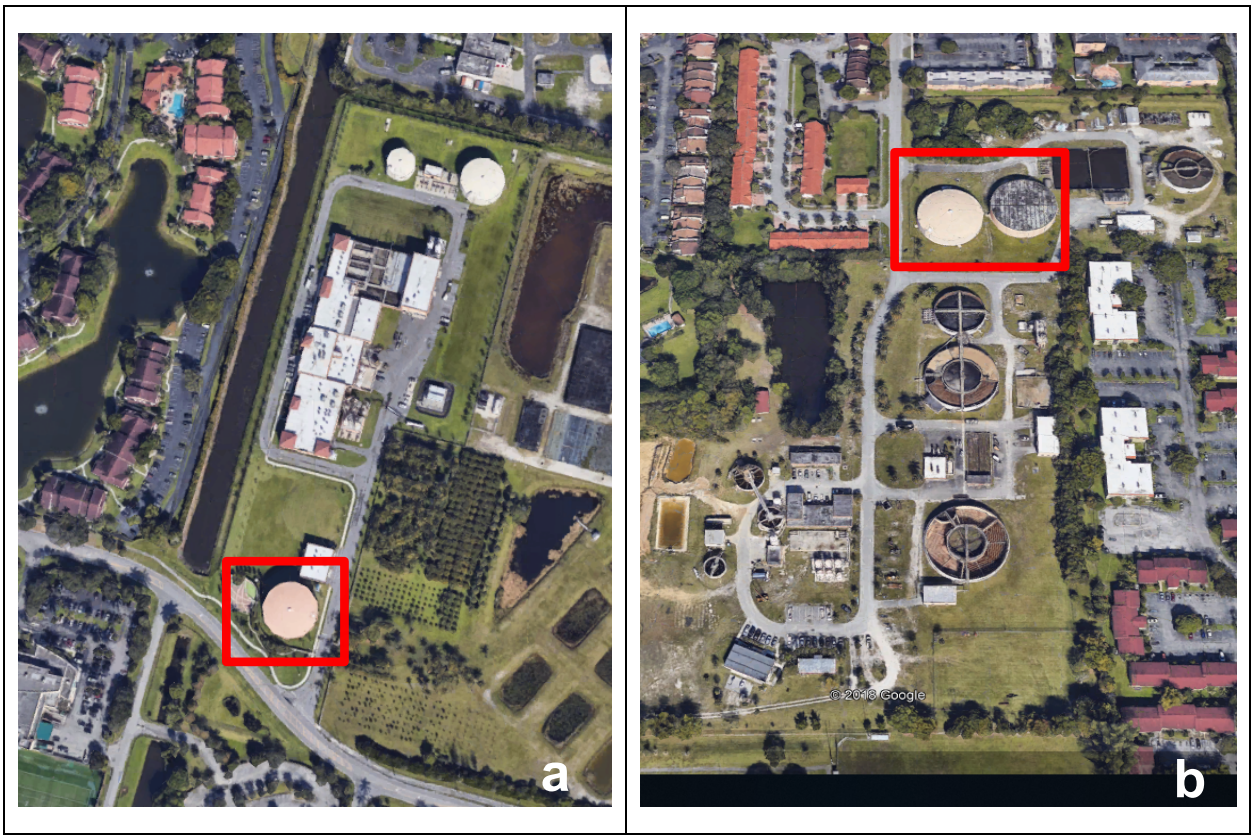


Figure 3-2. Locations of Storage Tanks in (a) System V WTP and (b) System III WTP

(Source: Google Earth, 2019)

3.6 WATER TRANSMISSION AND DISTRIBUTION SYSTEM

The Town's water distribution division is responsible for the maintenance of water mains, valves, meters, and fire hydrants. The Town's crew perform routine maintenance, including meter reading, valve and fire hydrant exercising, leak detection, water main repair and replacement, and construction oversight. The

Town has a flushing program for the purpose of maintaining the quality of water within the distribution system. The Town's Utilities distribution system is divided into 10 zones as described below:

- (9) zones within the Town's Utilities Service area (PWS#4060344)
- (1) zone within a consecutive system – Town of Davie Utilities Hacienda Village (PWS#4061925)

The Town currently maintains approximately 165.4 miles of water lines from 2 inches (and smaller) to 30 inches in diameter, 1387 valves, and 1400 fire hydrants. The staff keeps water meter inventory in good condition and changes out old meters every year. Detailed information about the Town's water lines is provided in **Table 3-5**. Pipe material within the distribution system vary from galvanized iron, asbestos concrete, PVC, to ductile iron. **Table 3-6** shows the existing, near term and future responsibility of local government over meters and pipes.

Table 3-5. Pipe Inventory

Distribution Pipe Diameter (in)	Length (ft)	Length (miles)
2	67,125	12.7
4	22,720	4.3
6	192,299	36.4
8	404,045	76.5
10	73,082	13.8
12	75,656	14.3
16	30,426	5.8
18	3,901	0.7
20	490	0.1
24	2,827	0.5
30	553	0.1
Grand Total	873,124	165.4

Source: Town of Davie, 2019

Table 3-6. 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 in Near Future (5-10 years)	Who Serves It Long Term (10-20 years)
Davie Service Area	TOD	TOD	TOD	TOD	TOD
Davie Bulk Agreement Ft. Lauderdale - Hacienda Village	TOD	TOD (1)	FLL	TOD	TOD
Broward County Utilities	BC	BC	BC	BC	BC
Tindall Hammock East of Turnpike	TOD / THISCD (2)	THISCD	TOD	TOD	TOD
Tindall Hammock West of Turnpike	THISCD	THISCD	THISCD	THISCD	THISCD
Sunrise Utilities	SUN	SUN	SUN	SUN	SUN
(1) Except for the master meter at interconnect, which belongs to FLL TOD = Town of Davie, FLL = Fort Lauderdale, BC = Broward County, THISCD = Tindall Hammock Irrigation and Soil Conservation District, SUN = Sunrise Utilities.					

Source: *Information shows proposed planning framework obtained from the draft Town of Davie Utilities Comprehensive Master Plan and Rate Study, 2018, prepared by Carollo Engineers

3.7 WATER SUPPLY PROVIDED BY OTHERS

3.7.1 Broward County

Portions of the Town of Davie are served by the Broward County District 3A Service area. Broward County has 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 operation and maintenance 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 Broward County subdistrict 3A/3BC areas. The City of Hollywood Water Supply Plan reports that no additional water supply is needed for their service area through year 2040. The City's permitted raw water withdrawal limit of 39.3 MGD (AADF) is higher than the forecasted raw water demand of 28.8 MGD (AADF) by 2040. According to the City of Hollywood Water Supply Facilities Work Plan the forecasted finished water demand for 2020 and 2040 period expected to be 22 and 26 MGD (AADF) respectively, which is lower than the City's finished water treatment capacity of 36.1 MGD (AADF). Please see **Appendix J** Section 4 for further details.

Broward County District 3 finished water demand for 2020 is reported as 6.91 MGD and projected to increase up to 8.10 MGD by year 2040. The raw water demand is also projected to reach around 9.0 MGD by year 2040. This District 3 existing and projected finished water demands, and raw water demands are

provided in Table WS13 and Table WS14 of the Broward County Water Supply Facilities Work Plan, respectively. Additional details regarding the Broward County water supply facilities and service can be found in **Appendix H**.

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

3.7.2 City of Fort Lauderdale

The City of Fort Lauderdale maintains wholesale agreements for potable water supply to the portion of the Town located along the 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 water treatment plant and the Fiveash water treatment plant, respectively. The SFWMD issued the City's Water Use Permit (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 water treatment plants: the Fiveash WTP and the Peele-Dixie WTP. The City of Fort Lauderdale Water Supply Facilities Work Plan 2019 Update shows that Fiveash WTP and Peele-Dixie WTP have sufficient plant capacity combined at 82 MGD in order to meet the projected maximum day demand of 63.6 MGD by 2040 as discussed in the **Section 3.4.7** Overall Water Demand Forecast and 3.4.9 Biscayne Aquifer Treatment Capacity. However, in order to maintain the projected deficit of 1.6 MGD from Biscayne Aquifer before 2035, the City has committed to purchase 3 MGD of C-51 allocation from the C-51 reservoir project. Details about the predicted water deficit are discussed in the "Biscayne Aquifer Water Supply Deficit is Predicted by the year 2035" section of the City of Fort Lauderdale WSFWP -2019 Update.

The City has planned the following major improvements at its water treatment plant:

- Reliability Upgrades and Disinfection System Replacement: This project includes new backup power generators, replacement of chlorine gas with sodium hypochlorite, a carbon dioxide system to control finished water pH and a series of improvements to automate the function of certain equipment. This project will begin construction in late 2019 and likely be completed in 2023.

- Granular Activated Carbon Pilot Study & Plant Evaluation: This project includes evaluation of treatment technologies to achieve the City's color goal at the Fiveash WTP. The results of this study is a report recommending a new Water Treatment Plant at Prospect Site.

- CUSMP Projects: The City completed its CUSMP in 2017. This document master planned a series of water and sewer improvements. The City continuously evaluates the efficacy of the projects recommended in the CUSMP in planning its investment decisions.

Additional details regarding the City of Fort Lauderdale water supply facilities and service can be found in **Appendix I**.

3.7.3 City of Hollywood

The City of Hollywood Department of Public Utilities water retail area includes approximately 300 acres in the Town of Davie, along with a wholesale service area within the Town covering Broward County 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 Broward County's Aquifer wells at the South Regional Wellfield (SRW). Raw water from Biscayne Aquifer is of high quality and raw water from the deeper Floridan Aquifer is brackish and requires reverse osmosis treatment. The City's Water Use Permit 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 year 2040. The City's permitted raw water withdrawal limit of 39.3 MGD (AADF) is higher than the forecasted raw water demand of 28.8 MGD (AADF) by 2040. According to the City of Hollywood Work Plan the forecasted finished water demand for 2020 and 2040 period expected to range between 22 – 26 MGD (AADF) still lower than the City's finished water treatment capacity of 36.1 MGD (AADF). Please see **Appendix J** Section 4. Water Demand Forecast and Supply Adequacy for further details.

There are no anticipated changes in the size or coverage of the City's potable water service area. Additional details regarding the City of Hollywood water supply facilities and service can be found in **Appendix J**.

3.7.4 City of Sunrise

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 62,000 people in 2020. 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 2 MGD with a permitted water use allocation of 10.98 MGD as provided in the Section 6.0 Water Supply Facilities Work Plan of the City of Sunrise 2020 Ten-Year Water Supply Facilities Work Plan. The City of Sunrise expects that majority of its water demand will be met through 2040 by the traditional water supply (Biscayne Aquifer) treatment facilities. The City's projected water demand is reported at 27.86 MGD (AADD) for 2040.

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 alternate water supply projects to stay ahead of the anticipated demands. The City of Sunrise Water Utilities 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. 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. Please see Section 6.3 Alternative Water Supply Projects of the City of Sunrise 2020 Ten-Year Water Supply Facilities Work Plan for further details.

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

3.7.5 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 7th,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 768 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 in its 10-Year Water Supply Facilities Work Plan Update reports that its existing raw water allocation will not meet the raw water demands by 2034. Therefore, they will need to apply to the SFWMD to increase the existing CUPs annual raw water allocation. Tindall Hammock also plans to expand the treatment capacity of its existing WTP in order to meet the future water demands. The expansion is planned in two phases with a final upgrade to 1.33 MGD treatment capacity. Details are provided in Section 3.4 Facility Capacity Analysis of the Tindall Hammock's 10-Year Water Supply Facilities Work Plan Update.

The Work Plan also states that Tindall Hammock has enough technical resources and its Capital Improvement Program for FY 2019 to FY 2024 has allocated budget to address renewal and replacement needs of the existing treatment and distribution systems to meet their projected water demands. Please see "Conclusions" section of the Work Plan for further details.

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. Additional details regarding the Tindall Hammock Irrigation and Soil Conservation District water supply facilities and service can be found in **Appendix L**.

4.0 CHAPTER 4 – POPULATION PROJECTIONS

4.1 INTRODUCTION

This section provides an overview of historical population and future population projection within the Town's utility service area. Existing and projected future population is calculated based on the current and future collaborative efforts between the Town, the City of Fort-Lauderdale, City of Hollywood, Tindall Hammock, Broward County, Seminole Tribe of Florida, City of Sunrise, and City of Cooper City.

4.2 HISTORIC POPULATION DATA

Table 4-1 Presents the estimated historical population within Town's utility service area. Historical population is estimated by linear interpolation using Population Forecast and Allocation Model (PFAM) 2017 data obtained from the Broward County Planning and Redevelopment Division.

Table 4-1. Town of Davie Service Area Historic Population

Year	Population
2010	28,480
2011	29,132
2012	29,783
2013	30,435
2014	31,086
2015	31,738
2016	32,832
2017	33,927
2018	35,022

Source: PFAM, 2017

4.3 EXISTING AND FUTURE POPULATION DATA

The Bureau of Economic and Business Research (BEBR) has been making population projections for Florida and its counties since 1970s.The Broward County and Municipal Population Forecast and Allocation Model (BCPFAM) distributes countywide population forecasts prepared by the University of Florida's Bureau of Economic and Business Research (BEBR) to local municipalities and Traffic Analysis Zone (TAZ). PFAM is updated every three (3) years to take into account the recent local development patterns. The last PFAM update occurred in 2014 using BEBR population estimated for 2012. PFAM 2017 applied BEBR 2016 projections that reflects population estimated for 2015. Broward County assigns the results of this model to the County's TAZ based on the interaction between: (1) the change in the countywide household size distribution through forecast period, (2) the established TAZ level distribution of households, (3)

the capacity of each TAZ to absorb additional housing units. Major roadway or natural features are usually taken into account to define TAZ boundaries which are relatively consistent in size. **Figure 4-1** presents the TAZs located within the Town's political boundary and the Town's utilities service area. This Figure also presents the boundary of other utility providers located within the Town's municipal boundary.

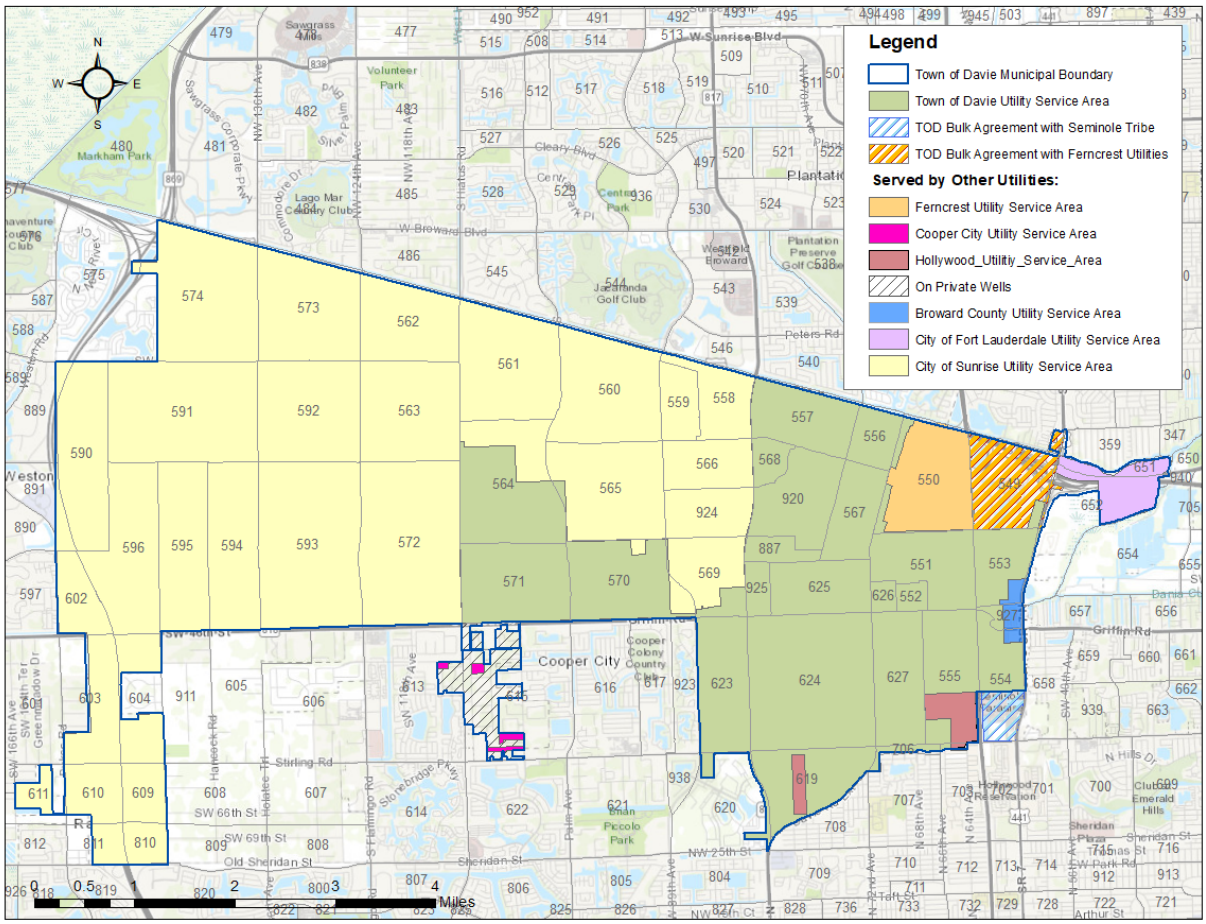


Figure 4-1. Town of Davie Utility Service Area and Related TAZs

(Source: Town of Davie, 2019)

4.4 POPULATION PROJECTIONS

This WSFWP uses the Broward County TAZ 2017 as the basis for population projection. The Town's water service area was juxtaposed over the TAZ areas and population was calculated based on the intersecting area. Population projection within PFAM2017 consists of five year projections. Population for intermediate years that were not included in the TAZ projection were estimated by linear interpolation. **Table 4-2** presents the population projections for the Town's water service area. **Appendix E** provides the TAZ population projections within the Town's existing service area and Town's potential future service area.

Table 4-2. Town of Davie Utility Service Area Population Projections

Year	Population (Town of Davie Service Area)
2020	37,200
2025	40,700
2030	46,200
2035	49,300
2040	51,700

Source: PFAM, 2017

4.5 POPULATION FORECAST RELATED TO SERVICE AREA CHANGES

Any pending or anticipated zoning and land use changes and significant development that may result in additional population and water supply demand within the Town's utility service area have been taken into account. All changes related to future service area by the Town are described below:

- The Town currently serves part of Tindall Hammock located east of the Florida Turnpike through one transmission pipe. Tindall Hammock does not state any plans for receiving water from the Town for the area located west of Turnpike (TAZ 550) in the future. Please see **Appendix L** for Tindall Hammock 10-Year Water Supply Facilities Work Plan Update.

- The area between 77th and 78th Avenues, between Davie Road extension and Stirling Road are currently served by City of Hollywood. In addition, area of the Town located within TAZ 555 is currently served by City of Hollywood. The Town is negotiating to incorporate these two streets into the Town's service area starting in 2030.

- Based on ongoing agreement between the City of Fort Lauderdale and the Town, Town purchases the potable water from the City for the portion of the Town located along the State Road 84, east of State Road 7, in the area previously known as Hacienda Village. The Town anticipates to serve Hacienda Village starting in 2025.

- The Town's Bulk Agreement with Seminole Tribe Florida was terminated on July 29th, 2019. As of July 2019, no water is supplied by the Town to the Seminole Tribe of Florida. The Tribe desires to reserve the maximum of 0.5 mgd as "back-up" emergency supplies. Agreement pending.

- Potable water service in a small portion of the eastern edge of the Town at Griffin Road and Orange Drive is currently provided by Broward County. The Town is evaluating physical connection and infrastructure needs for possible connection to incorporate this area into the Town's service area by 2035.

- Portion of the Town adjacent to City of Cooper City is currently on private wells and only a few parcels are served by City of Cooper City. The Town is evaluating physical connection and infrastructure needs for possible connection to incorporate this area into the Town's service area by 2030.

Population projection for the Town's existing service area and potential future service area is presented in **Table 4-3**. Location of areas served or to be served by the Town in future are shown in **Table 4-3**. Population projections were computed based on coordination with water receiving municipalities, Tindall Hammock, and the Town's Planning Department and Utility Department. The minutes for these meetings are provided in **Appendix D**. Population projections for the other providers within the Town of Davie are also shown in **Table 4-3**.

Table 4-3. Population Projection Summary for Service Areas within the Town of Davie

Population Projections Summary	**Historical Data**		**Planning Horizon**				
Areas Served by / to be Served by the Town	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**
Town of Davie Service Area	28,191	31,434	36,907	39,587	41,922	44,373	46,377
Tindall Hammock	263	276	278	453	577	676	774
Seminole Tribe	23	24					
Hacienda Village				700	821	919	1016
Broward County						449	509
City of Hollywood					1134	1165	1184
TOD Adjacent to City of Cooper City (Private Well Owners)					1733	1760	1817
Sub-Total Population[1]	**28,500**	**31,700**	**37,200**	**40,700**	**46,200**	**49,300**	**51,700**
Areas Served by Other Providers							
City of Sunrise			62,146	63,284	65,039	66,455	67,979
Hacienda Village (City of Fort Lauderdale)			526				
Broward County			204	313	388		
City of Hollywood			1127	1112			
Total Town Population[1]	**28,500**	**31,700**	**101,200**	**105,500**	**111,600**	**115,800**	**119,700**

[1] Rounded up to the nearest hundred.

Source: 1. PFAM 2017: 2. Town of Davie and its Service Providers, 2019

While the Town's land use pattern is generally stable and no significant changes to the future land use map are anticipated at this time, a recent change to the Broward County Land Use Plan (#Broward Next) is likely to increase utilization of the Town's 1,861 'Flex units". Prior to the adoption of #Broward Next, about 1,000 of the 1,861 "flex units" were assigned to zones lying outside the Town's utility service area. Due to existing policies in the Town's Comprehensive Plan, utilization of "flex units" is difficult or impossible in the areas west of Nob Hill and south of Griffin Road. However, with the adoption of #Broward Next, use of these "flex units" will become more likely within the Town's utility service area, where the land use plan allows for higher densities and the conditions are more favorable for infill development.

4.6 VERIFICATION OF POPULATION PROJECTIONS

Population projections for the Town's service area provided by the SFWMD's 2018 LEC Plan Update are shown in **Table 4-4**. These population projections were compared with the computed population projection for this work plan presented in **Table 4-2**. The variation is in the range of 11-14%. The reason for this variation is the Town's plan to serve additional areas within its local government which are currently served by other utilities.

Table 4-4. 2018 LEC Plan Update Projected Population for the Town of Davie Utilities Service Area

Year	2018 LEC
2020	33,000
2030	40,400
2040	46,700

Source: SFWMD LEC Plan Update, 2018

5.0 CHAPTER 5 – WATER DEMAND PROJECTIONS

5.1 INTRODUCTION

The treated and raw water needs of the Town of Davie Utilities Water service area in the future are presented in this section. The projected demand is based on the population projections presented in the previous section.

5.2 HISTORIC WATER USAGE

The system-wide potable water production recorded in the beginning of year 2014 was 3.8 MGD. In the past five years, total treated water was increased to 4.5 MGD which represents an increase of over 18.4 percent.

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

Date	Raw Water						Treated Water			
	A	B	C	D	E	F	G	H	I	J
	Total (MGY)-Pumpage Data	Max Month (MGM)-Pumpage Data	Total (MGY)	Avg. Month (MGM)	Max Month (MGM)	Max Mon./Avg. Mo. Ratio	Total (MGY)	Avg. Month (MGM)	Max Month (MGM)	Max Mon./Avg. Mo. Ratio
2014	1453	152	1603	134	155	1.16	1386	116	142	1.23
2015	1692	161	1803	150	163	1.08	1516	126	135	1.12
2016	1927	197	1921	160	168	1.05	1608	134	142	1.08
2017	1881	172	1874	156	168	1.08	1635	136	145	1.07
2018	-	-	1883	157	169	1.08	1630	136	146	1.07

Source: Town of Davie, 2019

The total pumpage and maximum month pumpage data (shown in Column A and B) represent historic raw water withdrawals reported to the South Florida Water Management District. The pumpage data is derived from the sum of the 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. In 2014 there was 10% discrepancy between the total flow from individual flow meters (Column A) and master meter at the plant (Column C). In 2015 this percentage was reduced to 7%. In 2016 and 2017 there was almost no difference between the total flow recorded from individual flow meters versus total flow from master meter at the plant. The maximum to average month ratios for raw water (Column F) are calculated using the data from the plant master meter.

As shown in **Table 5-1**, from year 2014 to 2018, the Maximum month demand is 1.07 to 1.23 times the average month demand. Historic system-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 5 years are shown in **Table 5-2**. The treated water peak factor of average day to max day is 1.496. Based on this table, the system-wide treatment efficiency (treated water as percentage of raw water for the total utility system) is in the range of 84 to 87%.

Table 5-2. Historic Peak Factors

Date	System III			System V			System Totals		
	Treated/Raw Ratio	Max Day /Avg. Day Ratio	Max Mon./Avg. Mo. Ratio	Treated/Raw Ratio	Max Day /Avg. Day Ratio	Max Mon./Avg. Mo. Ratio	Treated/Raw Ratio	Max Day /Avg. Day Ratio	Max Mon./Avg. Mo. Ratio
2014	0.95	1.78	1.67	0.81	2.06	1.91	0.87	1.67	1.16
2015	0.98	1.62	1.45	0.79	1.61	1.27	0.84	1.51	1.08
2016	0.99	1.67	1.37	0.78	1.37	1.15	0.84	1.37	1.05
2017	1.00	1.45	1.18	0.78	1.82	1.21	0.87	1.52	1.08
2018	1.00	1.29	1.09	0.79	1.83	1.12	0.87	1.41	1.08

Source: Town of Davie, 2019

5.3 PER CAPITA USAGE

Based on total treated water and the estimated historic population, the per capita usage for the last five years (2014-2018) was 129 gallons per capita per day (gpcd). This is lower than the SFWMD LEC and the Town's Comprehensive Plan data per capita usage rate of 143 and 145 (gpcd), respectively for the Town's utility service area.

5.4 WATER LOSS

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, total unbilled authorized consumption including fire protection, line flushing, etc. was assumed 1.25% if no other data is available. **Table 5-3** shows the system wide transmission and distribution water loss data. To Town's knowledge, there are no other water loss issues that can impact other water providers in the Town.

Table 5-3. System Wide Transmission and Distribution Loss

FY	Total Treated	Imported	Total Authorized Consumption (Billed and Unbilled)	Total Water Losses	Total Water Losses
	MGY	MGY	MGY	MGY	%
2014-2015	1439.70	1.18	1305.52	135.36	9.39%
2015-2016	1500.78	0.49	1323.53	177.74	11.84%
2016-2017	1583.84	0.00	1382.01	201.83	12.74%
2017-2018	1641.57	0.00	1172.22	469.35	28.59%
2018-2019	1615.03	0.00	1139.02	476.01	29.47%

Source: Town of Davie, 2019

The Town of Davie has been working proactively to address the water loss observed in its service area. The Town of Davie Utilities Department is committed to use an integrated approach towards its infrastructure management program. This approach ensures lifecycle replacement and maintenance with steady investment, to ensure reliability of service while maintaining an equitable rate structure. In 2018 Town of Davie Utilities Department started implementing an Advanced Metering Infrastructure (AMI) project to replace aged water meters throughout the Town's utility service area. The AMI project is a systematic approach, allowing for a direct link and accountability between water treatment plant production; transmission and distribution systems; and customers water usage. Traditionally, reading and finding water leaks with water meters has been a manual process. Manual process was a time and resource consuming method with questionable accuracy. The AMI system has matured in water industry over the last few years and it's been adopted by many water utilities to increase the metering efficiency. These AMI meters are equipped with transmitters that automatically register and send current readings. With AMI system, the entire distribution network can be continuously monitored. The AMI project is a strategic investment to

provide immediate feedback on water outages and leaks, resulting in a more efficient and reliable water service and increased customer satisfaction. The completion of this project is scheduled for first quarter of 2020.

The Town is facing challenges with increasing growth and consumption rates, regulatory mandates, and operation and maintenance of aging infrastructure throughout its underground water and sewer system. To help overcome these challenges, the Town of Davie Utilities Department invested in development of a Comprehensive Master Plan to serve as a tool for system analysis and planning, and the Rate Study that will support recommendations and needed improvements to the system. Major Master Plan elements included performance and capacity evaluation of the water and reclaimed water conveyance, treatment, and storage systems; associated planning level costs for identified deficiencies and needs; and a prioritized capital improvement program for both the short and long term planning periods. Consequently, Master Plan will provide a foundation for Town Council and decision makers for system expansion, operational improvements and rehabilitation of water and reclaimed water system for years to come. The Town of Davie Comprehensive Master Plan and Rate Study is close to completion.

5.5 WATER DEMAND PROJECTION METHODOLOGY

Projected future water demand for the Town is calculated based on projected population and per capita water demand. Treated water per capita rate of 145 gallons per day was applied to population forecast in service area to compute projected water demands. **Table 5-4** shows demand projections for the Town utility service area for years 2015, 2018, 2020, 2030, 2035, and 2040.

Table 5-4. Projected Annual Average Daily Water Demand within Town of Davie Utility Service Area

Year	2015	2018	2020	2025	2030	2035	2040
Population Projection	31,734	35,005	37,185	40,740	46,187	49,342	51,676
Gallons Per Capita Per Day (gpcd)	129	129	129	129	129	129	129
Annual Average Day Demand Projections (gpd)	4,093,739	4,515,588	4,796,820	5,255,484	5,958,109	6,365,057	6,666,236

Source: Calculated by Stantec, 2019

Table 5-5 shows the water demand projections for the other service providers that serve in the Town of Davie along with the per capita rates

Table 5-5. Water Demand Projections for areas served by other Service Providers (gallons per day)

Service Provider within Town	Gallons per Capita per Day (gpcd) [1]	Year				
		2020	2025	2030	2035	2040
City of Sunrise	85	5,243,200	5,347,500	5,502,300	5,648,675	5,832,600
City of Fort Lauderdale (Hacienda Village)	164	86,264				
Broward County	127	25,908	39,751	49,276		
City of Hollywood	108.6	122,392	120,763			

Source: [1] - City of Sunrise 2020 Ten-Year Water Supply Facilities Work Plan; Broward County Water Supply Facilities Work Plan – 2020 Update; City of Fort Lauderdale Water Supply Facilities Work Plan – 2020 Update; City of Hollywood Water Supply Facilities Work Plan – 2020 Update

6.0 CHAPTER 6 – WATER SUPPLY EVALUATION

6.1 TRADITIONAL WATER SUPPLY PROJECTS

Town currently has eight Biscayne Aquifer wells and five Floridan Aquifer wells that can provide the permitted treatment capacity of 10.0 MGD. Combined rated capacity between the two WTPs is 10.0 MGD, which is 4.0 MGD for System III WTP (South Plant) and 6.0 MGD for System V WTP (North Plant). These wells are listed below:

- Four active Biscayne Aquifer wells: B3-5, B3-6, B3-7, and B3-10. These wells were last calibrated in February – March 2019. These wells are utilized by the System III WTP (South Plant).
- Four Biscayne Aquifer wells that are currently out-of-service: B1-1, B1-2, B1-3, B1-4. These wells previously served water to the System I WTP. They were calibrated on February 2019.
- Five Floridan Aquifer Active wells: FA-PW1, FA-PW2, FA-PW3, FA-PW4, FA-PW5. These wells were calibrated on February 2019. These wells are utilized by the System V WTP (North Plant).

There are also five proposed Floridan Aquifer. With a system wide recovery rate of 84%, raw water of 9 MGD is needed to meet the treated water demand of 7.5 MGD. The Town's existing wellfields have 5 MGD of Biscayne aquifer allocation and 14.8 MGD of Floridan aquifer allocation on an annual average day basis which is more than the needed 9 MGD of raw water. As described in section five, the projected average daily demand through the 2030 planning period is approximately 6.7 MGD. Applying a maximum day peak factor of 1.496, System III and System V Treatment plants are just enough at 10 MGD to meet the future water demand in 2030.

6.1.1 Traditional Water Supply Projects by Other Service Providers

A summary information on traditional water supply projects for other service providers including Broward County, City of Fort Lauderdale, City of Hollywood, City of Sunrise and Tindall Hammock that serve the Town is provided below.

- Broward County in its Water Supply Facilities Work Plan states that it will continue working closely with the City of Hollywood to meet the future water demands for the District 3. No new traditional water supply projects are listed in the Broward County Water Supply Facilities Work Plan (Please see **Appendix H** for further details).
- The City of Fort Lauderdale has recently completed the 'Granular Activated Carbon Pilot Study & Plant Evaluation' Report prepared by Carollo Engineers, Inc. and Stantec Consulting Services, Inc. This project includes evaluation of treatment technologies to achieve the City's strategic goal for the Fiveash WTP. The results of this study is a report recommending a new Water Treatment Plant at Prospect Site. For details on the City of Fort Lauderdale Water Supply Facilities Work Plan 2019 Update, please refer to **Appendix I.**

- The City of Hollywood states that the City's existing water supply and treatment infrastructure is capable of meeting the City's water supply demand for the 2020-2040 period. Therefore, City does not have plans for any new traditional water supply and treatment projects. For details on the City of Hollywood Water Supply Plan Potable Water Sub-Element please refer to **Appendix J.**

- The City of Sunrise has submitted the CUP application for C-51 Reservoir project for future allocation. The City stated that its application was under review by the SFWMD at the time of preparation of this report. The City of Sunrise completed the construction of a 3 MGD ion exchange facility to save additional raw water and improve the finished water quality at the Sawgrass WTP. The City has completed a potable water emergency interconnect with the Town of Davie. It connects with the Town of Davie Floridan Aquifer Supply source to provide a back-up for demand spikes.

- For details on the City of Sunrise 2020 Ten-Year Water Supply Facilities Work Plan please refer to **Appendix K**.

- The Tindall Hammock plans to expand the capacity of its existing WTP to meet the future water demands.

6.2 ALTERNATIVE WATER SUPPLY PROJECTS AND SCHEDULE

6.2.1 Water Treatment Facility

Phase 1 of a 6 MGD Reverse Osmosis (RO) WTP (System V WTP) was completed since the last planning period. The construction of System V allows the Town to abandon System I WTP. The Town has continued the use of the 4.0 MGD lime softening treatment plant (System III). Pursuant to the Town's Annual Limiting Conditions Report for a period of 2017-2018, Phase 2 expansion of the RO can increase the capacity to 10 MGD with a subsequent expansion under Phase 3 which would bring the ultimate capacity to 12 MGD.

6.2.2 Water Reclamation Facility

The Phase 1 and Phase 2 of a 3.5 MGD water reclamation facility (System IV WRF) located at the same site as System V WTP has been completed. The WRF uses biological treatment for Biological Oxygen Demand (BOD) and Suspended Solids (SS) reduction. Some of the treated effluent is disposed to the deep injection well or stored in a storage tank for reuse.

Table 6-1 shows the planned growth using the population projection estimated in **Chapter 4** and the currently adopted level of service standard for potable water in the Town's Comprehensive Plan at 129 gpcd. As shown in this Table, Town will be able to meet future annual average day demands by using its existing infrastructure.

6.2.3 Alternative Water Supply Projects by Other Service Providers

A summary information on the alternative water supply projects for other service providers including Broward County, City of Fort Lauderdale, City of Hollywood, City of Sunrise and Tindall Hammock that serve the Town is provided below.

- Broward County Water Supply Facilities Work Plan puts emphasis on the importance of developing diverse water sources to meet current and future water needs. C-51 Reservoir project, Floridan Aquifer and reclaimed water are recognized as Alternative Water Supply (AWS). The County has committed to participate in the C-51 reservoir project for future additional Biscayne allocation and has obtained a water use permit from the SFWMD for additional six (6) MGD of Biscayne water supply.

- The City of Fort Lauderdale plans on the following actions relative to water supply planning over the next 10-years:

    1. The demand projections in the Water Supply Facilities Work Plan 2019 Update revealed that demand is projected to exceed the Biscayne Aquifer supply starting 2035. The City is planning to address this projected deficit by participating in C-51 Reservoir project for 3 MGD additional allocation to address the 2035 demand needs. Additionally, the City has planning documents in place for Floridan wells and 6 MGD RO WTP since 2008.

    2. The City of Fort Lauderdale had provided a commitment letter for purchasing water from the C-51 reservoir regional stormwater capture project; partnered with the Broward County Water Resources Task Force Technical Team.

    3. The City of Fort Lauderdale will continue to implement its ongoing conservation programs as outlined in Section 3.6 of its 10-Year Water Supply Facilities Work Plan 2019 Update.

    4. The City of Fort Lauderdale developed a Comprehensive Utility Strategic Master Plan (CUSMP) for the water and wastewater systems in 2017. The City is evaluating and prioritizing the recommended improvements for the aging water supply, treatment and distribution infrastructure from the CUSMP.

- The City of Hollywood uses water from Floridan Aquifer as an Alternative Water Supply. The City states that it has expanded its Floridan Aquifer water supply and treatment capacity to meet the future water demand. For details on the City of Hollywood Water Supply Plan Potable Water Sub-Element please refer to **Appendix J.**

- The City of Sunrise does not anticipate its water demand to exceed its water supply until 2040. The City has a number of plans and designs for a number of alternative water supply projects to meet the water demands in the future. Following are the projects that were either completed or in progress:

    - The City is an active participant in the implementation of the C-51 Reservoir Project. 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.

- Substitution credits from reclaimed water is also anticipated to help with future water needs. The City has completed and moved forward with a reclaimed water program with projects at its Southwest and Sawgrass WWTPs.
- Sawgrass WTP ASR - The City has a project that 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. The raw water main project is expected to be completed in mid-2020. The wellhead project is under permitting and expected to be advertised for construction in 2020.
- Sawgrass Water Reclamation Facility (WRF) – Phase I – The City completed the construction of reclaim water facility project in early 2019. This project provides for a new 2 MGD average day and 4 mgd peak tertiary treatment capacity of reclaimed water for irrigation. The construction of treatment process was completed in early 2019. The construction of reclaim water distribution system is expected to complete in 2020.

  For details on the City of Sunrise 2020 Ten-Year Water Supply Facilities Work Plan please refer to **Appendix K**.

- Tindall Hammock is committed to continuously comply with the Regional Water Availability Rule. It also plans to use reclaimed water if feasible.

Table 6-1. Town of Davie Utility Service Area Water Demand by Source Category (Source: Calculated by Stantec, 2019)

A	B	C	D	E	F	G	H	I	J	K
		TREATED			RAW		TREATED			
Date	Population served / to be served	Annual Average Day Treated Water Demand (mgd)	Contingency (mgd)	Annual Average Day Treated Water Demand (mgd)	Raw Biscayne Aquifer Allocation (mgd)	Raw Floridan Aquifer Allocation (mgd)	System III Permitted Treated Water Capacity (mgd)	System V Permitted Treated Water Capacity (mgd)	System-wide Treatment Capacity (mgd)	Total Annual Average Day Surplus per Year (mgd)
		C=(B × 129 gpcd)		E=C+D					J = H+I	K=J-E
2018	35005	4.5	0.4	4.9	5.02	10.00	4	6	10	5.1
2019	36095	4.7	0.4	5.0	5.02	10.00	4	6	10	5.0
2020	37185	4.8	0.4	5.2	5.02	10.00	4	6	10	4.8
2021	37896	4.9	0.4	5.3	5.02	10.00	4	6	10	4.7
2022	38607	5.0	0.4	5.3	5.02	10.00	4	6	10	4.7
2023	39318	5.1	0.4	5.4	5.02	10.00	4	6	10	4.6
2024	40029	5.2	0.4	5.5	5.02	10.00	4	6	10	4.5
2025	40740	5.3	0.4	5.6	5.02	10.00	4	6	10	4.4
2026	41830	5.4	0.4	5.8	5.02	10.00	4	6	10	4.2
2027	42919	5.5	0.4	5.9	5.02	10.00	4	6	10	10.0
2028	44008	5.7	0.4	6.0	5.02	10.00	4	6	10	4.0
2029	45098	5.8	0.4	6.2	5.02	10.00	4	6	10	3.8
2030	46187	6.0	0.4	6.3	5.02	10.00	4	6	10	3.7
2031	46818	6.0	0.4	6.4	5.02	10.00	4	6	10	3.6
2032	47449	6.1	0.4	6.5	5.02	10.00	4	6	10	3.5
2033	48080	6.2	0.4	6.6	5.02	10.00	4	6	10	3.4
2034	48711	6.3	0.4	6.6	5.02	10.00	4	6	10	3.4
2035	49342	6.4	0.4	6.7	5.02	10.00	4	6	10	3.3
2036	49808	6.4	0.4	6.8	5.02	10.00	4	6	10	3.2
2037	50275	6.5	0.4	6.8	5.02	10.00	4	6	10	3.2
2038	50742	6.5	0.4	6.9	5.02	10.00	4	6	10	3.1
2039	51209	6.6	0.4	7.0	5.02	10.00	4	6	10	3.0
2040	51676	6.7	0.4	7.0	5.02	10.00	4	6	10	3.0

6.3 CONSERVATION PROGRAMS

Town of Davie implemented several water conservation programs in collaboration with Broward County including the Toilet Rebate program. The Town's water conservation program includes following:

- Enforcing restrictions for irrigation. The Town adopted an ordinance (Section 25-32. (5)) called as "year-round landscape irrigation measures" in 2010 to comply with the Rule 40E-24, F.A.C., for the District's Mandatory Year-Round Landscape Irrigation Conservation Measures. The Town of Davie supports all-year, two-day-a-week landscape irrigation restrictions imposed by the South Florida Water Management District (SFWMD) and the Broward County 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

- Applying reuse water for irrigation and industrial use. Nova Southeastern University (NSU) Campus is irrigated by reuse water purchased from the Town. Agreement between the Town and the NSU is provided in **Appendix M**.

- Participating in public educational Events such as Water Matters Day and NatureScape Irrigation program organized by Broward County and organized events such as Earth Day

- Providing Water Reuse tours at the Town's wastewater /reuse water facility and WTPs to college and high school students throughout the year and providing educational material to students as well

- Providing Water Conservation kits for water customers at Customer Service Department. A kit includes a low flow showerhead, a kitchen aerator, a bath sink aerator and leak detection tablets for toilet.

- Collaborating with schools for American Water Works Association (AWWA) DropSavers Water Conservation Poster Contest

- Collaborating with Broward County on the Toilet Rebate program and kitchen per rinse spray valves

- Pursuant to the Limiting Condition #20 of the Town's Water Use Permit 06–00134-W, the Town implemented best management practices including interim metering replacements to minimize existing water losses (i.e. replacing non-functional meters with new meters). Town continues the process of implementing practical measures including calibrating water withdrawal facilities' flowmeters and plant effluent flowmeters and securing an advanced Metering Infrastructure (AMI).

- In FY 2020 the Town of Davie successfully completed the Utility-wide Automated Meter Infrastructure (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. To fully utilize the existing AMI infrastructure and enhance customer experience with water conservation, the Town will implement the customer web-based portal (tool) "Water Smart". The Town is planning to move forward with purchase and installation

of 10,000 Water Smart software to allow customers to get real-time water use information, find out how much water they are using and help them conserve. This is a self-serve portal that would provide consumption analytics of hourly read data to help them conserve, increase water efficiency and increase customer satisfaction. Consequently, the customers will be able to understand the quantities of water used in such as daily activities as washing clothes, car, watering lawns etc. Additionally, the customer will be notified with variety of alerts, including high usage and potential leaks along with tutorials how to identify and resolve the leak, suggestions for water use reductions, reminders of permitted irrigation days, water quality compliance issues and reports etc. These alerts can be sent via email, text message, phone call and letter correspondence.

6.4 REUSE PROGRAMS

Reclaim water distribution system has a design capacity of 2.7 MGD. The Town maintains pressures between 40 – 70 psi. Reclaimed water leaves the plant through a 24-inch diameter pipe and reduces to 20-inch along SW 30 Street. This line carries over University Crossing to serve the Nova Southeastern University (NSU) main campus. It further extends along University Drive as a 20-inch line to serve Grand Oaks Golf Course and then reduces as a 12-inch line along Pine Island Road Davie Bamford Pine Island Sports Complex for the future use. In 2020, the Town was awarded the Broward County Integrated Water Resource Plan (IWRP) grant 2019 funds for design and feasibility study of Reuse Water Line that will connect Bamford Sports Complex. The copy of the agreement is provided in **Appendix N**. In addition, there is also a 4-inch line from the main reclaimed water effluent line to serve the adjacent University of Florida campus in the future. Currently, total available reclaimed water for irrigation use is 0.310 MGD. There are only two end users of reclaimed water including NSU- main campus, and University of Florida. In addition, Town's Reclamation Facility uses 0.007 MGD. Currently, the Town and Nova Southeastern University – Grand Oaks Golf Course have finalized a modification of the existing Grand Oaks Golf Course agreement in order to supply the reclaimed water for future campus development. The other water providers outside of the Town's water service area do not provide and do not plan to provide reuse water in the future to the Town's residents.

The Town is planning to expand its reclaimed water system within its service area. This expansion includes the installation of approximately 7,700 linear feet of reclaimed water pipeline inside the Bamford Park & Sports Complex and one section along the University Drive. As part of the Town's efforts to expand its infrastructure to support development, the Utilities Master Plan identified expansion of the reclaimed water system to connect Bamford Park & Sports Complex, followed by potential expansion along University Dr and Pine Island Rd in near future (by 2025). Additionally, the Pine Island Park - Bamford Sport Complex is a year-round, large anchor facility that once placed on reclaimed water, will serve as an example of an alternative water supply project (AWS) and increase public awareness for the importance of reusing water and preserving our natural resources.

6.5 INTERGOVERNMENTAL COORDINATION

In preparation of this work plan, meetings were held with Tindall Hammock, the Town's Planning Department and Utility Department. Additional communication occurred by phone with Seminole Tribe Reservation and by email with City of Hollywood, City of Sunrise, City of Fort Lauderdale, and Broward County. This work plan was developed based on the discussion with the above-mentioned entities. Meeting minutes for all intergovernmental coordination are provided in **Appendix D**.

In addition, the Town maintains regular communications with its water providers, relevant agencies and partners in order to ensure water services is planned for, adequately available, and provided to its customers. These coordination activities take place on a monthly basis at minimum. The Town and other water providers exchange information on an as needed basis for collaboration and to inform the residents for any significant updates regarding the water service. The Town notifies all of its residents through its official website including all updates for the areas served by the other providers.

The Town on an annual basis submits the annual report to the SFWMD. Additionally, the Town works closely with the SFWMD to confirm the details of the information provided in the LEC Plan Update as it pertains to the Town.

6.6 CAPITAL IMPROVEMENT ELEMENT

The Town's Capital Improvement Program (CIP) for fiscal years 2019 through 2028 is shown in **Appendix G**. One hundred (100) projects have been submitted for the Town Council consideration in the 10 year program with the total budget of $180,421,766. Sixty-eight (68) of these projects are scheduled for the fiscal year 2019 with the total budget of $13,529,833. Utilities contribution charges and impact fees is $53,345,000 inclusive water meter, System III, V WTP, and System IV WRP upgrade and improvements.

There are several water supply projects necessary to achieve and maintain the adopted level of service standards. These are listed in the Town's CIP for 2019-2028 period as shown below. Please see **Appendix G** for further details.

Table 6-2. Town of Davie CIP Water Supply Projects

Capital Improvement Project	**Total Budget Assigned for next five years (2020 – 2025)**
Distribution Water Quality System Upgrade	$300,000 ($50K /yr)
Water Main Rehab	$ 6,000,000 ($1M /yr)
Water Meter Replacement and AMI Upgrade	$ 1,200,000 ($200K /yr)
WTP (III & V) Electrical & Switchgear Repairs & Upgrades	$ 600,000 ($100K /yr)

WTP (Sys III&V) SCADA Replacement & Upgrade	$ 510,000 ($120K and $50K every other yr)
WTP (Sys III&V) Upgrades & Improvements	$ 1,500,000 ($250K /yr)
WTP Chemical Feed Systems	$ 1,200,000 ($200K /yr)
WTP Groundwater Rule (4-log) Upgrade	$700,000 ($175K /yr for 4 years until 2024)
WTP Raw Water Infrastructure and Rehabilitation	$1,300,000 ($300K /yr)
WTPs Systems (III & V) Pumps and Motors	$ 1,500,000 ($250K /yr)

Source: Town of Davie, 2019-2028 Capital Improvement Program

The Town is planning to expand its water service area starting 2025 by including the residents that are currently served by the City of Fort Lauderdale, Broward County, City of Hollywood to its service area. The water demand projections showed that the Town will have adequate water supply to serve these residents starting 2025.

6.7 GOALS, OBJECTIVES, POLICIES

The following existing and proposed objectives, goals and policies provided for the Town's Comprehensive Plan are in agreement with the Town's Water Supply Facilities Work Plan.

Existing Objectives, Goals and Policies:

- The Level of Service (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 gallons per capita per day (gpcd) for the Town's service area. (Potable Water Service, Policy 7-1).
- Potable water facilities shall be extended, to the extent that it is financially feasible, to those portions of the Davie service areas not currently served by the Town's water system (Potable Water Service, Policy 7-3).
- 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. (Potable Water Service, Policy 7-4).
- The Town shall coordinate with appropriate entities, including the South Florida Water Management District, in encouraging, implementing and publicizing conservation techniques at all times, not just during water conservation periods. (Potable Water Service, Policy 7-5).
- Land Development regulations shall encourage the use of native vegetation and NatureScape Florida-friendly landscaping in new development to reduce dependency on potable water supply. (Potable Water Service, Policy 7-6).

- The Town's 20-Year Water Supply Facilities Work Plan – 2020 Update is adopted by reference into the Comprehensive Plan and shall be updated as needed or within eighteen months of an update to the South Florida Water Management District Regional Water Supply Plan (Potable Water Service, Policy 7-7).

- Through the Town's Development Review Process, and pursuant to applicable land development regulations, the Town may assure adequacy of service consistent with the minimum standards for the use of septic systems established by the Florida Department of Children and Family Services, through its Public Health Unit. (Potable Water Service, Policy 8-1).

- Prior to approval of a building permit or its functional equivalent, the Town shall consult with any applicable water supplier to determine whether adequate water supplies to serve the new development will be available no later than the anticipated date of issuance by the Town of a certificate of occupancy or its functional equivalent. (Potable Water Service, Policy 8-2).

- Amend the Land Development Regulations to require new development provide verification that there will be adequate capacity to serve the project prior to the issuance of a certificate of occupancy. The verification shall be from the water supplier, and shall be provided to the Town prior to the issuance of a building permit. (Potable Water Service, Policy 8-3).

- Potable water service shall be provided to users within the Davie service areas prior to expansion into new areas (Potable Water Service, Policy 9-1).

- 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 (Potable Water Service, Policy 10-1).

- Adopt water conservation measures with regard to Town property and Town operations, and comply with any water conservation ordinance in effect in the Town (Potable Water Service, Policy 10-2).

- Coordinate with the South Florida Water Management District concerning strategies to reduce per capita water use (Potable Water Service, Policy 10-3).

- Develop land development regulations requiring the installation of water reuse infrastructure on all new subdivisions, and commercial and multi- family developments (Potable Water Service, Policy 10-4).

- Pursue the establishment and use of reuse systems as part of the Town's water supply (Potable Water Service, Policy 10-5).

- The Town's water supply plan will be consistent with the standards and regulations established by the SFWMD, FDEP, State and other jurisdiction agencies (Potable Water Service, Policy 10-7).

- The Town will evaluate the production, expansion capabilities and life expectancy of the Water Treatments Plants in each update to the water supply plan (Potable Water Service, Policy 10-8).

- Davie will continue to provide for new water supply sources from the Floridan aquifer or other alternative water supply sources, other than the Biscayne Aquifer (Potable Water Service, Policy 10-9).
- 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, aquifer storage and recovery (ASR), groundwater recharge and indirect reuse systems (Potable Water Service, Policy 10-10).
- The Town shall apply for water Savings Incentive Program (SIP) funds to provide residents with opportunities for replacement appliances that support water conservation (Potable Water Service, Policy 10-11).
- The Town will coordinate with the various utility providers in the Town of Davie to support their leak detection programs and/or the development of one through semi-annual coordination efforts (Potable Water Service, Policy 10-12).
- The Town shall utilize the long-range water supply plans of the SFWMD as "best available information" under the requirements of the Growth Management Act, Chapter 163 F.S. (Drainage and Natural Groundwater Aquifer Recharge, Policy 6-7).
- The Town will inform residents and business owners with regard to energy efficient buildings, energy efficient appliances, waste recycling, building products from renewable resources, non-toxic building products and water efficient fixtures and landscapes (Energy Efficiency, Policy 2-1).
- New development shall provide water storage capacity pursuant to the water management regulations and plans of the South Florida Water Management District and other applicable water management agency(s) (Land Development Regulations, Policy 3-10).
- The Town will coordinate future changes of land use with the availability of water supplies and water supply facilities to ensure all existing and future developments will have adequate water to service development (Land Development Regulations, Policy 3-14).
- The Town will require all new development, redevelopment and applicants for a land use amendment to provide verification of the availability of water supplies and water supply facilities to meet the needs of any increased water demand generated by the proposed development, redevelopment or land use modifications (Land Development Regulations, Policy 3-15).
- The Town will continue to coordinate with the Davie Utilities Department to ensure that adequate water and wastewater facilities are available for all future development (Transit Oriented Corridor Use, Policy 13.1-17).
- The Town shall consider adjacent land uses in neighboring communities in evaluating changes in land use (Intergovernmental Coordination, Policy 23-1).
- The Town shall coordinate applications for amendment of the adopted comprehensive plan with adjacent local governments, state and regional agencies as required by State law (Intergovernmental Coordination, Policy 23-2).

- The Town shall encourage the informal mediation of conflicts and promote the resolution of differences in an expeditious fashion (Intergovernmental Coordination, Policy 23-3).
- Public Participation mechanism shall maximize the opportunity for input during the planning process (Intergovernmental Coordination, Policy 23-4).
- During each Evaluation and Appraisal Report (EAR) process, the Town shall evaluate the Future Land Use Element for consistency with updated population projections. EAR-based amendments shall be based updated population projections (Population Projections, 24-1).

Proposed Objectives, Goals and Policies:

- The following Water Supply Facilities Work Plans are adopted by reference into the Comprehensive Plan and shall be updated as needed or within eighteen months of an update to the South Florida Water Management District Regional Water Supply Plan (**Proposed Update** for the Town of Davie Existing Comprehensive Plan / Goals, Objectives, Policies / 3. Infrastructure Element/Potable Water Service, Policy 8-4).
    - Broward County Water Supply Facilities Work Plan (2020 Work Plan), Broward County
    - City of Fort Lauderdale 10-Year Water Supply Facilities Work Plan (2019 Update), City of Fort Lauderdale
    - City of Hollywood Water Supply Plan Potable Water Sub-Element (2020 Update), City of Hollywood
    - City of Sunrise 2020 10 Ten-Year Water Supply Facilities Work Plan, City of Sunrise
    - Tindall Hammock Irrigation and Soil Conservation District 10-Year Water Supply Facilities Work Plan Update (2019), THISCD
- Where appropriate and feasible, the work plan shall include collaborative approaches with other local governments for long term alternative water supply source use and water treatment technology. The Town will hold annual meetings with local governments in the Town's Water Service Area and the South Florida Water Management District 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.
- Conserve potable water by pursuing implementation of the water conservation practices described in the 20-Year Water Supply Facilities Work Plan – 2020 Update.
- The Town 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 Phased Water Use Restrictions.

- The Town 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.

- The Level of Service (LOS) Standard that is supported by and consistent with the City of Sunrise 2020 Ten- Year Water Supply Facilities Work Plan data and analysis for potable water facilities is herein adopted to be 102 gallons per capita per day (gpcd). (Potable Water Service, Policy 7-X)

- The Level of Service (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 gallons per capita per day (gpcd). (Potable Water Service, Policy 7-X).

- The Level of Service (LOS) Standard that is supported by and consistent with the Broward County Water Supply Facilities Work Plan – (2020 Work Plan) data and analysis for potable water facilities is herein adopted to be 127 gallons per capita per day (gpcd). (Potable Water Service, Policy 7-X)

- The Level of Service (LOS) Standard that is supported by and consistent with the City of Fort Lauderdale Water Supply Facilities Work Plan – 2019 Update data and analysis for potable water facilities is herein adopted to be 164 gallons per capita per day (gpcd). (Potable Water Service, Policy 7-X)

7.0 CHAPTER 7 - CONCLUSION

The Town of Davie 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 Town has prepared to draw upon alternative water sources to meet future needs, as well as constructing and implementing reuse in the area. These projects along with 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 position the Town to be responsive to its water supply needs.

In summary, the Town has prepared this Plan to ensure its water supply and facilities will meet its future demands. This Plan has been prepared 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.

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. 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 Town'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 Town's Plan incorporates measures integrating related regulatory requirements and policy objectives, such as those around water conservation.

The Town's water service providers including Broward County, City of Fort Lauderdale, Tindall Hammock and City of Sunrise, as provided in their 10-Year Water Supply Facilities Work Plan – 2020 Updates, have identified the regional and local issues that they are monitoring closely in order to meet their customers water supply needs. All providers have reported that their plan meets the potable water level of service and the twenty year demand of their existing and proposed customers.

Table 7-1. Comparison of Facility Capacity and Anticipated Future Permitted Amount

	2020	2025	2030	2040
Population Served	37,185	40,740	46,187	51,676
Average Daily Demand (Finished) (MGD)[1]	5.2	5.6	6.3	7.0
Demand per Capita Finished (GPCD)	129	129	129	129
Available Facility Capacity (MGD)	10	10	10	10
Facility Capacity Surplus (MGD)[2]	4.8	4.4	3.7	3.0
Anticipated Permitted Amount (MGD Annual Avg.)[3]	19.85	19.85	19.85	19.85
Anticipated Permitted Surplus (MGD)[4]	4.8	4.4	3.7	3.0

[1]MGD = Million Gallons per Day

[2] Calculated by subtracting Average Daily Demand from Available Facility Capacity

[3] For the purpose of this calculation, Biscayne Aquifer allocation is at 5.02 MGD and Floridan Aquifer is at 14.83 MGD.

[4]Calculated by subtracting Annual Average Day Treated Water Demand from Systemwide Treatment Capacity

Source: Calculated by Stantec, 2019

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

CITED FLORIDA STATUTE PROVISIONS (RELEVANT PORTIONS ONLY)

Source: Chapter 163, Part II, Florida Statutes (2019) – Growth Policy; County and Municipal Planning; Land Development Regulation

163.3167(9): Each local government shall address in its comprehensive plan, as enumerated in this chapter, the water supply sources necessary to meet and achieve the existing and projected water use demand for the established planning period, considering the applicable plan developed pursuant to s. 373.709.

163.3177(3)(a): The comprehensive plan shall contain a capital improvements element designed to consider the need for and the location of public facilities in order to encourage the efficient use of such facilities and set forth:

1. A component that outlines principles for construction, extension, or increase in capacity of public facilities, as well as a component that outlines principles for correcting existing public facility deficiencies, which are necessary to implement the comprehensive plan. The components shall cover at least a 5-year period.

2. Estimated public facility costs, including a delineation of when facilities will be needed, the general location of the facilities, and projected revenue sources to fund the facilities.

3. Standards to ensure the availability of public facilities and the adequacy of those facilities to meet established acceptable levels of service.

4. A schedule of capital improvements which includes any publicly funded projects of federal, state or local government, and which may include privately funded projects for which the local government has no fiscal responsibility. Projects necessary to ensure that any adopted level-of-service standards are achieved and maintained for the 5-year period must be identified as either funded or unfunded and given a level of priority for funding.

163.3177(4)(a): Coordination of the local comprehensive plan with the comprehensive plans of adjacent municipalities, the county, adjacent counties, or the region; with the appropriate water management district's regional water supply plans approved pursuant to s. 373.709; and with adopted rules pertaining to designated areas of critical state concern shall be a major objective of the local comprehensive planning process. To that end, in the preparation of a comprehensive plan or element thereof, and in the comprehensive plan or element as adopted, the governing body shall include a specific policy statement indicating the relationship of the proposed development of the area to the comprehensive plans of adjacent municipalities, the county, adjacent counties, or the region, as the case may require and as such adopted plans or plans in preparation may exist.

163.3177(5)(a): Each local government comprehensive plan must include at least two planning periods, one covering at least the first 5-year period occurring after the plan's adoption and one covering at least a 10-year period. Additional planning periods for specific components, elements, land use amendments, or projects shall be permissible and accepted as part of the planning process.

163.3177(6)(a): A future land use plan element designating proposed future general distribution, location, and extent of the uses of land for residential uses, commercial uses, industry, agriculture, recreation, conservation, education public facilities, and other categories of the public and private uses of land. The approximate acreage and the general range of density or intensity of use shall be provided for the gross land area included in each existing land use category. The element shall establish the long-term end toward which land use programs and activities are ultimately directed.

163.3177(6)(a)2.: The future land use plan and plan amendments shall be based upon surveys, studies, and data regarding the area, as applicable including:

a. The amount of land required to accommodate anticipated growth.
b. The projected permanent and seasonal population of the area.
c. The character of undeveloped land.
d. The availability of water supplies, public facilities, and services.
e. The need for redevelopment, including the renewal of blighted areas and the elimination of nonconforming uses which are inconsistent with the character of the community.
f. The compatibility of uses on lands adjacent to or closely proximate to military installations.
g. The compatibility of uses on lands adjacent to an airport as defined in s. 330.35 and consistent with s. 333.02.
h. The discouragement of urban sprawl.
i. The need for job creation, capital investment, and economic development that will strengthen and diversify the community's economy.
j. The need to modify land uses and development patterns within antiquated subdivisions.

163.3177(6)(c): A general sanitary sewer, solid waste, drainage, potable water, and natural groundwater aquifer recharge element correlated to principles and guidelines for future land use, indicating ways to provide for future potable water, drainage, sanitary sewer, solid waste, and aquifer recharge protection requirements for the area. The element may be a detailed engineering plan including a topographic map depicting areas of prime groundwater recharge.

1. Each local government shall address in the data and analyses required by this section those facilities that provide service within the local government's jurisdiction. Local governments that provide facilities to serve areas within other local government jurisdictions shall also address those facilities in the data and analyses required by this section, using data from the comprehensive plan for those areas for the purpose of projecting facility needs as required in this subsection. For shared facilities, each local government shall indicate the proportional capacity of the systems allocated to serve its jurisdiction.

2. The element shall describe the problems and needs and the general facilities that will be required for solution of the problems and needs including correcting existing facility deficiencies. The element shall address coordinating the extension of, or increase in the capacity of, facilities to meet future needs while maximizing the use of existing facilities and discouraging urban sprawl; conserving potable water resources; and protecting the functions of natural groundwater recharge areas and natural drainage features.

3. Within 18 months after the governing board approves an updated regional water supply plan, the element must incorporate the alternative water supply project or projects selected by the

local government from those identified in the regional water supply plan pursuant to s. 373.709(2)(a) or proposed by the local government under s. 373.709(8)(b). If a local government is located within two water management districts, the local government shall adopt its comprehensive plan amendment within 18 months after the later updated regional water supply plan. The element must identify such alternative water supply projects and traditional water supply projects and conservation and reuse necessary to meet the water needs identified in s. 373.709(2)(a) within the local government's jurisdiction and include a work plan, covering at least a 10-year planning period, for building public, private, and regional water supply facilities, including development of alternative water supplies, which are identified in the element as necessary to serve existing and new development. The work plan shall be updated, at a minimum, every five years within 18 months after the governing board of a water management district approves an updated regional water supply plan. Local governments, public and private utilities, regional water supply authorities, special districts, and water management districts are encouraged to cooperatively plan for the development of multijurisdictional water supply facilities that are sufficient to meet projected demands for established planning periods, including the development of alternative water sources to supplement traditional sources of groundwater and surface water supplies.

163.3177(6)(d): A conservation element for the conservation, use, and protection of natural resources in the area, including air, water, water recharge areas, wetlands, water wells, estuarine marshes, soils, beaches, shores, flood plains, rivers, bays, lakes, harbors, forests, fisheries and wildlife, marine habitat, minerals, and other natural and environmental resources, including factors that affect energy conservation.

1. The following natural resources, where present within the local government's boundaries, shall be identified and analyzed and existing recreational or conservation uses, known pollution problems, including hazardous wastes, and the potential for conservation, recreation, use, or protection shall also be identified:

    a. Rivers, bays, lakes, wetlands including estuarine marshes, groundwaters, and springs, including information on quality of the resource available.
    b. Floodplains.
    c. Known sources of commercially valuable minerals.
    d. Areas known to have experienced soil erosion problems.
    e. Areas that are the location of recreationally and commercially important fish or shellfish, wildlife, marine habitats, and vegetative communities, including forests, indicating known dominant species present and species listed by federal, state, or local government agencies as endangered, threatened, or species of special concern.

2. The element must contain principles, guidelines, and standards for conservation that provide long-term goals and which:

    a. Protects air quality.
    b. Conserves, appropriately uses, and protects the quality and quantity of current and projected water sources and waters that flow into estuarine waters or oceanic waters and protect from activities and land uses known to affect adversely the quality and quantity of identified water sources, including natural groundwater recharge areas, wellhead protection areas, and surface waters used as a source of public water supply.
    c. Provides for the emergency conservation of water sources in accordance with the plans of the regional water management district.

d. Conserves, appropriately uses, and protects minerals, soils, and native vegetative communities, including forests, from destruction by development activities.
e. Conserves, appropriately uses, and protects fisheries, wildlife, wildlife habitat, and marine habitat and restricts activities known to adversely affect the survival of endangered and threatened wildlife.
f. Protects existing natural reservations identified in the recreation and open space element.
g. Maintains cooperation with adjacent local governments to conserve, appropriately use, or protect unique vegetative communities located within more than one local jurisdiction.
h. Designates environmentally sensitive lands for protection based on locally determined criteria which further the goals and objectives of the conservation element.
i. Manages hazardous waste to protect natural resources.
j. Protects and conserves wetlands and the natural functions of wetlands.
k. Directs future land uses that are incompatible with the protection and conservation of wetlands and wetland functions away from wetlands. The type, intensity or density, extent, distribution, and location of allowable land uses and the types, values, functions, sizes, conditions, and locations of wetlands are land use factors that shall be considered when directing incompatible land uses away from wetlands. Land uses shall be distributed in a manner that minimizes the effect and impact on wetlands. The protection and conservation of wetlands by the direction of incompatible land uses away from wetlands shall occur in combination with other principles, guidelines, standards, and strategies in the comprehensive plan. Where incompatible land uses are allowed to occur, mitigation shall be considered as one means to compensate for loss of wetlands functions.

3. Current and projected needs and sources for at least a 10-year period based on the demands for industrial, agricultural, and potable water use and the quality and quantity of water available to meet these demands shall be analyzed. The analysis shall consider the existing levels of water conservation, use, and protection and applicable policies of the regional water management district and further must consider the appropriate regional water supply plan approved pursuant to s. 373.709, or, in the absence of an approved regional water supply plan, the district water management plan approved pursuant to s. 373.036(2). This information shall be submitted to the appropriate agencies.

163.3177(6)(h)1.: An intergovernmental coordination element showing relationships and stating principles and guidelines to be used in coordinating the adopted comprehensive plan with the plans of school boards, regional water supply authorities, and other units of local government providing services but not having regulatory authority over the use of land, with the comprehensive plans of adjacent municipalities, the county, adjacent counties, or the region, with the state comprehensive plan and with the applicable regional water supply plan approved pursuant to s.373.709, as the case may require and as such adopted plans or plans in preparation may exist. This element of the local comprehensive plan must demonstrate consideration of the particular effects of the local plan, when adopted, upon the development of adjacent municipalities, the county, adjacent counties, or the region, or upon the state comprehensive plan, as the case may require.

a. The intergovernmental coordination element must provide procedures for identifying and implementing joint planning areas, especially for the purpose of annexation, municipal incorporation, and joint infrastructure service areas.

b. The intergovernmental coordination element shall provide for a dispute resolution process, as established pursuant to s. 186.509, for bringing intergovernmental disputes to closure in a timely manner.

c. The intergovernmental coordination element shall provide for interlocal agreements as established pursuant to s. 333.03(1)(b).

163.3177(6)(h)3.b.: Ensure coordination in establishing level of service standards for public facilities with any state, regional, or local entity having operational and maintenance responsibility for such facilities.

163.3180: Concurrency. —

163.3180(1): Sanitary sewer, solid waste, drainage, and potable water are the only public facilities and services subject to the concurrency requirement on a statewide basis. Additional public facilities and services may not be made subject to concurrency on a statewide basis without approval by the Legislature; however, any local government may extend the concurrency requirement so that it applies to additional public facilities within its jurisdiction.

163.3180(1)(a): If concurrency is applied to other public facilities, the local government comprehensive plan must provide the principles, guidelines, standards, and strategies, including adopted levels of service, to guide its application. In order for a local government to rescind any optional concurrency provisions, a comprehensive plan amendment is required. An amendment rescinding optional concurrency issues shall be processed under the expedited state review process in s. 163.3184(3), but the amendment is not subject to state review and is not required to be transmitted to the reviewing agencies for comments, except that the local government shall transmit the amendment to any local government or government agency that has filed a request with the governing body and, for municipal amendments, the amendment shall be transmitted to the county in which the municipality is located. For informational purposes only, a copy of the adopted amendment shall be provided to the state land planning agency. A copy of the adopted amendment shall also be provided to the Department of Transportation if the amendment rescinds transportation concurrency and to the Department of Education if the amendment rescinds school concurrency.

163.3180(1)(b): The local government comprehensive plan must demonstrate, for required or optional concurrency requirements, that the levels of service adopted can be reasonably met. Infrastructure needed to ensure that adopted level-of-service standards are achieved and maintained for the 5-year period of the capital improvement schedule must be identified pursuant to the requirements of s. 163.3177(3). The comprehensive plan must include principles, guidelines, standards, and strategies for the establishment of a concurrency management system.

163.3180(2): Consistent with public health and safety, sanitary sewer, solid waste, drainage, adequate water supplies, and potable water facilities shall be in place and available to serve new development no later than the issuance by the local government of a certificate of occupancy or its functional equivalent. Prior to approval of a building permit or its functional equivalent, the local government shall consult with the applicable water supplier to determine whether adequate water supplies to serve the new development will be available no later than the anticipated date of issuance by the local government of a certificate of occupancy or its functional equivalent.

163.3180(3): Governmental entities that are not responsible for providing, financing, operating, or regulating public facilities needed to serve development may not establish binding level-of-service standards on governmental entities that do bear those responsibilities.

163.3191: **Evaluation and appraisal of comprehensive plan. —**

163.3191(1): At least once every 7 years, each local government shall evaluate its comprehensive plan to determine if plan amendments are necessary to reflect changes in state requirements in this part since the last update of the comprehensive plan, and notify the state land planning agency as to its determination.

163.3191(2): If the local government determines amendments to its comprehensive plan are necessary to reflect changes in state requirements, the local government shall prepare and transmit within 1 year such plan amendment or amendments for review pursuant to s. 163.3184.

163.3191(3): Local governments are encouraged to comprehensively evaluate and, as necessary, update comprehensive plans to reflect changes in local conditions. Plan amendments transmitted pursuant to this section shall be reviewed pursuant to s. 163.3184(4).

163.3191(4): If a local government fails to submit its letter prescribed by subsection (1) or update its plan pursuant to subsection (2), it may not amend its comprehensive plan until such time as it complies with this section.

163.3191(5): The state land planning agency may not adopt rules to implement this section, other than procedural rules or a schedule indicating when local governments must comply with the requirements of this section.

Appendix B TOWN OF DAVIE WATER USE PERMITS – PRIVATE WELLS

Permit Number	ACTUAL PERMIT	PROJECT NAME	STATUS	WATER USE	SOURCE NAME
06-03440-W	GENERAL PERMIT	61ST AVENUE PARK	PROPOSED	IRRIGATION	Biscayne Aquifer
06-03378-W	GENERAL PERMIT	PINE ISLAND PARK	EXISTING	IRRIGATION	Biscayne Aquifer
06-03465-W	GENERAL PERMIT	PUBLIC STORAGE INC	PROPOSED	IRRIGATION	Biscayne Aquifer
06-04055-W	GENERAL PERMIT	VILLAS OF ROLLING HILLS NORTH	PROPOSED	IRRIGATION	Biscayne Aquifer
06-03965-W	GENERAL PERMIT	LONG KEY NATURAL AREA	PROPOSED	IRRIGATION	Biscayne Aquifer
06-02765-W	GENERAL PERMIT	FPL BROWARD COUNTY SUBSTATIONS	EXISTING	IRRIGATION	Surficial Aquifer System
06-02765-W	GENERAL PERMIT	FPL BROWARD COUNTY SUBSTATIONS	EXISTING	IRRIGATION	Surficial Aquifer System
06-02765-W	GENERAL PERMIT	FPL BROWARD COUNTY SUBSTATIONS	EXISTING	IRRIGATION	Surficial Aquifer System
06-00134-W	INDIVIDUAL PERMIT	TOWN OF DAVIE WATER PLANT SYS I, I I I, AND V	EXISTING	PUBLIC WATER SUPPLY	Biscayne Aquifer
06-00134-W	INDIVIDUAL PERMIT	TOWN OF DAVIE WATER PLANT SYS I, I I I, AND V	EXISTING	PUBLIC WATER SUPPLY	Biscayne Aquifer
06-00134-W	INDIVIDUAL PERMIT	TOWN OF DAVIE WATER PLANT SYS I, I I I, AND V	EXISTING	PUBLIC WATER SUPPLY	Biscayne Aquifer
06-00134-W	INDIVIDUAL PERMIT	TOWN OF DAVIE WATER PLANT SYS I, I I I, AND V	ABANDONED	PUBLIC WATER SUPPLY	Biscayne Aquifer
06-02704-W	GENERAL PERMIT	FLAMINGO ELEMENTARY SCHOOL	EXISTING	IRRIGATION	Biscayne Aquifer
06-02408-W	GENERAL PERMIT	BURGER KING RESTAURANT	EXISTING	IRRIGATION	Biscayne Aquifer
06-04497-W	GENERAL PERMIT	DOWNTOWN DAVIE	PROPOSED	IRRIGATION	Surficial Aquifer System
06-04151-W	GENERAL PERMIT	MONTESSORI INSTITUTE OF BROWARD	PROPOSED	IRRIGATION	Biscayne Aquifer
06-04566-W	GENERAL PERMIT	COUNTRY INN PET RESORT	PROPOSED	IRRIGATION	Biscayne Aquifer
06-04345-W	GENERAL PERMIT	BANKERS MORTGAGE TRUST BUILDING	PROPOSED	IRRIGATION	Biscayne Aquifer
06-02957-W	GENERAL PERMIT	U-STORE IT (DAVIE)	PROPOSED	IRRIGATION	Biscayne Aquifer
06-00696-W	GENERAL PERMIT	DAVIE ARROWHEAD GOLF COURSE	EXISTING	IRRIGATION	Biscayne Aquifer
06-01278-W	GENERAL PERMIT	NOVA HIGH SCHOOL	EXISTING	IRRIGATION	Surficial Aquifer System
06-02776-W	GENERAL PERMIT	DUKE LANDSCAPING INC	EXISTING	IRRIGATION	Biscayne Aquifer
06-02780-W	GENERAL PERMIT	TREE TOPS PARK (MAINTENANCE COMPOUND)	EXISTING	IRRIGATION	Biscayne Aquifer
06-00134-W	INDIVIDUAL PERMIT	TOWN OF DAVIE WATER PLANT SYS I, I I I, AND V	EXISTING	PUBLIC WATER SUPPLY	Biscayne Aquifer
06-04495-W	GENERAL PERMIT	PROVENCE AKA FLAMINGO ROAD ESTATES	PROPOSED	IRRIGATION	Surficial Aquifer System
06-00134-W	INDIVIDUAL PERMIT	TOWN OF DAVIE WATER PLANT SYS I, I I I, AND V	EXISTING	MON	Biscayne Aquifer
06-00134-W	INDIVIDUAL PERMIT	TOWN OF DAVIE WATER PLANT SYS I, I I I, AND V	EXISTING	MON	Biscayne Aquifer
06-03898-W	GENERAL PERMIT	NOVA PLAZA	PROPOSED	IRRIGATION	Biscayne Aquifer
06-00170-W	GENERAL PERMIT	FERNCREST WATER TREATMENT PLANT	EXISTING	PUBLIC WATER SUPPLY	Biscayne Aquifer
06-02898-W	GENERAL PERMIT	CHILDREN OF THE WORLD	EXISTING	IRRIGATION	Biscayne Aquifer
06-00375-W	GENERAL PERMIT	FORT LAUDERDALE RESEARCH AND EDUCATION CENTER	EXISTING	IRRIGATION	Biscayne Aquifer
06-03315-W	GENERAL PERMIT	SUNTRUST BANK - BROWARD	EXISTING	IRRIGATION	Biscayne Aquifer
06-04051-W	GENERAL PERMIT	HIDDEN COVE	PROPOSED	IRRIGATION	Surficial Aquifer System
06-04423-W	GENERAL PERMIT	RICKELL DAY'S PLAZA	PROPOSED	IRRIGATION	Biscayne Aquifer
06-04421-W	GENERAL PERMIT	BILL SEIDLE SUZUKI	PROPOSED	IRRIGATION	Surficial Aquifer System
06-01984-W	GENERAL PERMIT	NOVA SOUTHEASTERN MAIN CAMPUS	EXISTING	IRRIGATION	Biscayne Aquifer
06-01984-W	GENERAL PERMIT	NOVA SOUTHEASTERN MAIN CAMPUS	EXISTING	IRRIGATION	Biscayne Aquifer
06-03919-W	GENERAL PERMIT	RICK CASE HYUNDAI	PROPOSED	IRRIGATION	Biscayne Aquifer
06-04110-W	GENERAL PERMIT	S W 71ST TERRACE PARK	PROPOSED	IRRIGATION	Surficial Aquifer System
06-04675-W	GENERAL PERMIT	SR 817 UNIVERSITY DRIVE	PROPOSED	IRRIGATION	Surficial Aquifer System
06-04675-W	GENERAL PERMIT	SR 817 UNIVERSITY DRIVE	PROPOSED	IRRIGATION	Surficial Aquifer System
06-03555-W	GENERAL PERMIT	SOUTH NEW RIVER CANAL NORTH BANK LINEAR PARK	PROPOSED	IRRIGATION	Biscayne Aquifer
06-03555-W	GENERAL PERMIT	SOUTH NEW RIVER CANAL NORTH BANK LINEAR PARK	PROPOSED	IRRIGATION	Biscayne Aquifer
06-03555-W	GENERAL PERMIT	SOUTH NEW RIVER CANAL NORTH BANK LINEAR PARK	PROPOSED	IRRIGATION	Biscayne Aquifer
06-03579-W	GENERAL PERMIT	WELLS PROPERTY	PROPOSED	IRRIGATION	Biscayne Aquifer
06-03585-W	GENERAL PERMIT	MC DONALD'S L/C#009-2077 AT THE PLAZA	PROPOSED	IRRIGATION	Biscayne Aquifer
06-02796-W	GENERAL PERMIT	GLOBAL COMMERCE CENTER	PROPOSED	IRRIGATION	Biscayne Aquifer
06-01573-W	GENERAL PERMIT	BERGERON PARK	EXISTING	IRRIGATION	Biscayne Aquifer
06-01984-W	GENERAL PERMIT	NOVA SOUTHEASTERN MAIN CAMPUS	EXISTING	IRRIGATION	Biscayne Aquifer
06-01984-W	GENERAL PERMIT	NOVA SOUTHEASTERN MAIN CAMPUS	EXISTING	IRRIGATION	Biscayne Aquifer
06-01984-W	GENERAL PERMIT	NOVA SOUTHEASTERN MAIN CAMPUS	EXISTING	IRRIGATION	Biscayne Aquifer
06-02841-W	GENERAL PERMIT	DONS GARDEN SUPPLY	EXISTING	IRRIGATION	Biscayne Aquifer
06-02841-W	GENERAL PERMIT	DONS GARDEN SUPPLY	EXISTING	IRRIGATION	Biscayne Aquifer
06-02841-W	GENERAL PERMIT	DONS GARDEN SUPPLY	EXISTING	IRRIGATION	Biscayne Aquifer
06-02841-W	GENERAL PERMIT	DONS GARDEN SUPPLY	EXISTING	IRRIGATION	Biscayne Aquifer
06-04311-W	GENERAL PERMIT	FIRE AND PUBLIC WORKS COMPLEX	EXISTING	IRRIGATION	Biscayne Aquifer
06-04333-W	GENERAL PERMIT	JASMINE ISLES	PROPOSED	IRRIGATION	Biscayne Aquifer
06-04724-W	GENERAL PERMIT	ELSON'S EXOTICS INC	EXISTING	IRRIGATION	Surficial Aquifer System
06-01753-W	INDIVIDUAL PERMIT	VISTA VIEW PARK	EXISTING	IRRIGATION	Biscayne Aquifer
06-04335-W	GENERAL PERMIT	STRIKE ZONE PLAZA	PROPOSED	IRRIGATION	Biscayne Aquifer
06-04335-W	GENERAL PERMIT	STRIKE ZONE PLAZA	PROPOSED	IRRIGATION	Biscayne Aquifer
06-04337-W	GENERAL PERMIT	RANCHO ALEGRE	PROPOSED	IRRIGATION	Biscayne Aquifer
06-03744-W	GENERAL PERMIT	PUBLIX NO 871 - PARADISE PROMENADE	PROPOSED	IRRIGATION	Biscayne Aquifer
06-00170-W	GENERAL PERMIT	FERNCREST WATER TREATMENT PLANT	EXISTING	MON	Biscayne Aquifer
06-00170-W	GENERAL PERMIT	FERNCREST WATER TREATMENT PLANT	EXISTING	MON	Biscayne Aquifer
06-03889-W	GENERAL PERMIT	PARKSIDE ESTATES	PROPOSED	IRRIGATION	Biscayne Aquifer
06-05211-W	GENERAL PERMIT	CASEYCO CORPORATE CENTER	PROPOSED	IRRIGATION	Biscayne Aquifer
06-06050-W	GENERAL PERMIT	HESS CORPORATION	EXISTING	IRRIGATION	Surficial Aquifer System
06-05261-W	GENERAL PERMIT	KENTWOOD PREPARATORY SCHOOL	PROPOSED	IRRIGATION	Biscayne Aquifer
06-03126-W	GENERAL PERMIT	MC DONALD'S RESTAURANT	PROPOSED	IRRIGATION	Biscayne Aquifer
06-01969-W	GENERAL PERMIT	WAVERLY 100 PARK	EXISTING	IRRIGATION	Biscayne Aquifer
06-00667-W	GENERAL PERMIT	BROWARD COLLEGE CENTRAL CAMPUS	EXISTING	IRRIGATION	Biscayne Aquifer
06-00667-W	GENERAL PERMIT	BROWARD COLLEGE CENTRAL CAMPUS	EXISTING	IRRIGATION	Biscayne Aquifer
06-00120-W	INDIVIDUAL PERMIT	CITY OF SUNRISE	EXISTING	PUBLIC WATER SUPPLY	Biscayne Aquifer
06-00120-W	INDIVIDUAL PERMIT	CITY OF SUNRISE	EXISTING	PUBLIC WATER SUPPLY	Biscayne Aquifer
06-04687-W	GENERAL PERMIT	SILVER RIDGE ELEM/INDIAN RIDGE MIDDLE	EXISTING	IRRIGATION	Biscayne Aquifer
06-04694-W	GENERAL PERMIT	BANKERS HEALTHCARE GROUP INC	PROPOSED	IRRIGATION	Surficial Aquifer System
06-04699-W	GENERAL PERMIT	WOLF PLAZA	PROPOSED	IRRIGATION	Surficial Aquifer System
06-04707-W	GENERAL PERMIT	DAVIE, TROPICAL, PLANTATION PARK ELEM/SEMINOLE MIDDLE	EXISTING	IRRIGATION	Biscayne Aquifer
06-04706-W	GENERAL PERMIT	EISENHOWER ELEM/FORMAN ELEM/MCFATTER VOTECH	EXISTING	IRRIGATION	Biscayne Aquifer
06-04706-W	GENERAL PERMIT	EISENHOWER ELEM/FORMAN ELEM/MCFATTER VOTECH	EXISTING	IRRIGATION	Biscayne Aquifer
06-04706-W	GENERAL PERMIT	EISENHOWER ELEM/FORMAN ELEM/MCFATTER VOTECH	EXISTING	IRRIGATION	Biscayne Aquifer
06-04706-W	GENERAL PERMIT	EISENHOWER ELEM/FORMAN ELEM/MCFATTER VOTECH	EXISTING	IRRIGATION	Biscayne Aquifer
06-03416-W	GENERAL PERMIT	HOME DEPOT STIRLING ROAD AND UNIVERSITY DRIVE	PROPOSED	IRRIGATION	Biscayne Aquifer
06-01007-W	GENERAL PERMIT	ELEMENTARY SCHOOL M (HAWKS BLUFF ELEMENTARY SCHOOL)	EXISTING	IRRIGATION	Biscayne Aquifer
06-05585-W	GENERAL PERMIT	POTTER AND WATERFORD PARKS	EXISTING	IRRIGATION	Biscayne Aquifer
06-05585-W	GENERAL PERMIT	POTTER AND WATERFORD PARKS	EXISTING	IRRIGATION	Biscayne Aquifer
06-05584-W	GENERAL PERMIT	DRIFTWOOD AND JOY YODER PARKS	EXISTING	IRRIGATION	Biscayne Aquifer
06-05611-W	GENERAL PERMIT	WALGREENS 4003	EXISTING	IRRIGATION	Biscayne Aquifer
06-06224-W	GENERAL PERMIT	EL JARDIN	PROPOSED	IRRIGATION	Biscayne Aquifer
06-06224-W	GENERAL PERMIT	EL JARDIN	PROPOSED	IRRIGATION	Biscayne Aquifer
06-03555-W	GENERAL PERMIT	SOUTH NEW RIVER CANAL NORTH BANK LINEAR PARK	PROPOSED	IRRIGATION	Biscayne Aquifer
06-03555-W	GENERAL PERMIT	SOUTH NEW RIVER CANAL NORTH BANK LINEAR PARK	PROPOSED	IRRIGATION	Biscayne Aquifer

Permit Number	ACTUAL PERMIT	PROJECT NAME	STATUS	WATER USE	SOURCE NAME
06-00134-W	INDIVIDUAL PERMIT	TOWN OF DAVIE WATER PLANT SYS I, I I I, AND V	EXISTING	MON	Biscayne Aquifer
06-00134-W	INDIVIDUAL PERMIT	TOWN OF DAVIE WATER PLANT SYS I, I I I, AND V	EXISTING	MON	Biscayne Aquifer
06-03919-W	GENERAL PERMIT	RICK CASE HYUNDAI	PROPOSED	IRRIGATION	Biscayne Aquifer
06-05976-W	GENERAL PERMIT	SHENANDOAH	EXISTING	IRRIGATION	Biscayne Aquifer
06-05976-W	GENERAL PERMIT	SHENANDOAH	PROPOSED	IRRIGATION	Biscayne Aquifer
06-04913-W	GENERAL PERMIT	STERLING TOWNHOMES	PROPOSED	IRRIGATION	Biscayne Aquifer
06-04984-W	GENERAL PERMIT	FLORIDA FRESH HERBS AND FLAMINGO ROAD NURSERY	EXISTING	IRRIGATION	Biscayne Aquifer
06-04984-W	GENERAL PERMIT	FLORIDA FRESH HERBS AND FLAMINGO ROAD NURSERY	EXISTING	IRRIGATION	Biscayne Aquifer
06-05803-W	GENERAL PERMIT	CONQUISTADOR APARTMENTS	EXISTING	IRRIGATION	Biscayne Aquifer
06-00170-W	GENERAL PERMIT	FERNCREST WATER TREATMENT PLANT	EXISTING	PUBLIC WATER SUPPLY	Biscayne Aquifer
06-03545-W	GENERAL PERMIT	BROWARD AREA OFFICE	EXISTING	IRRIGATION	Biscayne Aquifer
06-05355-W	GENERAL PERMIT	AMMJ NURSERY	EXISTING	IRRIGATION	Biscayne Aquifer
06-00120-W	INDIVIDUAL PERMIT	CITY OF SUNRISE	PROPOSED	PUBLIC WATER SUPPLY	Biscayne Aquifer
06-00393-W	INDIVIDUAL PERMIT	N S U GRANDE OAKS GOLF CLUB	EXISTING	IRL	Biscayne Aquifer
06-00393-W	INDIVIDUAL PERMIT	N S U GRANDE OAKS GOLF CLUB	EXISTING	IRL	Biscayne Aquifer
06-00134-W	INDIVIDUAL PERMIT	TOWN OF DAVIE WATER PLANT SYS I, I I I, AND V	PROPOSED	PUBLIC WATER SUPPLY	Floridan Aquifer System
06-00134-W	INDIVIDUAL PERMIT	TOWN OF DAVIE WATER PLANT SYS I, I I I, AND V	PROPOSED	PUBLIC WATER SUPPLY	Floridan Aquifer System
06-05824-W	GENERAL PERMIT	CHASE BANK	PROPOSED	IRRIGATION	Biscayne Aquifer
06-02499-W	INDIVIDUAL PERMIT	GRIFFIN ROAD AND STATE ROAD 7	EXISTING	IRRIGATION	Biscayne Aquifer
06-00134-W	INDIVIDUAL PERMIT	TOWN OF DAVIE WATER PLANT SYS I, I I I, AND V	EXISTING	PUBLIC WATER SUPPLY	Floridan Aquifer System
06-01714-W	GENERAL PERMIT	CONSERVATION SUBSTATION	EXISTING	IRRIGATION	Biscayne Aquifer
06-05741-W	GENERAL PERMIT	U PULL IT PHASE I	PROPOSED	IRRIGATION	Biscayne Aquifer
06-03545-W	GENERAL PERMIT	BROWARD AREA OFFICE	EXISTING	IRRIGATION	Biscayne Aquifer
06-05260-W	GENERAL PERMIT	PINE ISLAND OFFICE CENTRE	PROPOSED	IRRIGATION	Biscayne Aquifer
06-04675-W	GENERAL PERMIT	SR 817 UNIVERSITY DRIVE	PROPOSED	IRRIGATION	Surficial Aquifer System
06-02529-W	GENERAL PERMIT	BURGER KING REGENCY SQUARE	EXISTING	IRRIGATION	Biscayne Aquifer
06-00120-W	INDIVIDUAL PERMIT	CITY OF SUNRISE	EXISTING	PUBLIC WATER SUPPLY	Biscayne Aquifer
06-00134-W	INDIVIDUAL PERMIT	TOWN OF DAVIE WATER PLANT SYS I, I I I, AND V	EXISTING	PUBLIC WATER SUPPLY	Biscayne Aquifer
06-00134-W	INDIVIDUAL PERMIT	TOWN OF DAVIE WATER PLANT SYS I, I I I, AND V	EXISTING	PUBLIC WATER SUPPLY	Biscayne Aquifer
06-00134-W	INDIVIDUAL PERMIT	TOWN OF DAVIE WATER PLANT SYS I, I I I, AND V	EXISTING	PUBLIC WATER SUPPLY	Biscayne Aquifer
06-00134-W	INDIVIDUAL PERMIT	TOWN OF DAVIE WATER PLANT SYS I, I I I, AND V	EXISTING	PUBLIC WATER SUPPLY	Biscayne Aquifer
06-00134-W	INDIVIDUAL PERMIT	TOWN OF DAVIE WATER PLANT SYS I, I I I, AND V	ABANDONED	PUBLIC WATER SUPPLY	Biscayne Aquifer
06-04724-W	GENERAL PERMIT	ELSON'S EXOTICS INC	PROPOSED	IRRIGATION	Surficial Aquifer System
06-06078-W	GENERAL PERMIT	DEVINE PARK	EXISTING	PUBLIC WATER SUPPLY	Biscayne Aquifer
06-01295-W	GENERAL PERMIT	WESTERN HIGH SCHOOL	EXISTING	IRRIGATION	Biscayne Aquifer
06-06012-W	GENERAL PERMIT	NORWEGIAN SEAMENS CHURCH AND SCANDINAVIAN CENTER	PROPOSED	IRRIGATION	Biscayne Aquifer
06-06012-W	GENERAL PERMIT	NORWEGIAN SEAMENS CHURCH AND SCANDINAVIAN CENTER	PROPOSED	PUBLIC WATER SUPPLY	Biscayne Aquifer
06-05775-W	GENERAL PERMIT	SR 817 UNIVERSITY DRIVE (421672-1-52-01)	PROPOSED	IRRIGATION	Biscayne Aquifer
06-04881-W	GENERAL PERMIT	DIAMOND 3	PROPOSED	IRRIGATION	Biscayne Aquifer
06-05650-W	GENERAL PERMIT	ACTAVIS LABORATORIES FL INC F/K/A WATSON LABORATORIES INC	PROPOSED	IRRIGATION	Surficial Aquifer System
06-05549-W	GENERAL PERMIT	EPD LABORATORY	PROPOSED	IRRIGATION	Biscayne Aquifer
06-05612-W	GENERAL PERMIT	SUN RECYCLING 14	EXISTING	INDUSTRIAL	Surficial Aquifer System
06-05210-W	GENERAL PERMIT	HERITAGE BUILDING	PROPOSED	IRRIGATION	Biscayne Aquifer
06-05153-W	GENERAL PERMIT	GLENNS AUTOMOTIVE CENTER	PROPOSED	IRRIGATION	Biscayne Aquifer
06-05066-W	GENERAL PERMIT	NOBHILL OFFICE	PROPOSED	IRRIGATION	Biscayne Aquifer
06-05162-W	GENERAL PERMIT	DAVIE COOPER CITY LIBRARY	PROPOSED	IRRIGATION	Biscayne Aquifer
06-05246-W	GENERAL PERMIT	REGENCY COMMONS	PROPOSED	IRRIGATION	Biscayne Aquifer
06-06350-W	GENERAL PERMIT	LINCOLN ROAD PLAZA	PROPOSED	IRRIGATION	Biscayne Aquifer
06-00120-W	INDIVIDUAL PERMIT	CITY OF SUNRISE	EXISTING	MON	Biscayne Aquifer
06-07019-W	GENERAL PERMIT	ARROWHEAD GOLF AND TENNIS CLUB NO 1 ASSOCIATION	EXISTING	IRRIGATION	Surficial Aquifer System
06-07507-W	GENERAL PERMIT	TEEN CHALLENGE CITY OF DAVIE WOMENS CENTER	EXISTING	PUBLIC WATER SUPPLY	Biscayne Aquifer
06-06123-W	GENERAL PERMIT	TOWN PARK CROSSING	PROPOSED	IRRIGATION	Biscayne Aquifer
06-05162-W	GENERAL PERMIT	DAVIE COOPER CITY LIBRARY	EXISTING	IRRIGATION	Biscayne Aquifer
06-05089-W	GENERAL PERMIT	OAK LANDINGS	PROPOSED	IRRIGATION	Biscayne Aquifer
06-06064-W	GENERAL PERMIT	BROWARD COUNTY CHILDREN'S READING CENTER AND MUSEUM	PROPOSED	IRRIGATION	Biscayne Aquifer
06-06116-W	GENERAL PERMIT	CHICK-FIL-A	PROPOSED	IRRIGATION	Surficial Aquifer System
06-06058-W	GENERAL PERMIT	EHLINGER APARTMENTS	PROPOSED	IRRIGATION	Biscayne Aquifer
06-05825-W	GENERAL PERMIT	NOVA HIGH SCHOOL	PROPOSED	PH	Surficial Aquifer System
06-05825-W	GENERAL PERMIT	NOVA HIGH SCHOOL	PROPOSED	PHR	Surficial Aquifer System
06-05758-W	GENERAL PERMIT	NATIONAL RUST AND WATER	EXISTING	INDUSTRIAL	Surficial Aquifer System
06-04747-W	GENERAL PERMIT	TORAL PROFESSIONAL BUILDING	PROPOSED	IRRIGATION	Biscayne Aquifer
06-04749-W	GENERAL PERMIT	REGENCY PROFESSIONAL CENTER	PROPOSED	IRRIGATION	Biscayne Aquifer
06-05015-W	GENERAL PERMIT	GREAT FLORIDA BANK DAVIE	EXISTING	IRRIGATION	Biscayne Aquifer
06-05447-W	GENERAL PERMIT	A HUGE ADAMS CENTRAL CAMPUS	PROPOSED	AC	Biscayne Aquifer
06-04981-W	GENERAL PERMIT	FLORIDA POWER AND LIGHT ANDREWS SUBSTATION	EXISTING	IRRIGATION	Biscayne Aquifer
06-00134-W	INDIVIDUAL PERMIT	TOWN OF DAVIE WATER PLANT SYS I, I I I, AND V	PROPOSED	PUBLIC WATER SUPPLY	Floridan Aquifer System
06-00134-W	INDIVIDUAL PERMIT	TOWN OF DAVIE WATER PLANT SYS I, I I I, AND V	PROPOSED	PUBLIC WATER SUPPLY	Floridan Aquifer System
06-00134-W	INDIVIDUAL PERMIT	TOWN OF DAVIE WATER PLANT SYS I, I I I, AND V	PROPOSED	PUBLIC WATER SUPPLY	Floridan Aquifer System
06-00134-W	INDIVIDUAL PERMIT	TOWN OF DAVIE WATER PLANT SYS I, I I I, AND V	EXISTING	PUBLIC WATER SUPPLY	Floridan Aquifer System
06-00134-W	INDIVIDUAL PERMIT	TOWN OF DAVIE WATER PLANT SYS I, I I I, AND V	EXISTING	PUBLIC WATER SUPPLY	Floridan Aquifer System
06-00134-W	INDIVIDUAL PERMIT	TOWN OF DAVIE WATER PLANT SYS I, I I I, AND V	EXISTING	PUBLIC WATER SUPPLY	Floridan Aquifer System
06-00134-W	INDIVIDUAL PERMIT	TOWN OF DAVIE WATER PLANT SYS I, I I I, AND V	EXISTING	PUBLIC WATER SUPPLY	Floridan Aquifer System
06-05936-W	GENERAL PERMIT	CHICK-FIL-A	PROPOSED	IRRIGATION	Surficial Aquifer System
06-05469-W	GENERAL PERMIT	MASTERPIECE EQUESTRIAN CENTER	EXISTING	LIV	Biscayne Aquifer
06-05469-W	GENERAL PERMIT	MASTERPIECE EQUESTRIAN CENTER	EXISTING	LIV	Biscayne Aquifer
06-06310-W	GENERAL PERMIT	DAVID POSNACK JEWISH COMMUNITY CENTER	EXISTING	PHR	Biscayne Aquifer
06-06310-W	GENERAL PERMIT	DAVID POSNACK JEWISH COMMUNITY CENTER	EXISTING	PH	Biscayne Aquifer
06-06482-W	GENERAL PERMIT	MEDITATION HALL	PROPOSED	PUBLIC WATER SUPPLY	Biscayne Aquifer
06-07011-W	GENERAL PERMIT	2101 SOUTH UNIVERSITY DRIVE	PROPOSED	IRRIGATION	Biscayne Aquifer
06-07061-W	GENERAL PERMIT	EAT AT JOES PLAZA	PROPOSED	IRRIGATION	Biscayne Aquifer
06-07106-W	GENERAL PERMIT	3050 BURRIS ROAD	PROPOSED	IRRIGATION	Biscayne Aquifer
06-07469-W	GENERAL PERMIT	NOVA NORTH CONDOMINIUM	EXISTING	IRRIGATION	Biscayne Aquifer
06-07469-W	GENERAL PERMIT	NOVA NORTH CONDOMINIUM	EXISTING	IRRIGATION	Biscayne Aquifer
06-07469-W	GENERAL PERMIT	NOVA NORTH CONDOMINIUM	EXISTING	IRRIGATION	Biscayne Aquifer
06-07469-W	GENERAL PERMIT	NOVA NORTH CONDOMINIUM	EXISTING	IRRIGATION	Biscayne Aquifer
06-07469-W	GENERAL PERMIT	NOVA NORTH CONDOMINIUM	EXISTING	IRRIGATION	Biscayne Aquifer
06-07469-W	GENERAL PERMIT	NOVA NORTH CONDOMINIUM	EXISTING	IRRIGATION	Biscayne Aquifer
06-07469-W	GENERAL PERMIT	NOVA NORTH CONDOMINIUM	EXISTING	IRRIGATION	Biscayne Aquifer
06-07019-W	GENERAL PERMIT	ARROWHEAD GOLF AND TENNIS CLUB NO 1 ASSOCIATION	PROPOSED	IRRIGATION	Surficial Aquifer System
06-07685-W	GENERAL PERMIT	DAVIE UNITED WAREHOUSES	PROPOSED	IRRIGATION	Biscayne Aquifer
06-07685-W	GENERAL PERMIT	DAVIE UNITED WAREHOUSES	EXISTING	IRRIGATION	Biscayne Aquifer
06-05602-W	GENERAL PERMIT	SHENANDOAH PARK	EXISTING	IRRIGATION	Biscayne Aquifer
06-06930-W	GENERAL PERMIT	FLAMINGO VILLAGE	PROPOSED	IRRIGATION	Biscayne Aquifer

Permit Number	ACTUAL PERMIT	PROJECT NAME	STATUS	WATER USE	SOURCE NAME
06-06670-W	GENERAL PERMIT	DAVIE ROAD IMPROVEMENTS	PROPOSED	IRRIGATION	Surficial Aquifer System
06-06749-W	GENERAL PERMIT	35TH AND DAVIE APARTMENTS	PROPOSED	IRRIGATION	Biscayne Aquifer
06-06979-W	GENERAL PERMIT	VIETNAMESE BUDDHIST FRUIT NURSERY	PROPOSED	IRRIGATION	Biscayne Aquifer
06-07236-W	GENERAL PERMIT	COSTCO PARKING EXPANSION	PROPOSED	IRRIGATION	Biscayne Aquifer
06-07676-W	GENERAL PERMIT	COUNTRY CREEK	PROPOSED	IRRIGATION	Biscayne Aquifer
06-06598-W	GENERAL PERMIT	MCDONALDS	PROPOSED	IRRIGATION	Biscayne Aquifer
06-07481-W	GENERAL PERMIT	RESIDENCES OF SADDLE BRIDGE	PROPOSED	IRRIGATION	Surficial Aquifer System
06-07327-W	GENERAL PERMIT	GIFFIN CENTER	PROPOSED	IRRIGATION	Biscayne Aquifer
06-07668-W	GENERAL PERMIT	BRETON - SALES TRAILER	PROPOSED	PUBLIC WATER SUPPLY	Biscayne Aquifer
06-01984-W	GENERAL PERMIT	NOVA SOUTHEASTERN MAIN CAMPUS	PROPOSED	IRRIGATION	Biscayne Aquifer
06-06249-W	GENERAL PERMIT	TOWN SQUARE	PROPOSED	IRRIGATION	Biscayne Aquifer
06-06413-W	GENERAL PERMIT	SIGNATURE AT DAVIE PHASE I I	EXISTING	IRRIGATION	Surficial Aquifer System
06-07010-W	GENERAL PERMIT	THREE JS FARM	PROPOSED	IRRIGATION	Biscayne Aquifer
06-07032-W	GENERAL PERMIT	HAWKES BLUFF AVE	PROPOSED	IRRIGATION	Biscayne Aquifer
06-06429-W	GENERAL PERMIT	NEW LIFE BAPTIST CHURCH	PROPOSED	IRRIGATION	Surficial Aquifer System
06-07219-W	GENERAL PERMIT	RESTAURANT AND COMMERCIAL REDEVELOPMENT	EXISTING	IRRIGATION	Biscayne Aquifer
06-05612-W	GENERAL PERMIT	SUN RECYCLING 14	PROPOSED	INDUSTRIAL	Surficial Aquifer System
06-05612-W	GENERAL PERMIT	SUN RECYCLING 14	PROPOSED	IRRIGATION	Surficial Aquifer System
06-05612-W	GENERAL PERMIT	SUN RECYCLING 14	PROPOSED	IRRIGATION	Surficial Aquifer System
06-00170-W	GENERAL PERMIT	FERNCREST WATER TREATMENT PLANT	PROPOSED	PUBLIC WATER SUPPLY	Biscayne Aquifer
06-06937-W	GENERAL PERMIT	FLAMINGO GARDENS	PROPOSED	LIV	Surficial Aquifer System
06-06937-W	GENERAL PERMIT	FLAMINGO GARDENS	EXISTING	LIV	Surficial Aquifer System
06-07461-W	GENERAL PERMIT	STORE MASTER FUNDING I V L L C	PROPOSED	IRRIGATION	Biscayne Aquifer
06-07461-W	GENERAL PERMIT	STORE MASTER FUNDING I V L L C	ABANDONED	IRRIGATION	Biscayne Aquifer
06-07127-W	GENERAL PERMIT	LAKESIDE TOWN SHOPS - NEW RETAIL BUILDING	PROPOSED	IRRIGATION	Biscayne Aquifer
06-06331-W	GENERAL PERMIT	LAS PALMAS HOMES AT DAVIE	PROPOSED	IRRIGATION	Biscayne Aquifer
06-06597-W	GENERAL PERMIT	OAK LANDING	PROPOSED	IRRIGATION	Biscayne Aquifer
06-00393-W	INDIVIDUAL PERMIT	N S U GRANDE OAKS GOLF CLUB	EXISTING	IRL	Biscayne Aquifer
06-07213-W	GENERAL PERMIT	DAVIE ROAD PHASE I I	PROPOSED	IRRIGATION	Biscayne Aquifer
06-07213-W	GENERAL PERMIT	DAVIE ROAD PHASE I I	PROPOSED	IRRIGATION	Biscayne Aquifer
06-07467-W	INDIVIDUAL PERMIT	WAWA 5249	PROPOSED	IRRIGATION	Biscayne Aquifer
06-07212-W	GENERAL PERMIT	WENDYS	PROPOSED	IRRIGATION	Surficial Aquifer System
06-07662-W	GENERAL PERMIT	BRETON PARK	PROPOSED	IRRIGATION	Biscayne Aquifer
06-00667-W	GENERAL PERMIT	BROWARD COLLEGE CENTRAL CAMPUS	EXISTING	IRRIGATION	Biscayne Aquifer
06-01263-W	GENERAL PERMIT	FLORIDA AQUATIC NURSERIES INC	EXISTING	AQC	Biscayne Aquifer
06-01263-W	GENERAL PERMIT	FLORIDA AQUATIC NURSERIES INC	EXISTING	AQC	Biscayne Aquifer
06-07614-W	GENERAL PERMIT	DAVIE JUNCTION	PROPOSED	IRRIGATION	Biscayne Aquifer
06-07668-W	GENERAL PERMIT	BRETON - SALES TRAILER	PROPOSED	IRRIGATION	Biscayne Aquifer
06-06787-W	GENERAL PERMIT	COLLEGE AVENUE IMPROVEMENTS	PROPOSED	IRRIGATION	Biscayne Aquifer
06-06787-W	GENERAL PERMIT	COLLEGE AVENUE IMPROVEMENTS	PROPOSED	IRRIGATION	Biscayne Aquifer
06-00120-W	INDIVIDUAL PERMIT	CITY OF SUNRISE	PROPOSED	PUBLIC WATER SUPPLY	Biscayne Aquifer
06-00120-W	INDIVIDUAL PERMIT	CITY OF SUNRISE	PROPOSED	PUBLIC WATER SUPPLY	Biscayne Aquifer
06-06611-W	GENERAL PERMIT	RESTAURANT DEPOT	PROPOSED	IRRIGATION	Biscayne Aquifer
06-06925-W	GENERAL PERMIT	PINE ISLAND ROAD (FROM NOVA DR TO SR-84)	PROPOSED	IRRIGATION	Biscayne Aquifer
06-07410-W	GENERAL PERMIT	ARTIS SENIOR CENTER	EXISTING	IRRIGATION	Biscayne Aquifer
06-06454-W	GENERAL PERMIT	DRIVING COURSE SKID PAD	PROPOSED	OTR	Biscayne Aquifer
06-06611-W	GENERAL PERMIT	RESTAURANT DEPOT	ABANDONED	IRRIGATION	Biscayne Aquifer
06-06933-W	GENERAL PERMIT	DAVIE ROAD TRIANGLE APARTMENTS	PROPOSED	IRRIGATION	Biscayne Aquifer
06-07204-W	GENERAL PERMIT	ROBBINS LODGE PARK	PROPOSED	LIV	Surficial Aquifer System
06-06742-W	GENERAL PERMIT	STIRLING SHOPS	PROPOSED	IRRIGATION	Biscayne Aquifer
06-07676-W	GENERAL PERMIT	COUNTRY CREEK	EXISTING	IRRIGATION	Biscayne Aquifer
06-07676-W	GENERAL PERMIT	COUNTRY CREEK	EXISTING	IRRIGATION	Biscayne Aquifer
06-07676-W	GENERAL PERMIT	COUNTRY CREEK	EXISTING	IRRIGATION	Biscayne Aquifer
06-05790-W	GENERAL PERMIT	FAU UF JOINT USE FACILITY	PROPOSED	IRRIGATION	Biscayne Aquifer
06-06979-W	GENERAL PERMIT	VIETNAMESE BUDDHIST FRUIT NURSERY	PROPOSED	IRRIGATION	Biscayne Aquifer
06-00120-W	INDIVIDUAL PERMIT	CITY OF SUNRISE	PROPOSED	PUBLIC WATER SUPPLY	Biscayne Aquifer
06-07556-W	GENERAL PERMIT	DAVIE SHOPPING CENTER	EXISTING	IRRIGATION	Biscayne Aquifer
06-07204-W	GENERAL PERMIT	ROBBINS LODGE PARK	PROPOSED	IRRIGATION	Surficial Aquifer System
06-07463-W	GENERAL PERMIT	F P L SUBSTATION HACIENDA	EXISTING	IRRIGATION	Biscayne Aquifer
06-07555-W	GENERAL PERMIT	WEST OAK ESTATES	PROPOSED	IRRIGATION	Biscayne Aquifer
06-07558-W	GENERAL PERMIT	NOVA DRIVE IMPROVEMENTS	PROPOSED	IRRIGATION	Biscayne Aquifer
06-07558-W	GENERAL PERMIT	NOVA DRIVE IMPROVEMENTS	PROPOSED	IRRIGATION	Biscayne Aquifer
06-07558-W	GENERAL PERMIT	NOVA DRIVE IMPROVEMENTS	PROPOSED	IRRIGATION	Biscayne Aquifer
06-07558-W	GENERAL PERMIT	NOVA DRIVE IMPROVEMENTS	PROPOSED	IRRIGATION	Biscayne Aquifer
06-07558-W	GENERAL PERMIT	NOVA DRIVE IMPROVEMENTS	PROPOSED	IRRIGATION	Biscayne Aquifer
06-07257-W	GENERAL PERMIT	DAVIE I I	PROPOSED	IRRIGATION	Biscayne Aquifer
06-06707-W	GENERAL PERMIT	PIRTLE OFFICE BUILDING	PROPOSED	IRRIGATION	Biscayne Aquifer
06-06248-W	GENERAL PERMIT	F P L WEST DAVIE	PROPOSED	IRRIGATION	Biscayne Aquifer
06-07008-W	GENERAL PERMIT	HOLLY ACRES PET RESORT	EXISTING	INDUSTRIAL	Biscayne Aquifer
06-07469-W	GENERAL PERMIT	NOVA NORTH CONDOMINIUM	EXISTING	IRRIGATION	Biscayne Aquifer
06-07817-W	GENERAL PERMIT	ELDRIDGE PARK ESTATES	PROPOSED	IRRIGATION	Biscayne Aquifer
06-06471-W	GENERAL PERMIT	WALGREENS - 2710 UNIVERSITY DRIVE	PROPOSED	IRRIGATION	Biscayne Aquifer
06-07239-W	GENERAL PERMIT	OSPREY LANDING	PROPOSED	IRRIGATION	Biscayne Aquifer
06-07378-W	GENERAL PERMIT	TRIANGLE WATER USE	EXISTING	LIV	Biscayne Aquifer
06-07378-W	GENERAL PERMIT	TRIANGLE WATER USE	PROPOSED	LIV	Biscayne Aquifer
06-02180-W	INDIVIDUAL PERMIT	VILLAGE AT HARMONY LAKES	EXISTING	IRRIGATION	Biscayne Aquifer
06-07410-W	GENERAL PERMIT	ARTIS SENIOR CENTER	PROPOSED	IRRIGATION	Biscayne Aquifer
06-07369-W	GENERAL PERMIT	WAWA - DAVIE ROAD & STIRLING ROAD	PROPOSED	IRRIGATION	Biscayne Aquifer
06-07008-W	GENERAL PERMIT	HOLLY ACRES PET RESORT	PROPOSED	OTR	Biscayne Aquifer
06-07027-W	GENERAL PERMIT	MCDONALDS	PROPOSED	IRRIGATION	Biscayne Aquifer
06-01264-W	GENERAL PERMIT	FLORIDA AQUATIC NURSERIES INC	EXISTING	PUBLIC WATER SUPPLY	Biscayne Aquifer
06-01264-W	GENERAL PERMIT	FLORIDA AQUATIC NURSERIES INC	EXISTING	IRRIGATION	Biscayne Aquifer
06-01264-W	GENERAL PERMIT	FLORIDA AQUATIC NURSERIES INC	EXISTING	IRRIGATION	Biscayne Aquifer
06-06502-W	GENERAL PERMIT	NICHOLAS CHALIFOUR L L C	PROPOSED	IRRIGATION	Biscayne Aquifer
06-06502-W	GENERAL PERMIT	NICHOLAS CHALIFOUR L L C	PROPOSED	IRRIGATION	Biscayne Aquifer
06-06502-W	GENERAL PERMIT	NICHOLAS CHALIFOUR L L C	PROPOSED	IRRIGATION	Biscayne Aquifer
06-06502-W	GENERAL PERMIT	NICHOLAS CHALIFOUR L L C	PROPOSED	IRRIGATION	Biscayne Aquifer

Appendix C BULK WATER AND SEWAGE USER AGREEMENT – FERNCREST UTILITIES

RESOLUTION NO. R-99- 220

A RESOLUTION OF THE TOWN OF DAVIE, FLORIDA, AUTHORIZING THE MAYOR TO EXECUTE A BULK WATER AND SEWAGE USER AGREEMENT BETWEEN THE TOWN OF DAVIE AND FERNCREST UTILITIES TO PROVIDE BULK WATER AND SEWAGE SERVICE; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the Town of Davie owns and operates a water producing and distribution facility and a sewage collection and treatment facility located within the Town; and

WHEREAS, Ferncrest Utilities, Inc. is a private utility company with its service area located within and adjacent to the corporate limits of the Town; and

WHEREAS, to better service the customers of Ferncrest Utilities, Inc., Ferncrest has requested that the Town provide water and sewage service pursuant to a Bulk Water and Sewage User Agreement; and

WHEREAS, the Town is agreeable to providing said service and wishes to authorize the Mayor to enter an agreement providing for same, a copy of which is attached hereto as Exhibit "A".

NOW, THEREFORE, BE IT RESOLVED BY THE TOWN COUNCIL OF THE TOWN OF DAVIE, FLORIDA:

SECTION 1. That the above recitations are true and correct.

SECTION 2. The Town Council of the Town of Davie hereby authorizes the Mayor to execute the Bulk Water and Sewage User Agreement between the Town of Davie and Ferncrest Utilities, Inc., a copy of which is attached hereto as Exhibit "A".

SECTION 3. The appropriate Town officials are authorized to take all necessary actions to implement the Agreement.

SECTION 4. This Resolution shall take effect immediately upon its passage and adoption.

PASSED AND ADOPTED THIS 7th DAY OF JULY, 1999.

MAYOR/COUNCILMEMBER

ATTEST:

TOWN CLERK

APPROVED THIS 7th DAY OF JULY, 1999.

R-99-/Ferncrest Bulk Wtr Agmt

BULK WATER AND SEWAGE
USER AGREEMENT

THIS AGREEMENT, made and entered into this 7th day of July, 1999, by and between:

Town of Davie, a municipal corporation of the State of Florida, herein called the "Seller",

and

Ferncrest Utilities, Inc., a Florida Corporation, hereinafter called the "Consumer",

WITNESSETH

WHEREAS, the Seller in its proprietary capacity, owns and operates a water producing and distribution facility and a sewage collection and treatment facility, collectively referred to as "Utility", and is in a position to service the Consumer; and

WHEREAS, the Consumer in its proprietary capacity, desires to purchase from Seller water to be used in Consumer's distribution system and to return sewage to Seller to be treated for servicing Consumer's customers, upon terms mutually agreeable;

NOW THEREFORE, for and in consideration of the premises and the sum of One Dollar ($1.00) cash in hand paid by the Consumer to the Seller, receipt whereof is hereby acknowledged, and other good and valuable consideration, IT IS HEREBY COVENANTED AND AGREED by and between the parties hereto as follows:

(1) The Seller agrees to sell to the Consumer and the Consumer agrees to buy from the Seller water for resale to the customers of the Consumer, and the Seller agrees to accept untreated sewage and the Consumer agrees to pay for the treatment of the sewage from the same citizens and customers of the Consumer, under the terms and conditions set forth herein.

(2) All water delivered by the Seller shall be clean, potable water, meeting all current Federal, State and Local regulations in effect for the Utility at the time of transmission, relating to the quality of water as such Regulations may apply during the life of this Agreement. Failure of the Seller to provide water of the quality required by this paragraph shall be deemed a breach of this agreement, however, an allegation of failure to meet any such Regulations which is challenged by the Seller, shall not be deemed a breach of the Agreement unless there is a final finding after exhaustion of any appeals that there has, in fact, been non-compliance with said Regulations.

(3) During the term of this Agreement, the Seller will undertake to deliver water to the Consumer in such quantities as are required by the Consumer for resale by the Consumer to its customers in the areas hereinafter described, and subject to the conditions herein contained, but only after proper water meter or master water meters are installed. The maximum average flow shall be 200,000 gallons per day per month. However the Seller does not bind itself during periods of water shortage resulting from an emergency condition to do more than deliver water to said metering station in such quantities and pressure as are available throughout the Town. In the event it should become necessary for the Seller to adopt regulations for conservation of water during such time of emergency, the Consumer agrees that it will adopt and use reasonable efforts to enforce in the areas covered by this Agreement the same regulations for conservation of water during such time of emergency.

(4) The areas to be serviced by Consumer are situated in Broward County, Florida, and shall be referred to as "Service Area" for the purpose of this Agreement. The Service Area is described as follows:

> Areas in the corporate limits of the Town of Davie east of the Florida Turnpike and north of Oakes Road.

(5) There shall be water meters installed at points mutually agreeable, through which all water provided to Consumer shall be supplied, and all water furnished by

Seller shall be metered through such meters. The Consumer shall, at its own expense, procure and install a water meter or water meters, the type of such meters to be approved by, and the installation thereof to be approved by the Seller or its authorized agents. The sewage connection point shall be at a mutually agreeable location and its installation shall be at the sole expense of the Consumer and approved by the Seller or its authorized agents. After installation, the Consumer will, at its own expense, operate and maintain the water meters and downstream distribution lines and the sewage collection lines.

(6) The Consumer shall own the water meters. The meters shall be of standard make and type, pursuant to AWWA standards, installed in a readily accessible location with checking or calibration devices, and the installation shall indicate flow with an error not to exceed plus or minus three percent of full scale reading. If found to be in error exceeding three percent of true accuracy, the meter shall be recalibrated to the satisfaction of the parties hereto. If such error of more than three percent is discovered, bills for the next period following the prior meter accuracy check shall be adjusted to reflect the quantity of over-read or under-read exceeding three percent. In calculating such billing adjustment it will be assumed that the meter inaccuracy existed for one-half of the entire time interval between meter accuracy checks, not to exceed twelve (12) months. The billing adjustment shall be made at the same rate established in accordance with Section (9) hereinafter, but the volume used in the billing calculations shall be adjusted as described above.

The Seller may request and the Consumer agrees to perform a meter accuracy check at any reasonable time acceptable to both parties. The meter accuracy test will be required at least once every two years. If the meter is found to be in error exceeding three percent true accuracy, it shall be recalibrated as described above and the entire cost for such checking and recalibration shall be paid for by the Consumer.

(7) The water furnished by the Seller hereunder shall be delivered to the Consumer at the points of delivery (meter locations) at a minimum head of one hundred (100) feet (+44PSI) except during fire demand. The Seller shall not be responsible for water hammer in any of the pipe lines of the Consumer nor shall

the Seller be responsible for meeting any demands for water other than that required by the terms of this Agreement. It shall be the obligation and duty of the Consumer to carry the water at its own expense from each point of delivery to the place or places of ultimate use and, in so doing, to supply and impart to the water adequate pressure as may be necessary to provide adequate pressure at all points beyond such point of delivery, in consequence whereof the Seller shall not be responsible for insufficient pressure, nor be required to correct any fluctuation in pressure, occurring beyond any such point of delivery.

(8) The sewage to be delivered by the Consumer to the Seller shall be untreated wastes only from the Consumer's customers who are recipients of the Sellers water. It shall be the Consumer's responsibility to collect and transmit the sewage to the agreed point of sewage connection.

(9) The water rates to be charged by the Seller to the Consumer herein shall be a user rate of $1.12 per 1,000 gallons. The rates may be adjusted to the Consumer as Seller adjusts its rate structure for all customers of Sellers service. At the time of execution of this agreement, the differential of rates between retail customers and Consumer is $0.25 per 1,000 gallons. It is the intention of the parties that any future rate adjustments will result in the same differential of rates so that the Consumer's rates are $0.25 less per 1,000 gallons than the rate to retail customers. The sewage rates to be charged by the Seller to the Consumer herein shall be a user rate of 100% of the water rate @ $1.46 per 1,000 gallons. The rates may be adjusted to the Consumer as Seller adjusts its rate structure for all customers of Sellers service. It is the intention of the parties that any future rate adjustments will result in the same differential of rates so that Consumer's rates are $0.25 less per 1,000 gallons than the rate to retail customers.

(10) Readings of each water meter at all points of delivery shall be taken by the Consumer on or about the fifteenth day of each month and shall be used for monthly billing purposes under the provision of this section.

The Seller shall render monthly statements for water furnished to each meter and the Consumer shall pay promptly all statements furnished by Seller.

(11) Seller shall obtain from the State Board of Health and the Broward County Department of Natural Resource Protection such construction and operation permits or other data as may be required for any addition or extension of seller's system within the Service Area.

(12) Water sold to Consumer hereunder will be supplied from Seller's water producing facilities and will be of substantially the same quality and at the same pressure at the point of connection as the water furnished by Seller to its consumers within the Town limits of Seller, and said pressure shall not be below the minimum provided in Section (7).

(13) Sewage treatment service purchased by Consumer shall include full responsibility of Seller for compliance with all applicable Federal, State, Town of Davie and County regulations regarding treatment criteria and operation.

(14) Any temporary or continuing cessation of the service by the Seller caused by an Act of God, fire, strike, casualty, necessary maintenance work, breakdown of or injuries to machinery, pumps or pipelines, civil or military authority, insurrection, riot, or any other causes, whether or not of the same kind as enumerated herein, shall not constitute a breach of the Agreement on the part of the Seller, and the Seller shall not be liable to the Consumer for any damage resulting from such cessation of service. The Seller shall use due diligence in the operation and maintenance of its water supply and transmission facilities; however, the Seller shall not be responsible to the Consumer for any interruption of service due to causes beyond the Seller's control not due to the negligence of the Seller. All of the provisions of this Section shall apply equally to obligations of the Seller and the Consumer under this Agreement.

(15) Any controversy or claim arising out of this Agreement which cannot be amicably resolved by the parties shall be voluntarily submitted to arbitration by

agreement of both parties. If both parties do not agree to arbitration, then either party can proceed with litigation without having to first obtain an Order of Arbitration.

(16) The purchase and sale of water and sewer treatment services pursuant to this Agreement shall commence thirty (30) days after the Consumer notifies the Seller in writing that it is able to accept water at the point of connection, and shall continue until terminated in the following manner. The terminating party, either the Seller or the Consumer, shall give the other party hereto twelve (12) months notice of its intention to terminate this Agreement. At the expiration of the 12 month notice period the agreement shall be deemed terminated. Such notices shall be in writing and shall be sent by registered or certified mail, return receipt requested, to the party entitled to such notice at the address specified in paragraph numbered (18) of this Agreement.

(17) This Agreement shall inure to and be binding upon the successors of each of the parties hereto.

(18) All notices required pursuant to this Agreement shall be properly given if mailed by United States registered or certified mail addressed to the party to which notice is to be given at the following respective addresses:

Town of Davie
Attn: Town Administrator
6591 Orange Drive
Davie, Florida 33314

with a copy to:

Barry Webber

Ferncrest Utilities, Inc. 3015 SW 54th Ave., Ft. Lauderdale, FL 33314

with a copy to: H. Collins Forman, Jr., Esq.
H. Collins Forman, Jr., P.A.
1323 S.E. Third Avenue
Ft. Lauderdale, FL 33316

(19) This Agreement may be amended, changed, voided or annulled any time by joint consent of the parties in writing.

(20) This Agreement shall not become effective until a resolution has been adopted by such of the parties hereto approving this Agreement and authorizing its execution.

IN WITNESS WHEREOF, Seller has caused this Agreement to be signed by its Mayor and attested by its Town Clerk and its Corporate Seal to be affixed, and approved by the Town Attorney, and Consumer has caused this Agreement to be signed by its and , and attested by the , and its Corporate Seal to be affixed, and approved by its Attorney, in duplicate, the day and year above written.

TOWN OF DAVIE

By_____
Mayor

(Corporate Seal)

Attest:
_____
Town Clerk

FERNCREST UTILITIES, INC.

By_____

(Corporate Seal)

By Robert V. Salerno
President

Attest:
_____
Attorney for Ferncrest Utilities, Inc.

Approved as to form:

Town Attorney

Appendix D BULK WATER AND SEWAGE USER AGREEMENT – SEMINOLE TRIBE OF FLORIDA

RESOLUTION NO. R-2001-314

A RESOLUTION OF THE TOWN OF DAVIE, FLORIDA, AUTHORIZING THE MAYOR TO EXECUTE A BULK WATER AND SEWAGE USER AGREEMENT BETWEEN THE TOWN OF DAVIE AND SEMINOLE TRIBE OF FLORIDA TO PROVIDE BULK WATER AND SEWAGE SERVICE; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the Town of Davie owns and operates a water producing and distribution facility and a sewage collection and treatment facility located within the Town; and

WHEREAS, Seminole Tribe of Florida is located adjacent to the corporate limits of the Town; and

WHEREAS, to better service the customers of Seminole Tribe of Florida, Seminole Tribe of Florida has requested that the Town provide water and sewage service pursuant to a Bulk Water and Sewage User Agreement a copy of which is attached hereto; and

WHEREAS, it is in the best interest of the Town of Davie and the Seminole Tribe of Florida to enter into said agreement; and

WHEREAS, the Town is agreeable to providing said service and wishes to authorize the Mayor to enter into an agreement providing for same.

NOW, THEREFORE, BE IT RESOLVED BY THE TOWN COUNCIL OF THE TOWN OF DAVIE, FLORIDA:

SECTION 1. That the above recitations are true and correct.

SECTION 2. The Town Council of the Town of Davie hereby authorizes the Mayor to execute the Bulk Water and Sewage User Agreement between the Town of Davie and Seminole Tribe of Florida, a copy of which is attached hereto.

SECTION 3. The appropriate Town officials are authorized to take all necessary actions to implement the Agreement.

SECTION 4. This Resolution shall take effect immediately upon its passage and adoption.

PASSED AND ADOPTED THIS 20th DAY OF November 2001.

MAYOR/COUNCILMEMBER

ATTEST:

TOWN CLERK

APPROVED THIS 20th DAY OF November, 2001.

A-2001 314

SEMINOLE TRIBE OF FLORIDA

JAMES E. BILLIE
Chairman

MITCHELL CYPRESS
Vice Chairman

PRISCILLA D. SAYEN
Secretary / Treasurer

SEMINOLE TRIBE OF FLORIDA
TRIBAL COUNCIL
IN GOD WE TRUST
UTILITIES

SUSIE KIPPENBERGER
Director of Utilities

6300 STIRLING ROAD
SUITE 105
HOLLYWOOD, FLORIDA 33024

Phone: (954) 966-6300, Ext. 1112
Phone: (954) 967-3401
Fax: (954) 967-3475
Web: www.seminoletribe.com

January 16, 2002

Mr. Daniel Colabella, Director
Utilities Department
Town of Davie
3500 N. W. 76th Ave.
Davie, Fl 33024

RE: BULK WATER AND SEWAGE USER AGREEMENT BETWEEN THE TWN OF DAVIE AND THE SEMINOLE TRIBE OF FLORIDA

Dear Mr. Colabella:

Enclosed you will find one of the original above referenced documents for your records. The Tribe has executed said document and kept for our records one fully executed by the Town and the Tribe. I'll be contacting you in the near future as we start developing the logistics of this project.

I look forward to working with you, and as always if you have any questions you might contact me at (954) 967-3401.

Sincerely,

Susie Kippenberger
Director

cc: Legal Dept.

"BUT I HAVE PROMISES TO KEEP & MILES TO GO BEFORE I SLEEP"

BULK WATER AND SEWAGE
USER AGREEMENT

THIS AGREEMENT, made and entered into this _____ day of _____, 2001, by and between:

Town of Davie, a municipal corporation of the State of Florida, hereinafter called the "Seller",

and

the Seminole Tribe of Florida, hereinafter called the "Consumer",

WITNESSETH

WHEREAS, the Seller in its proprietary capacity, owns and operates a water producing and distribution facility and a sewage collection and treatment facility, collectively referred to as "Utility", and is in a position to service the Consumer; and

WHEREAS, the Consumer in its proprietary capacity, desires to purchase from Seller water to be used in Consumer's distribution system and to return sewage to Seller to be treated for servicing Consumer's customers, upon terms mutually agreeable;

WHEREAS, the Consumer is an organized tribe as defined in Section 16 of the Act of June 18, 1934, as amended, and the property to be serviced is located on Consumer's sovereign lands;

NOW THEREFORE, for and in consideration of the premises and the sum of One Dollar ($1.00) cash in hand paid by the Consumer to the Seller, receipt whereof is hereby acknowledged, and other good and valuable consideration, IT IS HEREBY COVENANTED AND AGREED by and between the parties hereto as follows:

(1) The Seller agrees to sell to the Consumer and the Consumer agrees to buy from the Seller water for Consumer, and the Seller agrees to accept untreated sewage and the Consumer agrees to pay for the treatment of the sewage from the Consumer, under the terms and conditions set forth herein.

(2) All water delivered by the Seller shall be clean, potable water, meeting all current Federal, State and Local regulations in effect for the Utility at the time of transmission, relating to the quality of water as such Regulations may apply during the life of this Agreement. Failure of the Seller to provide water of the quality required by this paragraph shall be deemed a breach of this agreement, however, an allegation of failure to meet any such Regulations which is challenged by the Seller, shall not be deemed a breach of the Agreement unless there is a final finding after exhaustion of any appeals that there has, in fact, been non-compliance with said Regulations.

(3) During the term of this Agreement, the Seller will undertake to deliver water to the Consumer in such quantities as are required by the Consumer in the areas hereinafter described, and subject to the conditions herein contained, but only after proper water meter or master water meters are installed by Consumer. The maximum average flow shall be 300,000 gallons per day, per month. However the Seller does not bind itself during periods of water shortage resulting from an emergency condition to do more than deliver water to said metering station in such quantities and pressure as are available throughout the Town. In the event it should become necessary for the Seller to adopt regulations for conservation of water during such time of emergency, the Consumer agrees that it will adopt and use reasonable efforts to enforce in the areas covered by this Agreement the same regulations for conservation of water mandated by either the South Florida Water Management District or, in the case of a facilities emergency, the Town of Davie during such time of emergency. Under all circumstances Consumer will be treated similarly with regard to water conservation measures as other like users of Seller's sytem.

(4) The areas to be serviced by Consumer are situated in Broward County, Florida, and shall be referred to as the "Hotel/Entertainment Complex Service Area (hereafter "Service Area") for the purpose of this Agreement. The Service Area is described as follows: See attached Exhibit A-1 and A-2.

(5) There shall be a master water meter installed at a point mutually agreeable, through which all water provided to Consumer shall be supplied, and all water furnished by Seller shall be metered through such meters. The Consumer shall, at its own expense, procure and install a water meter or water meters, the type of such meters to be approved by, and the installation thereof to be approved by the Seller or its authorized agents. The sewage connection point shall be at a mutually agreeable location and its installation shall be at the sole expense of the Consumer and approved by the Seller or its authorized agents. It is the intention of the parties that both the water meter(s) and sewer connection points shall be located on the northwestern boundary of the Hollywood Reservation in the eastern right-of-way of the Florida Turnpike. After installation the Seller will, at its own expense, operate and maintain the master water meter.

(6) It shall be the obligation of the Consumer, at its expense, to design, construct and install water service, force main and wastewater collection lines, and all necessary appurtenances thereto to connect to Seller's existing municipal lines. All improvements constructed on the Reservation shall remain the property of, and be maintained by, the Consumer. All improvements off the Reservation shall be dedicated to the Seller, which then will, at its own expense, operate and maintain same.

(7) The Seller shall own the water meter as evidenced by a Bill of Sale from Consumer once construction of off Reservation improvements have been completed. The meter shall be of standard make and type, pursuant to AWWA standards, installed in a readily accessible location with checking or calibration devices, and the installation shall indicate flow with an error not to exceed plus or minus three percent of full scale reading. If found to be in error exceeding three percent of true accuracy, the meter shall be recalibrated to the satisfaction of the parties hereto. If such error of more than three percent is discovered, bills for the next period following the prior meter accuracy check shall be adjusted to reflect the quantity of over-read or under-read exceeding three percent. In calculating such billing adjustment it will be assumed that the meter inaccuracy existed for one-half of the entire time interval between meter accuracy checks, not to exceed twelve (12) months. The billing adjustment shall be made at the same rate established in accordance with Section (9) hereinafter, but the volume used in the billing calculations shall be adjusted as described above.

The Seller may request and the Consumer agrees to pay to perform a meter accuracy check at any reasonable time acceptable to both parties. The meter accuracy test will be required at least once every two years. If the meter is found to be in error exceeding three percent true accuracy, it shall be recalibrated as described above and the entire cost for such checking and recalibration shall be paid for by the Consumer.

(8) The water furnished by the Seller hereunder shall be delivered to the Consumer at the point of delivery (master meter location) at a minimum head of one hundred (100) feet (+44PSI) except during fire demand. The Seller shall not be responsible for water hammer in any of the pipe lines of the Consumer nor shall the Seller be responsible for meeting any demands for water other than that required by the terms of this Agreement. It shall be the obligation and duty of the Consumer to carry the water at its own expense from each point of delivery to the place or places of ultimate use and, in so doing, to supply and impart to the water adequate pressure as may be necessary to provide adequate pressure at all points beyond such point of delivery, in consequence whereof the Seller shall not be responsible for insufficient pressure, nor be required to correct any fluctuation in pressure, occurring beyond any such point of delivery.

(9) The sewage to be delivered by the Consumer to the Seller shall be untreated wastes only from the Consumer. It shall be the Consumer's responsibility to collect and transmit the sewage to the agreed point of sewage connection.

(10) The water rates to be charged by the Seller to the Consumer herein shall be a user rate of $1.37 per 1,000 gallons. The rates may be adjusted to the Consumer as Seller adjusts its rate structure for all customers of Sellers service. It is the intention of the parties that any future rate adjustments will result in the same rate to retail customers. The sewage rates to be charged by the Seller to the Consumer herein shall be a user rate of 100% of the water usage @ $1.71 per 1,000 gallons. The rates may be adjusted to the Consumer as Seller adjusts its rate structure for all customers of Sellers service. It is the intention of the parties that any future rate adjustments will result in the same rate to retail customers.

(11) Readings of the master water meter at point of delivery shall be taken by the Seller on or about the fifteenth day of each month and shall be used for monthly billing purposes under the provision of this section. The Seller shall render monthly statements for water furnished to the master meter and the Consumer shall pay promptly all statements furnished by Seller.

(12) Water sold to Consumer hereunder will be supplied from Seller's water producing facilities and will be of substantially the same quality and at the same pressure at the point of connection as the water furnished by Seller to its consumer within the Town limits of Seller, and said pressure shall not be below the minimum provided in Section (8).

(13) Sewage treatment service purchased by Consumer shall include full responsibility of Seller for compliance with all applicable Federal, State, Town of Davie and County regulations regarding treatment criteria and operation.

(14) (A) Any temporary or continuing cessation of the service by the Seller caused by an Act of God, fire, strike, casualty, necessary maintenance work, breakdown of or injuries to machinery, pumps or pipelines, civil or military authority, insurrection, riot, or any other causes, whether or not of the same kind as enumerated herein, shall not constitute a breach of the Agreement on the part of the Seller, and the Seller shall not be liable to the Consumer for any damage resulting from such cessation of service. The Seller shall use due diligence in the operation and maintenance of its water supply and transmission facilities; however, the Seller shall not be responsible to the Consumer for any interruption of service due to causes beyond the Seller's control not due to the negligence of the Seller. All of the provisions of this Section shall apply equally to obligations of the Seller and the Consumer under this Agreement.

(B) During such temporary or continuing cessation or interruption of services, including a declared water shortage as described in paragraph (3), Consumer may seek alternative means to replace the lost or diminished water and sewer services until such time services are fully restored to the levels required under this Agreement.

(15) Any controversy or claim arising out of this Agreement which cannot be amicably resolved by the parties shall be voluntarily submitted to non-binding mediation by agreement of both parties. If both parties do not agree to mediate, then either party can proceed with litigation.

(16) The purchase and sale of water and sewer treatment services pursuant to this Agreement shall commence thirty (30) days after the Consumer notifies the Seller in writing that it is able to accept water at the point of connection, and shall continue until terminated in the following manner. The terminating party, either the Seller or the Consumer, shall give the other party hereto twelve (12) months notice of its intention to terminate this Agreement. At the expiration of the 12 month notice period the agreement

shall be deemed terminated. Such notices shall be in writing and shall be sent by registered or certified mail, return receipt requested, to the party entitled to such notice at the address specified in paragraph numbered (18) of this Agreement.

(17) This Agreement shall inure to and be binding upon the successors of each of the parties hereto.

(18) All notices required pursuant to this Agreement shall be properly given if mailed by United States registered or certified mail addressed to the party to which notice is to be given at the following respective addresses:

Town of Davie
Attention: Town Administrator
6591 Orange Drive
Davie, Florida 33314

with a copy to:

Monroe Kiar (Town Attorney)
6191 SW 45 Street
Davie, Florida 33314

Seminole Tribe of Florida
Utilities Department
Attention: Director
6300 Stirling Road
Hollywood, Florida 33024

with a copy to:

Jim Shore
General Counsel
6300 Stirling Road
Hollywood, Florida 33024

(19) This Agreement may be amended, changed, voided or annulled any time by joint consent of the parties in writing.

(20) This Agreement shall not become effective until a resolution has been adopted by the governing bodies of each of the parties hereto approving this Agreement and authorizing its execution.

IN WITNESS WHEREOF, Seller has caused this Agreement to be signed by its Mayor and attested by its Town Clerk and its Corporate Seal to be affixed, and approved by the Town Attorney, and Consumer has caused this Agreement to be signed by its acting Chairman and attested by the Secretary/Treasurer, and its Tribal Seal to be affixed, and approved by its Tribal Council, in duplicate, the day and year above written.

TOWN OF DAVIE

By_____
Mayor

(Corporate Seal)

Attest:
_____
Town Clerk

SEMINOLE TRIBE OF FLORIDA

By_____
Mitchell Cypress, as acting Chairman of the Tribal Council

(Tribal Seal)

Attest:

_____
Priscilla Sayen, Secretary/Treasurer

Approved as to form:

_____
Monroe Kiar, Town Attorney

EXHIBIT A-1

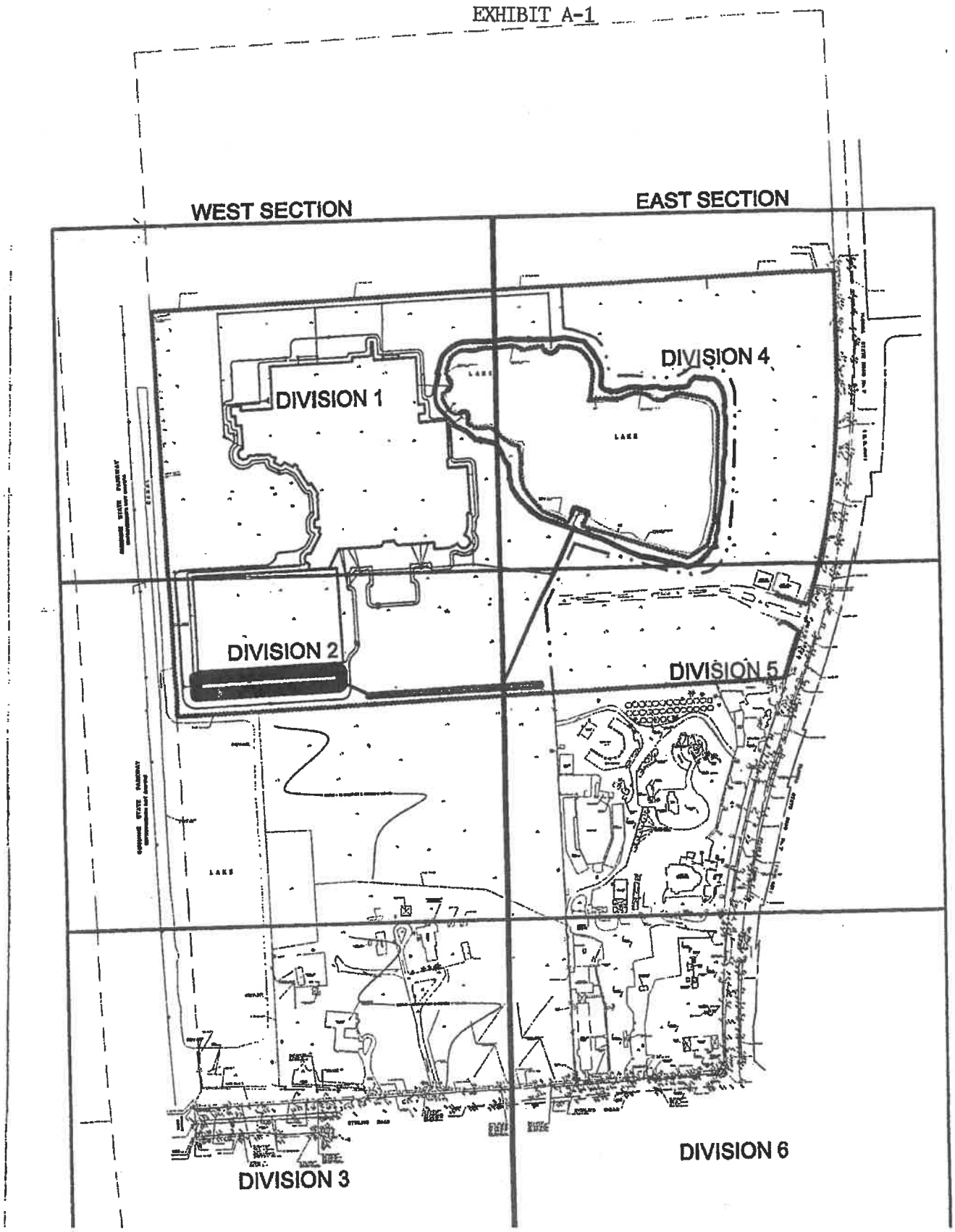
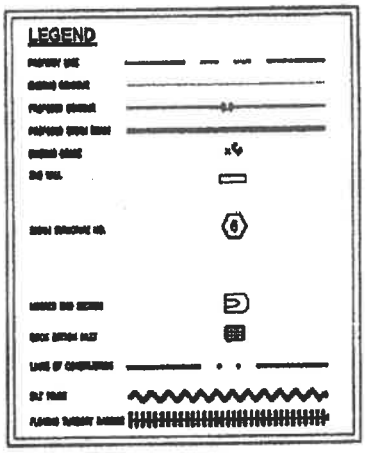

WEST SECTION
EAST SECTION
DIVISION 1
DIVISION 2
DIVISION 3
DIVISION 4
DIVISION 5
DIVISION 6
LAKE
LAKE
LAKE

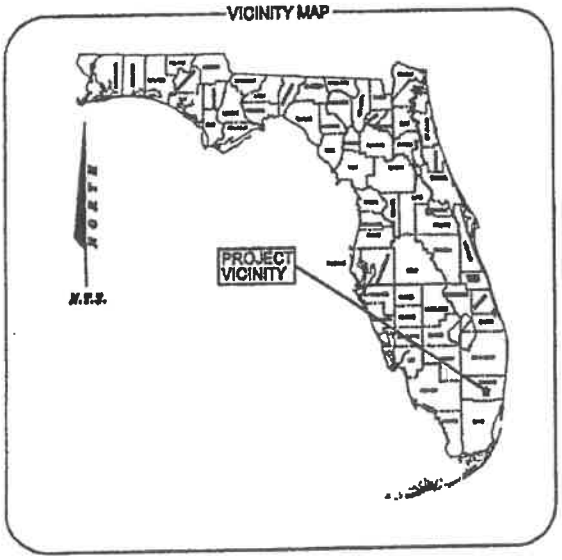
EXHIBIT A-2

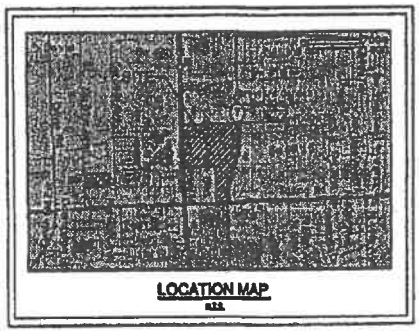
LEGAL DESCRIPTION

ALL THAT LOT, PIECE OR PARCEL OF LAND, CONSISTING OF A PORTION OF LOTS 11, 12, 13 AND 14 IN SECTION 36, TOWNSHIP 50 SOUTH, RANGE 41 EAST OF "BROWARD'S SUBDIVISION ONE (SHOWN IN RED) AND TWO (SHOWN IN BLACK) TP. 50 S., R. 41 E., DADE COUNTY, FLA." ACCORDING TO THE PLAT THEREOF, AS RECORDED IN PLAT BOOK 2 AT PAGE 26 OF THE PUBLIC RECORDS OF DADE COUNTY (NOW MIAMI-DADE COUNTY), FLORIDA, CITY OF HOLLYWOOD, BROWARD COUNTY, FLORIDA, THE SAME BEING A PORTION OF THE LANDS COMMONLY KNOWN AS "THE LANDS OCCUPIED BY THE SEMINOLE INDIAN TRIBE OF FLORIDA" AND BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS, VIZ.:

COMMENCE AT THE SOUTHWEST CORNER OF SECTION 36, TOWNSHIP 50 SOUTH, RANGE 41 EAST IN THE CITY OF HOLLYWOOD, BROWARD COUNTY, FLORIDA; THENCE N87°54'00"E ALONG THE SOUTHERLY LINE OF SAID SECTION 36 FOR 642.66 FEET TO A POINT OF INTERSECTION WITH THE SOUTHERLY EXTENSION OF THE EASTERLY RIGHT OF WAY LINE OF THE SUNSHINE STATE PARKWAY, AS SHOWN ON THE UNRECORDED MAP ENTITLED "FLORIDA STATE TURNPIKE AUTHORITY SUNSHINE STATE PARKWAY MIAMI TO FORT PIERCE SECTION" UNDER CONTRACT NO. 1.1, SHEET 4 OF 7, AND LAST REVISED OCTOBER 3, 1958; THENCE DEPARTING SAID SOUTHERLY LINE OF SECTION 36, N03°04'18"W ALONG SAID SOUTHERLY EXTENSION OF THE EASTERLY RIGHT OF WAY LINE OF THE SUNSHINE STATE PARKWAY FOR 98.30 FEET TO A POINT OF INTERSECTION WITH THE NORTHERLY RIGHT OF WAY LINE OF STIRLING ROAD (FLORIDA STATE ROAD NO. 848), AS SHOWN ON THE UNRECORDED RIGHT OF WAY MAP ENTITLED "STATE ROAD NO. 7 (U.S. 441) SECTION 86100-2508," SHEET 36 OF 58, DATED OCTOBER 15, 1969 AS PUBLISHED BY THE FLORIDA DEPARTMENT OF TRANSPORTATION AND THE POINT OF BEGINNING OF THE HEREINAFTER DESCRIBED PARCEL OF LAND; FROM SAID POINT OF BEGINNING; THENCE CONTINUE N03°04'18"W ALONG SAID EASTERLY RIGHT OF WAY LINE OF THE SUNSHINE STATE PARKWAY FOR 1250.85 FEET; THENCE S87°53'41"W ALONG SAID EASTERLY RIGHT OF WAY LINE OF THE SUNSHINE STATE PARKWAY FOR 282.58 FEET; THENCE N03°19'33"W ALONG SAID EASTERLY RIGHT OF WAY LINE OF THE SUNSHINE STATE PARKWAY FOR 1322.38 FEET TO THE SOUTHWEST CORNER OF PARCEL "A" OF "LAUDERDALE-MIAMI AUTO AUCTION," ACCORDING TO THE PLAT THEREOF, AS RECORDED IN PLAT BOOK 143 AT PAGE 36 OF THE PUBLIC RECORDS OF BROWARD COUNTY, FLORIDA; THENCE DEPARTING SAID EASTERLY RIGHT OF WAY LINE OF THE SUNSHINE STATE PARKWAY, N87°55'57"E ALONG THE SOUTHERLY LINE OF SAID PARCEL "A" FOR 2234.23 FEET TO THE SOUTHEAST CORNER OF SAID PARCEL "A" AND A POINT OF INTERSECTION WITH THE WESTERLY RIGHT OF WAY LINE OF FLORIDA STATE ROAD NO. 7, AS SHOWN ON THE UNRECORDED RIGHT OF WAY MAPS ENTITLED "STATE ROAD NO. 7 (U.S. 441) SECTION 86100-2508," SHEETS 35, 36 AND 46 OF 58, DATED OCTOBER 15, 1969 AS PUBLISHED BY THE FLORIDA DEPARTMENT OF TRANSPORTATION; THENCE DEPARTING SAID SOUTHERLY LINE OF PARCEL "A" OF "LAUDERDALE-MIAMI AUTO AUCTION," S01°52'11"E ALONG SAID WESTERLY RIGHT OF WAY LINE OF FLORIDA STATE ROAD NO. 7 FOR 216.71 FEET TO A POINT OF CURVATURE OF A CIRCULAR CURVE CONCAVE TO THE NORTHWEST; THENCE SOUTHWESTERLY ALONG SAID WESTERLY RIGHT OF WAY LINE OF FLORIDA STATE ROAD NO. 7 AND THE ARC OF SAID CURVE, HAVING A RADIUS OF 2914.93 FEET AND A CENTRAL ANGLE OF 21°02'53" FOR 1034.06 FEET TO THE POINT OF TANGENCY; THENCE S21°13'42"W ALONG SAID WESTERLY RIGHT OF WAY LINE OF FLORIDA STATE ROAD NO. 7 FOR 334.86 FEET TO A POINT OF CURVATURE OF A CIRCULAR CURVE CONCAVE TO THE SOUTHEAST; THENCE SOUTHWESTERLY ALONG SAID WESTERLY RIGHT OF WAY LINE OF FLORIDA STATE ROAD NO. 7, AND THE ARC OF SAID CURVE, HAVING A RADIUS OF 2914.93 FEET AND A CENTRAL ANGLE OF 08°08'10" FOR 413.92 FEET TO A POINT OF NON-TANGENT INTERSECTION WITH A LINE BEARING N79°04'29"W, WITH SAID POINT OF NON-TANGENT INTERSECTION BEARING N78°53'27"W FROM THE CENTER OF SAID CURVE; THENCE N79°04'29"W ALONG SAID WESTERLY RIGHT OF WAY LINE OF FLORIDA STATE ROAD NO. 7 FOR 18.00 FEET; THENCE S10°55'36"W ALONG SAID WESTERLY RIGHT OF WAY LINE OF FLORIDA STATE ROAD NO. 7 FOR 10.00 FEET; THENCE N79°04'24"E ALONG SAID WESTERLY RIGHT OF WAY LINE OF FLORIDA STATE ROAD NO. 7 FOR 18.00 FEET TO A POINT OF NON-TANGENT INTERSECTION WITH THE ARC OF A CIRCULAR CURVE CONCAVE TO THE SOUTHEAST, WITH SAID POINT OF NON-TANGENT INTERSECTION BEARING N79°08'18"W FORM THE CENTER OF SAID CURVE; THENCE SOUTHWESTERLY ALONG SAID WESTERLY RIGHT OF WAY LINE OF FLORIDA STATE ROAD NO. 7 AND THE ARC OF SAID CURVE, HAVING A RADIUS OF 2914.93 FEET AND A CENTRAL ANGLE OF 15°37'36" FOR 842.43 FEET TO A POINT OF NON-TANGENT INTERSECTION WITH SAID NORTHERLY RIGHT OF WAY LINE OF STIRLING ROAD (FLORIDA STATE ROAD NO. 848), WITH SAID POINT OF NON-TANGENT INTERSECTION BEARING S88°13'06"W FROM THE CENTER OF SAID CURVE; THENCE S43°04'08"W ALONG SAID NORTHERLY RIGHT OF WAY LINE OF STIRLING ROAD (FLORIDA STATE ROAD NO. 848)FOR 46.37 FEET; THENCE S87°54'28"W ALONG SAID NORTHERLY RIGHT OF WAY LINE OF STIRLING ROAD (FLORIDA STATE ROAD NO. 848) FOR 262.26 FEET; THENCE N02°06'32"W ALONG SAID NORTHERLY RIGHT OF WAY LINE OF STIRLING ROAD (FLORIDA STATE ROAD NO. 848) FOR 8.00 FEET; THENCE S87°54'28"W ALONG SAID NORTHERLY RIGHT OF WAY LINE OF STIRLING ROAD (FLORIDA STATE ROAD NO. 848) FOR 717.18 FEET; THENCE N87°44'18"W ALONG SAID NORTHERLY RIGHT OF WAY LINE OF STIRLING ROAD (FLORIDA STATE ROAD NO. 848)FOR 461.86 FEET TO A POINT OF INTERSECTION WITH THE EASTERLY RIGHT OF WAY LINE OF THE SUNSHINE STATE PARKWAY, SAID POINT ALSO BEING THE POINT OF BEGINNING.







RESOLUTION NO. R-2009-309

A RESOLUTION OF THE TOWN OF DAVIE, FLORIDA, AUTHORIZING THE MAYOR TO EXECUTE AN AMENDED BULK WATER AND SEWAGE USER AGREEMENT BETWEEN THE TOWN OF DAVIE AND THE SEMINOLE TRIBE OF FLORIDA TO PROVIDE BULK WATER AND SEWAGE SERVICE; AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, a Bulk Water and Sewage User Agreement was entered into on December 18, 2001 (R2001-314) between the Town of Davie and the Seminole Tribe of Florida; and

WHEREAS, it has become necessary to amend this Agreement in accordance with our application for a new Consumptive Use Permit from South Florida Water Management District; and

WHEREAS, the Town is agreeable to revising this Agreement and providing said service and wishes to authorize the Mayor to enter into an Agreement providing for same.

NOW, THEREFORE, BE IT RESOLVED BY THE TOWN COUNCIL OF THE TOWN OF DAVIE, FLORIDA.

SECTION 1. That the above recitations are true and correct.

SECTION 2. The Town Council of the Town of Davie hereby authorizes the Mayor to execute the Amended Bulk Water and Sewage User Agreement between the Town of Davie and the Seminole Tribe of Florida, a copy of which is attached hereto.

SECTION 3. The appropriate Town officials are authorized to take all necessary actions to implement the Agreement.

SECTION 4. This Resolution shall take affect immediate upon its passage and adoption..

PASSED AND ADOPTED THIS 16th DAY OF December, 2009

MAYOR/COUNCILMEMBER

ATTEST:

TOWN CLERK

APPROVED THIS 16th DAY OF December, 2009

AMENDED BULK WATER AND SEWAGE USER AGREEMENT

THIS AGREEMENT, made and entered into this __ day of _____, 2009, by and between,

Town of Davie, a municipal corporation of the State of Florida, hereinafter called the "Seller",

and

the Seminole Tribe of Florida, hereinafter called the "Consumer",

WITNESSETH

WHEREAS, the Seller in its proprietary capacity, owns and operates a water producing and distribution facility and a sewage collection and treatment facility, collectively referred to as "Utility", and is in a position to service the Consumer; and

WHEREAS, the Consumer in its proprietary capacity, desires to purchase from Seller water to be used in Consumer's distribution system and to return sewage to Seller to be treated for servicing Consumer's customers, upon terms mutually agreeable;

WHEREAS, the Consumer is an organized tribe as defined in Section 16 of the Act of June 18, 1934, as amended, and the property to be serviced is located on Consumer's sovereign lands;

NOW THEREFORE, for and in consideration of the premises and sum of One Dollar ($1.00) cash in hand paid by the Consumer to the Seller, receipt whereof is hereby acknowledged, and other good and valuable consideration, IT IS HEREBY COVENANTED AND AGREED by and between the parties hereto as follows:

(1) The Seller agrees to sell to the Consumer and the Consumer agrees to buy from the Seller water for Consumer, and the Seller agrees to accept untreated sewage and the Consumer agrees to pay for the treatment of the sewage from the Consumer, under the terms and conditions set forth herein.

(2) All water delivered by the Seller shall be clean, potable water, meeting all current Federal, State and Local regulations in effect for the Utility at the time of transmission, relating to the quality of water as such Regulations may apply during the life of this Agreement. Failure of the Seller to provide water of the quality required by this paragraph shall be deemed a breach of this Agreement, however, an allegation of failure to meet any such Regulations which is challenged by the Seller, shall not be deemed a breach of the Agreement unless there is a final finding after exhaustion of any appeals that there has, in fact, been non-compliance with said Regulations.

(3) During the term of this Agreement, the Seller will undertake to deliver water to the Consumer in such quantities as are required by the Consumer in the areas hereinafter described, and subject to the conditions herein contained, but only after proper water meter or master water meters are installed by Consumer. The maximum average flow shall be 500,000 gallons per day. However the seller does not bind itself during periods of water shortage resulting from an emergency condition to do more than deliver water to said metering station in such quantities and pressure as are available throughout the Town. In the event it should become necessary for the Seller to adopt regulations for conservation of water during such time of emergency, the Consumer agrees that it will adopt and use reasonable efforts to enforce in the areas covered by this Agreement the same regulations for conservation of water mandated by either the South Florida Water Management District or, in the case of a facilities emergency, the Town of Davie during such time of emergency. Under all circumstances Consumer will be treated similarly with regard to water conservation measures as other like users of Seller's system.

(4) The areas to be serviced by Consumer are situated in Broward County, Florida, and shall be referred to as the "Hotel/Entertainment Complex Service Area" (hereafter "Service Area") for the purpose of this Agreement. The Service Area is described as follows: See attached Exhibit A-1 and A-2.

(5) There shall be a master water meter installed at a point mutually agreeable through which all water provided to Consumer shall be supplied, and all water furnished by Seller shall be metered through such meters. The Consumer shall, at its own expense, procure and install a water meter or water meters, the type of such meters to be approved by, and the installation thereof to be approved by the Seller or its authorized agents. The sewage connection point shall be at a mutually agreeable location and its installation shall be at the sole expense of the Consumer and approved by the Seller or its authorized agents. It is the intention of the parties that both the water meter(s) and sewer connection points shall be located on the northwestern boundary of the Hollywood Reservation in the eastern right-of-way of the Florida Turnpike. After installation the Seller will, at its own expense, operate and maintain the master water meter.

(6) It shall be the obligation of the Consumer, at its expense, to design, construct and install water service, force main and wastewater collection lines and all necessary appurtenances thereto to connect to Seller's existing municipal lines. All improvements constructed on the Reservation shall remain the property of, and be maintained by, the Consumer. All improvements off the Reservation shall be dedicated to the Seller, which then will, at its own expense, operate and maintain same.

(7) The Seller shall own the water meter as evidenced by a Bill of Sale from Consumer once construction of off Reservation improvements has been completed. The meter shall be of a standard make and type, pursuant to AWWA Standards, installed in a readily accessibly location with checking or calibration devices, and the installation shall indicate flow with an error not to exceed plus or minus three percent of full scale reading. If found to be in error exceeding three percent of true accuracy, the meter shall be recalibrated to the satisfaction of the parties thereto. If such error of more than three percent is discovered, bills for the next period following the prior meter accuracy check shall be adjusted to reflect the quantity of over-read or under-read exceeding three percent. In calculating such billing adjustment it will be assumed that the meter inaccuracy existed for one-half of the entire time interval between meter accuracy checks, not to exceed twelve (12) months. The billing adjustment shall be made at the same rate established in accordance with Section (9) hereinafter, but the volume used in the billing calculations shall be adjusted as described above.

The Seller may request and the Consumer agrees to pay to perform a meter accuracy check at any reasonable time acceptable to both parties. The meter accuracy test will be required at least once every two years. If the meter is found to be in error exceeding three percent true accuracy, it shall be recalibrated as described above and the entire cost for such checking and recalibration shall be paid for by the Consumer.

(8) The water furnished by the Seller hereunder shall be delivered to the Consumer at the point of delivery (master meter location) at a minimum head of one hundred (100) feet (+44PSI) except during fire demand. The Seller shall not be responsible for water hammer in any of the pipe lines of the Consumer nor shall the Seller be responsible for meeting any demands for water other than that required by the terms of this Agreement. It shall be the obligation and duty of the Consumer to carry the water at its own expense from each point of delivery to the place or places of ultimate use and, in so doing, to supply and impart to the water adequate pressure as may be necessary to provide adequate pressure at all points beyond such point of delivery, in consequence whereof the Seller shall not be responsible for insufficient pressure, nor be required to correct any fluctuation in pressure, occurring beyond any such point of delivery.

(9) The sewage to be delivered by the Consumer to the Seller shall be untreated wastes only from the Consumer. It shall be the Consumer's responsibility to collect and transmit the sewage to the agreed point of sewage collection.

(10) The water rates to be charged by the Seller to the Consumer herein shall be a user rate of $3.39 per 1,000 gallons. The rates may be adjusted to the Consumer as Seller adjusts its rate structure for all customers of Sellers service. It is the intention of the parties that any future rate adjustments will result in the same rate to retail customers. The sewage rates to be charged by the Seller to the Consumer herein shall be a user rate of 100% of the water usage @ $4.55 per 1,000 gallons. The rates may be adjusted to the Consumer as Seller adjusts its rate structure for all customers of Sellers service. It is the intention of the parties that any future rate adjustments will result in the same rate to retail customers.

(11) Readings of the master water meter at point of delivery shall be taken by the Seller on or about the fifteenth day of each month and shall be used for monthly billing purposes under the provision of this section. The Seller shall render monthly statements for water furnished to the master meter and the Consumer shall pay promptly all statements furnished by Seller.

(12) Water sold to Consumer hereunder will be supplied from Seller's water producing facilities and will be of substantially the same quality and at the same pressure at the point of connection as the water furnished by Seller to its consumer within the Town limits of Seller, and said pressure shall not be below the minimum provided in Section (8).

(13) Sewage treatment service purchased by Consumer shall include full responsibility of Seller for compliance with all applicable Federal, State, Town of Davie and County regulations regarding treatment criteria and operation.

(14) (A) Any temporary or continuing cessation of the service by the Seller caused by an Act of God, fire, strike, casualty, necessary maintenance work, breakdown of or injuries to machinery, pumps or pipelines, civil or military authority, insurrection, riot, or any other causes, whether or not of the same kind as enumerated herein, shall not constitute a breach of the Agreement on the part of the Seller, and the Seller shall not be liable to the Consumer for any damage resulting from such cessation of service. The Seller shall use due diligence in the operation and maintenance of its water supply and transmission facilities; however, the Seller shall not be responsible to the Consumer for any interruption of service due to causes beyond the Seller's control not due to the negligence of the Seller. All of the provisions of this Section shall apply equally to obligations of the Seller and the Consumer under this Agreement.

(B) During such temporary or continuing cessation or interruption of services, including a declared water shortage as described in paragraph (3), Consumer may seek alternative means to replace the lost or diminished water and sewer services until such time services are fully restored to the levels required under this Agreement.

(15) Any controversy or claim arising out of this Agreement which cannot be amicably resolved by the parties shall be voluntarily submitted to non-binding mediation by agreement of both parties. If both parties do not agree to mediate, then either party can proceed with litigation.

(16) The purchase and sale of water and sewage treatment services pursuant to this Agreement shall commence thirty (30) days after the Consumer notifies the Seller in writing that it is able to accept water at the point of connection, and shall continue until terminating in the following manner. The terminating party, either the Seller or the Consumer, shall give the other party hereto ninety (90) days notice of its intention to terminate this Agreement. At the expiration of the ninety (90) day notice period, the Agreement shall be deemed terminated. Such notices shall be in writing and shall be sent by registered or certified mail, return receipt requested, to the party entitled to such notice at the address specified in paragraph (19) of this Agreement.

(17) The term of this Agreement shall be for a period of twenty (20) years from the date of execution by both parties unless terminated by either party with appropriate notice given as in paragraph (16).

(18) This Agreement shall inure to and be binding upon the successors of each of the parties hereto.

(19) All notices required pursuant to this Agreement shall be properly given if mailed by United States registered or certified mail, return receipt requested, addressed to the party to which notice is to be given at the following respective addresses:

Town of Davie
Attention: Town Administrator
6591 Orange Drive
Davie, Florida 33314

With a copy to:
Town Attorney
6591 Orange Drive
Davie, Florida 33314

Seminole Tribe of Florida
Utilities Department
Attention: Director
6300 Stirling Road
Hollywood, Florida 33024

With a copy to:
Jim Shore
General Counsel
6300 Stirling Road
Hollywood, Florida 33024

(20) This Agreement may be amended, changed, voided or annulled any time by joint consent of the parties in writing.

(21) This Agreement shall not become effective until a resolution has been adopted by the governing bodies of each of the parties hereto approving this Agreement and authorizing its execution.

IN WITNESS WHEREOF, Seller has caused this Agreement to be signed by its Mayor and attested by its Town Clerk and its Corporate Seal to be affixed, and approved by the Town Attorney, and Consumer has caused this Agreement to be signed by its Chairman and attested by the Secretary/Treasurer, and its Tribal Seal to be affixed, and approved by its Tribal Council, in duplicate, the day and year above written.

TOWN OF DAVIE

By:_____
Mayor

(Corporate Seal)

Attest:

_____
Town Clerk

SEMINOLE TRIBE OF FLORIDA

By:_____
Chairman of the Tribal Council

(Tribal Seal)

Attest:

_____
Secretary/Treasurer

Approved as to form:

_____
Town Attorney

RESOLUTION NO. R-2001-314

A RESOLUTION OF THE TOWN OF DAVIE, FLORIDA, AUTHORIZING THE MAYOR TO EXECUTE A BULK WATER AND SEWAGE USER AGREEMENT BETWEEN THE TOWN OF DAVIE AND SEMINOLE TRIBE OF FLORIDA TO PROVIDE BULK WATER AND SEWAGE SERVICE; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the Town of Davie owns and operates a water producing and distribution facility and a sewage collection and treatment facility located within the Town; and

WHEREAS, Seminole Tribe of Florida is located adjacent to the corporate limits of the Town; and

WHEREAS, to better service the customers of Seminole Tribe of Florida, Seminole Tribe of Florida has requested that the Town provide water and sewage service pursuant to a Bulk Water and Sewage User Agreement a copy of which is attached hereto; and

WHEREAS, it is in the best interest of the Town of Davie and the Seminole Tribe of Florida to enter into said agreement; and

WHEREAS, the Town is agreeable to providing said service and wishes to authorize the Mayor to enter into an agreement providing for same.

NOW, THEREFORE, BE IT RESOLVED BY THE TOWN COUNCIL OF THE TOWN OF DAVIE, FLORIDA:

SECTION 1. That the above recitations are true and correct.

SECTION 2. The Town Council of the Town of Davie hereby authorizes the Mayor to execute the Bulk Water and Sewage User Agreement between the Town of Davie and Seminole Tribe of Florida, a copy of which is attached hereto.

SECTION 3. The appropriate Town officials are authorized to take all necessary actions to implement the Agreement.

SECTION 4. This Resolution shall take effect immediately upon its passage and adoption.

PASSED AND ADOPTED THIS 28th DAY OF November 2001.

MAYOR/COUNCILMEMBER

ATTEST:

TOWN CLERK

APPROVED THIS 28th DAY OF November, 2001.

CERTIFICATION

I certify this to be a true and correct copy of the original document on file at Town Hall.

WITNESS my hand and official seal of the Town of Davie, this 16th, day of December, 2001.

Town Clerk

SEMINOLE TRIBE OF FLORIDA

JAMES E. BILLIE
Chairman

MITCHELL CYPRESS
Vice Chairman

PRISCILLA D. SAYEN
Secretary / Treasurer

SUSIE KIPPENBERGER
Director of Utilities

6300 STIRLING ROAD
SUITE 105
HOLLYWOOD, FLORIDA 33024

Phone: (954) 966-6300, Ext. 1112
Phone: (954) 967-3401
Fax: (954) 967-3475
Web: www.seminoletribe.com

January 16, 2002

Mr. Daniel Colabella, Director
Utilities Department
Town of Davie
3500 N. W. 76th Ave.
Davie, Fl 33024

RE: BULK WATER AND SEWAGE USER AGREEMENT BETWEEN THE TWN OF DAVIE AND THE SEMINOLE TRIBE OF FLORIDA

Dear Mr. Colabella:

Enclosed you will find one of the original above referenced documents for your records. The Tribe has executed said document and kept for our records one fully executed by the Town and the Tribe. I'll be contacting you in the near future as we start developing the logistics of this project.

I look forward to working with you, and as always if you have any questions you might contact me at (954) 967-3401.

Sincerely,

Susie Kippenberger
Director

cc: Legal Dept.

"BUT I HAVE PROMISES TO KEEP & MILES TO GO BEFORE I SLEEP"

BULK WATER AND SEWAGE
USER AGREEMENT

THIS AGREEMENT, made and entered into this 18th day of December, 2001, by and between:

Town of Davie, a municipal corporation of the State of Florida, hereinafter called the "Seller",

and

the Seminole Tribe of Florida, hereinafter called the "Consumer",

WITNESSETH

WHEREAS, the Seller in its proprietary capacity, owns and operates a water producing and distribution facility and a sewage collection and treatment facility, collectively referred to as "Utility", and is in a position to service the Consumer; and

WHEREAS, the Consumer in its proprietary capacity, desires to purchase from Seller water to be used in Consumer's distribution system and to return sewage to Seller to be treated for servicing Consumer's customers, upon terms mutually agreeable;

WHEREAS, the Consumer is an organized tribe as defined in Section 16 of the Act of June 18, 1934, as amended, and the property to be serviced is located on Consumer's sovereign lands;

NOW THEREFORE, for and in consideration of the premises and the sum of One Dollar ($1.00) cash in hand paid by the Consumer to the Seller, receipt whereof is hereby acknowledged, and other good and valuable consideration, IT IS HEREBY COVENANTED AND AGREED by and between the parties hereto as follows:

CERTIFICATION

I certify this to be a true and correct copy of the original document on file at Town Hall.

WITNESS my hand and official seal of the Town of Davie, this [illegible] day of [illegible], 200[illegible].

[illegible], Town Clerk

(1) The Seller agrees to sell to the Consumer and the Consumer agrees to buy from the Seller water for Consumer, and the Seller agrees to accept untreated sewage and the Consumer agrees to pay for the treatment of the sewage from the Consumer, under the terms and conditions set forth herein.

(2) All water delivered by the Seller shall be clean, potable water, meeting all current Federal, State and Local regulations in effect for the Utility at the time of transmission, relating to the quality of water as such Regulations may apply during the life of this Agreement. Failure of the Seller to provide water of the quality required by this paragraph shall be deemed a breach of this agreement, however, an allegation of failure to meet any such Regulations which is challenged by the Seller, shall not be deemed a breach of the Agreement unless there is a final finding after exhaustion of any appeals that there has, in fact, been non-compliance with said Regulations.

(3) During the term of this Agreement, the Seller will undertake to deliver water to the Consumer in such quantities as are required by the Consumer in the areas hereinafter described, and subject to the conditions herein contained, but only after proper water meter or master water meters are installed by Consumer. The maximum average flow shall be 300,000 gallons per day, per month. However the Seller does not bind itself during periods of water shortage resulting from an emergency condition to do more than deliver water to said metering station in such quantities and pressure as are available throughout the Town. In the event it should become necessary for the Seller to adopt regulations for conservation of water during such time of emergency, the Consumer agrees that it will adopt and use reasonable efforts to enforce in the areas covered by this Agreement the same regulations for conservation of water mandated by either the South Florida Water Management District or, in the case of a facilities emergency, the Town of Davie during such time of emergency. Under all circumstances Consumer will be treated similarly with regard to water conservation measures as other like users of Seller's sytem.

~~(4) The areas to be serviced by Consumer are situated in Broward County, Florida, and~~ shall be referred to as the "Hotel/Entertainment Complex Service Area (hereafter "Service Area") for the purpose of this Agreement. The Service Area is described as follows: See attached Exhibit A-1 and A-2.

(5) There shall be a master water meter installed at a point mutually agreeable, through which all water provided to Consumer shall be supplied, and all water furnished by Seller shall be metered through such meters. The Consumer shall, at its own expense, procure and install a water meter or water meters, the type of such meters to be approved by, and the installation thereof to be approved by the Seller or its authorized agents. The sewage connection point shall be at a mutually agreeable location and its installation shall be at the sole expense of the Consumer and approved by the Seller or its authorized agents. It is the intention of the parties that both the water meter(s) and sewer connection points shall be located on the northwestern boundary of the Hollywood Reservation in the eastern right-of-way of the Florida Turnpike. After installation the Seller will, at its own expense, operate and maintain the master water meter.

(6) It shall be the obligation of the Consumer, at its expense, to design, construct and install water service, force main and wastewater collection lines, and all necessary appurtenances thereto to connect to Seller's existing municipal lines. All improvements constructed on the Reservation shall remain the property of, and be maintained by, the Consumer. All improvements off the Reservation shall be dedicated to the Seller, which then will, at its own expense, operate and maintain same.

(7) The Seller shall own the water meter as evidenced by a Bill of Sale from Consumer once construction of off Reservation improvements have been completed. The meter shall be of standard make and type, pursuant to AWWA standards, installed in a readily accessible location with checking or calibration devices, and the installation shall indicate flow with an error not to exceed plus or minus three percent of full scale reading. If found to be in error exceeding three percent of true accuracy, the meter shall be recalibrated to the satisfaction of the parties hereto. If such error of more than three percent is discovered, bills for the next period following the prior meter accuracy check shall be adjusted to reflect the quantity of over-read or under-read exceeding three percent. In calculating such billing adjustment it will be assumed that the meter inaccuracy existed for one-half of the entire ~~time interval between meter accuracy checks, not to exceed twelve (12) months.~~ The billing adjustment shall be made at the same rate established in accordance with Section (9) hereinafter, but the volume used in the billing calculations shall be adjusted as described above.

The Seller may request and the Consumer agrees to pay to perform a meter accuracy check at any reasonable time acceptable to both parties. The meter accuracy test will be required at least once every two years. If the meter is found to be in error exceeding three percent true accuracy, it shall be recalibrated as described above and the entire cost for such checking and recalibration shall be paid for by the Consumer.

(8) The water furnished by the Seller hereunder shall be delivered to the Consumer at the point of delivery (master meter location) at a minimum head of one hundred (100) feet (+44PSI) except during fire demand. The Seller shall not be responsible for water hammer in any of the pipe lines of the Consumer nor shall the Seller be responsible for meeting any demands for water other than that required by the terms of this Agreement. It shall be the obligation and duty of the Consumer to carry the water at its own expense from each point of delivery to the place or places of ultimate use and, in so doing, to supply and impart to the water adequate pressure as may be necessary to provide adequate pressure at all points beyond such point of delivery, in consequence whereof the Seller shall not be responsible for insufficient pressure, nor be required to correct any fluctuation in pressure, occurring beyond any such point of delivery.

(9) . The sewage to be delivered by the Consumer to the Seller shall be untreated wastes only from the Consumer. It shall be the Consumer's responsibility to collect and transmit the sewage to the agreed point of sewage connection.

(10) The water rates to be charged by the Seller to the Consumer herein shall be a user rate of $1.37 per 1,000 gallons. The rates may be adjusted to the Consumer as Seller adjusts its rate structure for all customers of Sellers service. It is the intention of the parties that any future rate adjustments will result in the same rate to retail customers. The sewage rates to be charged by the Seller to the Consumer herein shall be a user rate of 100% of the water usage @ $1.71 per 1,000 gallons. The rates may be adjusted to the Consumer as Seller adjusts its rate structure for all customers of Sellers service. It is the intention of the ~~parties that any future rate adjustments will result in the same rate to retail customers.~~

(11) Readings of the master water meter at point of delivery shall be taken by the Seller on or about the fifteenth day of each month and shall be used for monthly billing purposes under the provision of this section. The Seller shall render monthly statements for water furnished to the master meter and the Consumer shall pay promptly all statements furnished by Seller.

(12) Water sold to Consumer hereunder will be supplied from Seller's water producing facilities and will be of substantially the same quality and at the same pressure at the point of connection as the water furnished by Seller to its consumer within the Town limits of Seller, and said pressure shall not be below the minimum provided in Section (8).

(13) Sewage treatment service purchased by Consumer shall include full responsibility of Seller for compliance with all applicable Federal, State, Town of Davie and County regulations regarding treatment criteria and operation.

(14) (A) Any temporary or continuing cessation of the service by the Seller caused by an Act of God, fire, strike, casualty, necessary maintenance work, breakdown of or injuries to machinery, pumps or pipelines, civil or military authority, insurrection, riot, or any other causes, whether or not of the same kind as enumerated herein, shall not constitute a breach of the Agreement on the part of the Seller, and the Seller shall not be liable to the Consumer for any damage resulting from such cessation of service. The Seller shall use due diligence in the operation and maintenance of its water supply and transmission facilities; however, the Seller shall not be responsible to the Consumer for any interruption of service due to causes beyond the Seller's control not due to the negligence of the Seller. All of the provisions of this Section shall apply equally to obligations of the Seller and the Consumer under this Agreement.

(B) During such temporary or continuing cessation or interruption of services, including a declared water shortage as described in paragraph (3), Consumer may seek alternative means to replace the lost or diminished water and sewer services until such time services are fully restored to the levels required under this Agreement.

(15) Any controversy or claim arising out of this Agreement which cannot be amicably resolved by the parties shall be voluntarily submitted to non-binding mediation by agreement of both parties. If both parties do not agree to mediate, then either party can proceed with litigation.

(16) The purchase and sale of water and sewer treatment services pursuant to this Agreement shall commence thirty (30) days after the Consumer notifies the Seller in writing that it is able to accept water at the point of connection, and shall continue until terminated in the following manner. The terminating party, either the Seller or the Consumer, shall give the other party hereto twelve (12) months notice of its intention to terminate this Agreement. At the expiration of the 12 month notice period the agreement

shall be deemed terminated. Such notices shall be in writing and shall be sent by registered or certified mail, return receipt requested, to the party entitled to such notice at the address specified in paragraph numbered (18) of this Agreement.

(17) This Agreement shall inure to and be binding upon the successors of each of the parties hereto.

(18) All notices required pursuant to this Agreement shall be properly given if mailed by United States registered or certified mail addressed to the party to which notice is to be given at the following respective addresses:

Town of Davie
Attention: Town Administrator
6591 Orange Drive
Davie, Florida 33314

with a copy to:

Monroe Kiar (Town Attorney)
6191 SW 45 Street
Davie, Florida 33314

Seminole Tribe of Florida
Utilities Department
Attention: Director
6300 Stirling Road
Hollywood, Florida 33024

with a copy to:

Jim Shore
General Counsel
6300 Stirling Road
Hollywood, Florida 33024

(19) This Agreement may be amended, changed, voided or annulled any time by joint consent of the parties in writing.

(20) This Agreement shall not become effective until a resolution has been adopted by the governing bodies of each of the parties hereto approving this Agreement and authorizing its execution.

IN WITNESS WHEREOF, Seller has caused this Agreement to be signed by its Mayor and attested by its Town Clerk and its Corporate Seal to be affixed, and approved by the Town Attorney, and Consumer has caused this Agreement to be signed by its acting Chairman and attested by the Secretary/Treasurer, and its Tribal Seal to be affixed, and approved by its Tribal Council, in duplicate, the day and year above written.

TOWN OF DAVIE

By_____
Mayor

(Corporate Seal)

Attest:
_____
Town Clerk

SEMINOLE TRIBE OF FLORIDA

By_____
Mitchell Cypress, as acting Chairman of the Tribal Council

(Tribal Seal)

Attest:
_____
Priscilla Sayen, Secretary/Treasurer

Approved as to form:
_____
Monroe Kiar, Town Attorney

TOWN OF DAVIE
TOWN COUNCIL AGENDA REPORT

TO: Mayor and Councilmembers

FROM/PHONE: Bruce Taylor/954-327-3741

PREPARED BY: Heidi K. Cavicchia

SUBJECT: Resolution

AFFECTED DISTRICT: Townwide

ITEM REQUEST: **Schedule for Council Meeting**

TITLE OF AGENDA ITEM: AGREEMENT - A RESOLUTION OF THE TOWN OF DAVIE, FLORIDA, AUTHORIZING THE MAYOR TO EXECUTE AN AMENDED BULK WATER AND SEWAGE USER AGREEMENT BETWEEN THE TOWN OF DAVIE AND THE SEMINOLE TRIBE OF FLORIDA TO PROVIDE BULK WATER AND SEWAGE SERVICE

REPORT IN BRIEF: The Town entered into a Bulk Water and Sewage User Agreement with the Seminole Tribe of Florida on December 18, 2001. In accordance with our application for a new Consumptive Use Permit, this agreement is being modified to reflect an increase in the maximum average flow per day from 300,000 gallons to 500,000 gallons (Paragraph 3). Additionally, changes have been made in two areas: 1. Notification for termination has been changed to ninety (90) days (Paragraph 16) and 2. The term of the Agreement has been set at twenty (20) years in order to be consistent with the duration of our new Consumptive Use Permit Paragraph 17).

PREVIOUS ACTIONS: R2001-314

CONCURRENCES: Town Attorney reviewed and approved

FISCAL IMPACT: not applicable

Has request been budgeted? n/a

Additional Comments:

RECOMMENDATION(S): Motion to approve resolution

Attachment(s): Resolution, Amended Bulk Water and Sewage User Agreement, R2001-314

Appendix E POPULATION PROJECTION WITHIN EXISTING AND FUTURE TOWN'S SERVICE AREA

TAZ ID	Pop 2020	Pop2025	Pop 2030	Pop2035	Pop2040	Currently Served by	To be Served by in the Future	Service Area
551	4903	5071	5254	5390	5497	Town of Davie	Town of Davie	Existing
552	40	268	413	522	625	Town of Davie	Town of Davie	Existing
553	1	120	212	288	361	Town of Davie	Town of Davie	Existing
555	1246	1234	1224	1255	1276	Town of Davie	Town of Davie	Existing
554	36	117	185	238	288	Town of Davie	Town of Davie	Existing
556	0	181	298	395	486	Town of Davie	Town of Davie	Existing
557	1785	1994	2137	2309	2452	Town of Davie	Town of Davie	Existing
558	5	5	5	5	6	Town of Davie	Town of Davie	Existing
564	1463	1447	1435	1457	1466	Town of Davie	Town of Davie	Existing
565	89	88	87	89	90	Town of Davie	Town of Davie	Existing
566	14	16	17	17	18	Town of Davie	Town of Davie	Existing
567	0	190	312	414	509	Town of Davie	Town of Davie	Existing
568	1621	1800	1941	2080	2195	Town of Davie	Town of Davie	Existing
569	525	567	599	640	671	Town of Davie	Town of Davie	Existing
570	552	545	541	572	587	Town of Davie	Town of Davie	Existing
571	1246	1235	1224	1240	1250	Town of Davie	Town of Davie	Existing
572	5	4	4	5	5	Town of Davie	Town of Davie	Existing
619	5524	5439	5637	5796	5887	Town of Davie	Town of Davie	Existing
620	471	466	462	476	485	Town of Davie	Town of Davie	Existing
623	2052	2019	2004	2216	2347	Town of Davie	Town of Davie	Existing
624	5070	5239	5435	5704	5909	Town of Davie	Town of Davie	Existing
625	4906	5074	5266	5397	5510	Town of Davie	Town of Davie	Existing
626	612	819	957	1062	1161	Town of Davie	Town of Davie	Existing
627	2968	3159	3323	3477	3605	Town of Davie	Town of Davie	Existing
658	63	74	77	79	80	Town of Davie	Town of Davie	Existing
703	81	79	77	79	80	Town of Davie	Town of Davie	Existing
706	41	41	41	53	67	Town of Davie	Town of Davie	Existing
708	12	12	12	12	12	Town of Davie	Town of Davie	Existing
887	244	468	608	713	811	Town of Davie	Town of Davie	Existing
920	1026	1202	1338	1439	1530	Town of Davie	Town of Davie	Existing
924	5	6	7	8	9	Town of Davie	Town of Davie	Existing
925	161	404	543	660	781	Town of Davie	Town of Davie	Existing
927	139	204	247	283	318	Town of Davie	Town of Davie	Existing
SUBTOTAL	**36907**	**39587**	**41922**	**44373**	**46377**	**Town of Davie Service Area**		**Existing**
549	23	182	291	380	469	Town of Davie (Bulk Agreement with Ferncrest Utilities)	Town of Davie	Existing
550	255	271	286	296	305	Tindall Hammock (Bulk Agreement with Ferncrest Utilities)	Tindall Hammock	Existing
SUBTOTAL	**278**	**453**	**577**	**676**	**774**	**Town of Davie Bulk Agreement with Ferncrest Utilities**		**Existing**
554	0	0	0	0	0	Town of Davie Bulk Agreement with Seminole Tribe	Agreement terminated on July 29, 2019	Past
SUBTOTAL	**0**	**0**	**0**	**0**	**0**	**Town of Davie Bulk Agreement with Seminole Tribe**	**Agreement terminated on July 29, 2020**	**Past**
651	0	700	821	919	1016	City of Fort Lauderdale (Hacienda Village)	Town of Davie	Future
SUBTOTAL	**0**	**700**	**821**	**919**	**1016**	**City of Fort Lauderdale (Hacienda Village)**	**Town of Davie**	**Future**
652	0	0	0	2	2	Broward County	Town of Davie	Future
553	0	0	0	31	39	Broward County	Town of Davie	Future
554	0	0	0	22	26	Broward County	Town of Davie	Future
658	0	0	0	23	24	Broward County	Town of Davie	Future
927	0	0	0	371	418	Broward County	Town of Davie	Future
SUBTOTAL	**0**	**0**	**0**	**449**	**509**	**Broward County**	**Town of Davie**	**Future**
619	0	0	738	759	771	City of Hollywood	Town of Davie	Future
555	0	0	396	406	413	City of Hollywood	Town of Davie	Future
SUBTOTAL	**0**	**0**	**1134**	**1165**	**1184**	**City of Hollywood**	**Town of Davie**	**Future**
615	0	0	1080	1112	1150	Private Well Owners (Town of Davie Adjacent to Cooper City)	Town of Davie	Future
613	0	0	652	648	667	Private Well Owners (Town of Davie Adjacent to Cooper City)	Town of Davie	Future
SUBTOTAL	**0**	**0**	**1733**	**1760**	**1817**	**Private Well Owners (Town of Davie Adjacent to Cooper City)**	**Town of Davie**	**Future**
652	0	1	2	0	0	Broward County	Town of Davie	Existing
553	0	13	23	0	0	Broward County	Town of Davie	Existing
554	3	11	17	0	0	Broward County	Town of Davie	Existing
658	19	22	23	0	0	Broward County	Town of Davie	Existing
927	182	267	325	0	0	Broward County	Town of Davie	Existing
SUBTOTAL	**204**	**313**	**388**	**0**	**0**	**Broward County**	**Town of Davie**	**Existing**
619	724	713	0	0	0	City of Hollywood	Town of Davie	Existing
555	403	399	0	0	0	City of Hollywood	Town of Davie	Existing
SUBTOTAL	**1127**	**1112**	**0**	**0**	**0**	**City of Hollywood**	**Town of Davie**	**Existing**
651	526	0	0	0	0	**City of Fort Lauderdale**	**Town of Davie**	**Existing**
SUBTOTAL	**526**	**0**	**0**	**0**	**0**	**City of Fort Lauderdale (Hacienda Village)**	**Town of Davie**	**Existing**
558	2085	2094	2132	2263	2357	City of Sunrise	City of Sunrise	Existing
559	1250	1253	1274	1326	1367	City of Sunrise	City of Sunrise	Existing
560	6375	6430	6552	6686	6953	City of Sunrise	City of Sunrise	Existing
561	4608	4642	4721	4886	4992	City of Sunrise	City of Sunrise	Existing

TAZ ID	Pop 2020	Pop2025	Pop 2030	Pop2035	Pop2040	Currently Served by	To be Served by in the Future	Service Area
562	3899	3924	3989	4083	4248	City of Sunrise	City of Sunrise	Existing
563	1396	1411	1440	1463	1479	City of Sunrise	City of Sunrise	Existing
564	531	537	548	556	560	City of Sunrise	City of Sunrise	Existing
565	4457	4508	4603	4709	4776	City of Sunrise	City of Sunrise	Existing
566	2353	2590	2830	2970	3096	City of Sunrise	City of Sunrise	Existing
569	2355	2600	2832	3023	3172	City of Sunrise	City of Sunrise	Existing
570	512	516	528	558	573	City of Sunrise	City of Sunrise	Existing
572	2183	2198	2239	2297	2322	City of Sunrise	City of Sunrise	Existing
573	6992	7041	7170	7371	7493	City of Sunrise	City of Sunrise	Existing
574	5335	5380	5490	5453	5566	City of Sunrise	City of Sunrise	Existing
575	33	34	34	35	37	City of Sunrise	City of Sunrise	Existing
590	1200	1216	1241	1230	1219	City of Sunrise	City of Sunrise	Existing
603	1184	1194	1221	1214	1208	City of Sunrise	City of Sunrise	Existing
604	1277	1291	1319	1312	1386	City of Sunrise	City of Sunrise	Existing
610	950	956	977	971	974	City of Sunrise	City of Sunrise	Existing
611	313	316	324	321	317	City of Sunrise	City of Sunrise	Existing
811	0	0	0	0	0	City of Sunrise	City of Sunrise	Existing
889	0	0	0	0	0	City of Sunrise	City of Sunrise	Existing
891	0	0	0	0	0	City of Sunrise	City of Sunrise	Existing
591	2331	2348	2398	2384	2371	City of Sunrise	City of Sunrise	Existing
592	1622	1639	1672	1696	1684	City of Sunrise	City of Sunrise	Existing
593	2530	2551	2607	2654	2683	City of Sunrise	City of Sunrise	Existing
594	1731	1750	1786	1775	1763	City of Sunrise	City of Sunrise	Existing
595	507	507	526	522	517	City of Sunrise	City of Sunrise	Existing
596	1642	1659	1693	1683	1672	City of Sunrise	City of Sunrise	Existing
602	0	0	0	0	60	City of Sunrise	City of Sunrise	Existing
609	1097	1108	1134	1130	1125	City of Sunrise	City of Sunrise	Existing
810	667	677	691	686	690	City of Sunrise	City of Sunrise	Existing
924	729	914	1068	1199	1318	City of Sunrise	City of Sunrise	Existing
SUBTOTAL	**62146**	**63284**	**65039**	**66455**	**67979**	**City of Sunrise**	**City of Sunrise**	**Existing**
Grand Total	**101188**	**105449**	**111614**	**115796**	**119655**	**_**	**_**	**_**

Appendix F INTERGOVERNMENTAL COORDINATION

Meeting Minutes

10 Year Water Supply Facilities Work Plan – 2019 Update
Project Team
1551 Sawgrass Corporate Parkway
Suite 440
Sunrise, FL 33323
(O) 954.851.1500 | (D) 954.851.1530

Water Supply Facilities Work Plan – 2019 Update

Intergovernmental Coordination with Town of Davie Planning and Zoning Department

June 18, 2019

Attendees: See Attached Sign-In Sheet

Item No.	Agenda Items	Action Items
1.	Introductions and a project overview of the Water Supply Facilities Work Plan was provided.	
2.	Point of contact person for the Town of Davie Planning Division is David Quigley. Renuka Mohammed and Marta Reczko are point of contacts for the Town and Sangeeta Dhulashia and Zuhal Ozturk for Stantec.	
3.	Reviews of Service Area: • The boundary of the City of Hollywood Utility Service Area located within the Town's Municipal Boundary was modified based on the email received from The Town's Utility Director, Renuka Mohammed on June 10, 2019.	
4.	Population Projections A. Based on the conference call held with Tindall Hammock District (Ferncrest) on June 3rd, 2019; Ferncrest does not anticipate receiving water from TOD for TAZ 550 in the future. Therefore TAZ 550 was removed from the Town's future service area population projections. TAZ 549 was kept in the existing and future population projections. B. Population within the Town served by other Utilities will be included within Town's future population projections per below time horizon: • Broward County starting 2035 • City of Hollywood starting 2030 • Hacienda Village starting 2025 • Seminole Tribe will be removed from population projections starting 2020.	• Stantec to revise the population projection
5.	Plan Adoption Schedule A. Draft Water Supply Work Plan will be completed and sent for Town's review and comments by September 2019. Final Work Plan will be completed by October 2019. • Water Supply Work Plans of the Providing Utilities are pending. Once available these Work Plans will be reviewed and information relevant to the Town will be incorporated in the Town's Water Supply Work Plan to maintain consistency.	• All providing utilities

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6.	List of Data • LEC Plan 2018 • Comprehensive Plan - Goals, Objectives, and Policies: Stantec downloaded the Comprehensive Plan from the Town's Website and all the water related goals, objectives and policies have been added into the Town's Water Supply Facilities Work Plan.	• In the Goals, Objectives and Policies section general statements for Work Plans and other related documents will be left. Specific dates of the documents that need to be updated periodically will not be included in the Goals, Objectives and Policies section. (Town and Stantec).
7.	Intergovernmental Coordination A. Developments of Regional Impact (DRI) B. Land-use Plan Amendment (LUPA) Town's Planning and Zoning Manager, David Quigley, stated that the Town does not have any additional DRI's and LUPA's be included into the Water Supply Facilities Work Plan. Note: David Quigley stated that there is a possibility of 700 units relocation into the Town's service area from City of Sunrise. He will send more information to Stantec regarding this subject.	• David Quigley to send information about the relocation plan for the 700 to Stantec
8	Comprehensive Plan Adoption Schedule A. Stantec plans to complete the Draft Report by September 2019 • Town will review the Draft Report and provide comments • Planning and Zoning Department will send their comments • After the comments from the Town are addressed, Work Plan will be sent to SFWMD for review and comments. B. Stantec plans to complete the Final Water Supply Facilities Work Plan Report by October 2019.	

Status of Action Items:

Item No.	Description	Status
1.	Stantec to revise the population projection. Stantec will provide elaboration in the Work Plan to depict the slight difference with the LEC 2018 population projections.	Population Projection Modified 6/18/2019
2.	Stantec to follow up with Broward County, City of Fort Lauderdale, Ferncrest Utilities, City of Hollywood and City of Sunrise for their upcoming Water Supply Work Plan	Pending
3.	David Quigley to send information about the 700 units relocation plan to Stantec	Stantec received e-mail from Renuka Mohammed on 06/19/2019

Meeting Minutes

10 Year Water Supply Facilities Work Plan – 2019 Update
Project Team
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Attachments:

- Meeting Agenda
- Town of Davie Water Service Area
- Table of Population Projection for Town of Davie
- Sign-In Sheet

Meeting Agenda

10 Year Water Supply Facilities Work Plan – 2019 Update
Project Team
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Water Supply Facilities Work Plan – 2019 Update

SEUBJCT: Intergovernmental Coordination with Town of Davie Planning and Zoning Department
DATE & TIME of MEETING: June 18, 2019 at 11:00 AM
Location: 7350 SW 30th Street, Davie, Florida

Item No.	Agenda Items
1.	Project Overview - Water Supply Facilities Work Plan (WSFP) overview
2.	Communications A. Point of contacts listed below for further communications. • TOD – Renuka Mohammad Marta Reczko • Stantec – Sangeeta Dhulashia Zuhal Ozturk • Planning and Zoning Department – David Quigley
3.	Service Area
4.	Population Projections A. Population Projections – usage of Traffic Analysis Zone (TAZ) thru 2040
5.	Plan Adoption Schedule A. Draft to be completed by September 2019 B. Final to be completed by October 2019
6.	Data at Hand • LEC Plan 2018 • Comprehensive Plan - Goals, Objectives, and Policies
7.	Intergovernmental Coordination • Developments of Regional Impact (DRI) • Land-use Plan Amendment (LUPA)
8	Comprehensive Plan Adoption • Process • Timeline

Attachments: 1) Existing Utility Service Area Map
2) Town of Davie Existing and Projected Population

Meeting Minutes

10 Year Water Supply Facilities Work Plan – 2019 Update
Project Team
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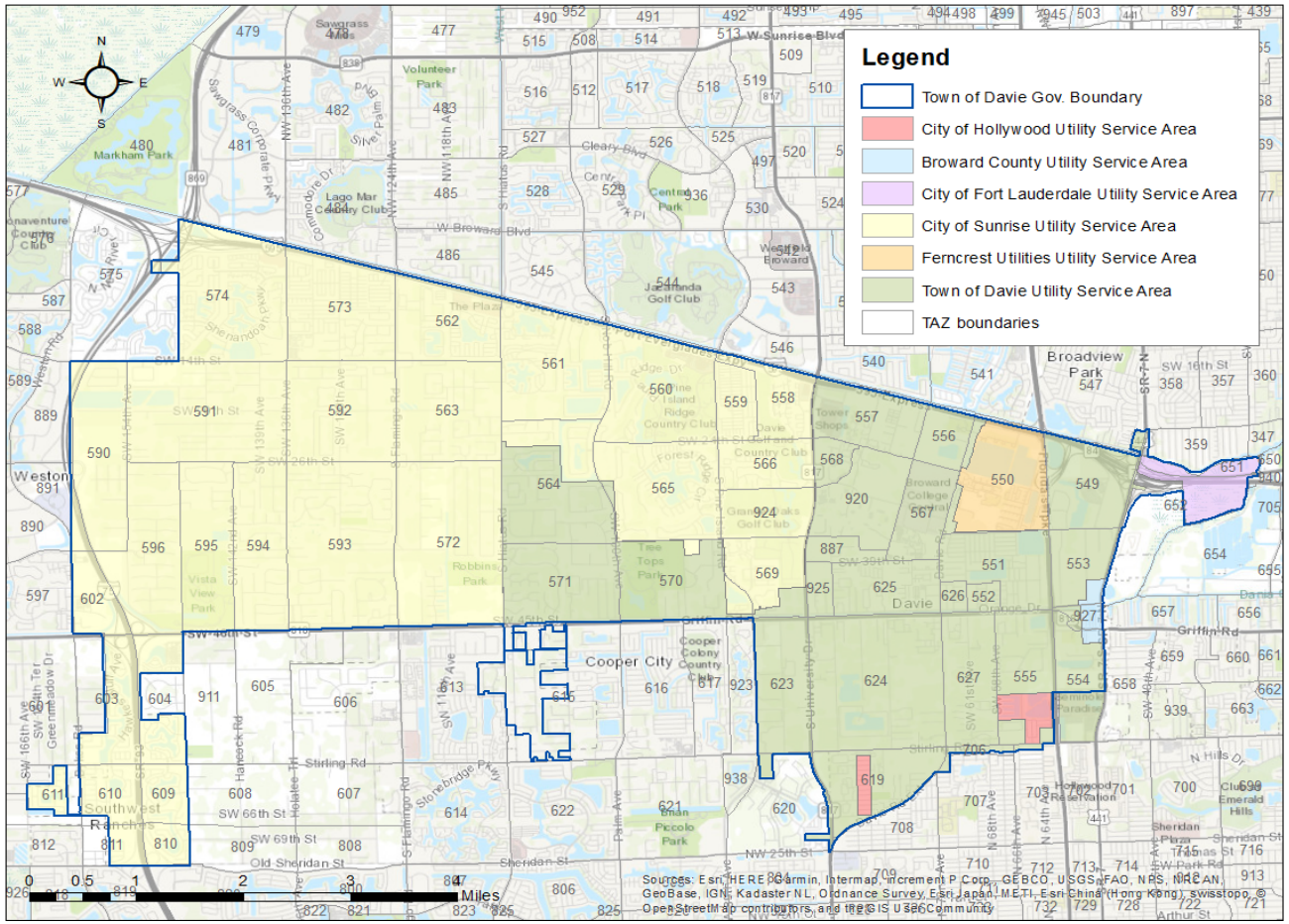

Figure 1- Boundaries of the Utility Service Providers within the Town's Municipal Limits

Meeting Minutes

10 Year Water Supply Facilities Work Plan – 2019 Update
Project Team
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Table 1 - Existing and Projected Population within TOD Service Area – Stantec

Population Projections Summary	Historical Data		Planning Horizon				
Areas Served / to be Served by Town	2010	2015	2020	2025	2030	2035	2040
Town of Davie Service Area	28191	31434	36907	39587	41922	44373	46377
Ferncrest Utilities	263	276	278	453	577	676	774
Seminole Tribe	23	24					
Hacienda Village				890	1133	1333	1525
Broward County						449	564
City of Hollywood					1134	1165	1184
Total Population	28,477	31,734	37,185	40,930	44,766	47,995	50,368

Table 2 - Existing and Projected Population within TOD Service Area – Carollo Engineers

Areas Served / to be Served	2010	2015	2020	2025	2030	2035	2040
Total both Davie Service Areas	29,045	32,594	38,077	40,825	43,269	45,749	47,751
Ferncrest Utilities East of Turnpike - Currently Bulk-Served				179	287	374	462
Ferncrest Utilities West of Turnpike - Future Bulk Sell				2,715	2,858	2,960	3,048
Hacienda Village (Future Scenario)			526	700	821	919	1,016
Hollywood Service within Current Davie Area - 77th to 78th Avenue between Stirling Rd. and Davie Road Extension (Future Scenario)			837	824	854	878	892
Totals	29,045	32,594	39,440	45,243	48,088	50,881	53,169

Table 3- Existing and Projected Population within TOD Service Area – LEC 2018

Population Projections Summary	Historical Data	Planning Horizon		
Areas Served / to be Served	2016	2020	2030	2040
Town of Davie Service Areas	29,819	33,012	40,414	46,704

Stantec
1551 Sawgrass Corporate Parkway
Suite 440
Sunrise, FL 33323

Meeting Attendance Record

Meeting Subject: Intergovernmental Coordination with Town of Davie Planning and Zoning Department
DATE & TIME of MEETING: June 18, 2019 at 11:00 AM
Location: 7350 SW 30th Street, Davie, Florida

Initial	Name	Organization	Phone	Email Address
R	Renuka Mohammed	TOD	954.327.3769	renuka_mohammed@davie-fl.gov
MR	Marta Reczko	TOD	954-327-3756	marta_reczko@davie-fl.gov
DQ	David Quigley	TOD	954-797-1075	david_quigley@davie-fl.gov
SD	Sangeeta Dhulashia	Stantec		
Z.O.	Zuhal Ozturk	Stantec		zuhal.ozturk@stantec.com
SI	Sanaz Imen	Stantec		
AH	Atef Hanna	TOD		

Appendix G CAPITAL IMPROVEMENT PROGRAM- FY 2019 - 2028

EXHIBIT A: TOWN OF DAVIE FY2019 - 2028 CAPITAL IMPROVEMENT PROGRAM

TOWN COUNCIL AGENDA

Capital Improvement Project	Requesting Department	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028	TOTAL	Funding Source	Project Number
Oak Hill Park Shade Canopy	Public Works		$85,000									$85,000	General Fund Reserves	PW11
PD Mobile Command Unit Storage Area	Public Works		$320,000	$1,500,000								$1,820,000	General Fund Reserves	PW12
Pine Island Park Utility Vehicle Replacement	Public Works		$17,000									$17,000	General Fund Reserves	PW13
Police Department Community Room Air Conditioning	Public Works	$123,000										$123,000	General Fund Operating	PW14
Police Department Generator	Public Works	$1,064,675										$1,064,675	HMGP Grant ($798,675); General Fund Operating ($266,000)	PW15
Police Department Shower Renovation	Public Works	$105,000										$105,000	General Fund Operating	PW16
Reflections Park Playground Set and Shade Canopy	Public Works	$175,000										$175,000	District 2 Open Space Bond	PW17
Re-roof Multipurpose Complex and Gymnasium at Potter Park	Public Works	$200,000										$200,000	General Fund Operating	PW18
Road Resurfacing - Shotgun Road from SW 14 ST to SW 40 ST	Public Works		$600,000									$600,000	General Fund Reserves	PW19
Road Resurfacing	Public Works	$690,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$9,690,000	FY19 General Fund Operating ($690,000); FY20-28 General Fund Reserves ($9,000,000)	PW20
Robbins Lodge Equestrian Center Improvements	Public Works	$145,000										$145,000	General Fund Operating	PW21
Robbins Park Swing Set	Public Works		$20,500									$20,500	General Fund Reserves	PW22
Sidewalk Replacement	Public Works	$50,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$950,000	FY19 General Fund Operating ($50,000); FY20-28 General Fund Reserves ($900,000)	PW23
Stormwater Master Plan Improvements	Public Works	$250,000	$500,000	$500,000	$500,000	$500,000	$500,000	$500,000	$500,000	$500,000	$500,000	$4,750,000	FY19 General Fund Operating ($250,000); FY20-28 General Fund Reserves ($4,500,000)	PW24
Street Lights (SW 57th Pl)	Public Works		$105,000									$105,000	General Fund Reserves	PW25
Thermoplastic and RPM Installation	Public Works	$30,000	$30,000	$30,000	$30,000	$30,000	$30,000	$30,000	$30,000	$30,000	$30,000	$300,000	FY19 General Fund Operating ($30,000); FY20-28 General Fund Reserves ($270,000)	PW26
Waterford Park Hockey Rink Renovations	Public Works		$200,000									$200,000	General Fund Reserves	PW27
Wolf Lake Park Needs Assessment	Public Works		$230,000									$230,000	General Fund Reserves	PW28
Public Works Totals		$3,128,175	$4,739,500	$3,280,000	$1,780,000	$1,780,000	$1,780,000	$1,780,000	$1,780,000	$1,780,000	$1,780,000	$23,607,675		
Collection System Rehab	Utilities	$400,000	$475,000	$475,000	$475,000	$475,000	$475,000	$475,000	$475,000	$475,000	$475,000	$4,675,000	Utilities Capital Replacement	UTIL1

EXHIBIT A: TOWN OF DAVIE FY2019 - 2028 CAPITAL IMPROVEMENT PROGRAM
TOWN COUNCIL AGENDA

Distribution & Collection Building Upgrades	Utilities	$50,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$275,000	Utilities Contribution Charges/Impact Fees	UTIL.2
Distribution System Modeling and Masterplan and Updates	Utilities	$50,000										$50,000	Utilities Capital Replacement	UTIL.3
Distribution Water Quality System Upgrade	Utilities	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$500,000	Utilities Capital Replacement	UTIL.4
Lift Station - Pumps and Motors	Utilities	$160,000	$160,000	$160,000	$160,000	$160,000	$160,000	$160,000	$160,000	$160,000	$160,000	$1,600,000	Utilities Capital Replacement	UTIL.5
Lift Station Rehab	Utilities	$400,000	$475,000	$475,000	$475,000	$475,000	$475,000	$475,000	$475,000	$475,000	$475,000	$4,675,000	Utilities Capital Replacement	UTIL.6
Lift Station SCADA Upgrades & Repairs	Utilities	$100,000	$200,000	$160,000	$160,000	$160,000	$110,000	$110,000	$110,000	$110,000	$110,000	$1,330,000	Utilities Capital Replacement	UTIL.7
Old WWTP Demolition	Utilities	$300,000										$300,000	Utilities Capital Replacement	UTIL.8
System I Demolition	Utilities	$100,000										$100,000	Utilities Capital Replacement	UTIL.9
System II & IV Pumps and Motors	Utilities	$250,000	$250,000	$250,000	$250,000	$250,000	$250,000	$250,000	$250,000	$250,000	$250,000	$2,500,000	Utilities Capital Replacement	UTIL.10
System IV MBR Replacement	Utilities	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$1,000,000	Utilities Capital Replacement	UTIL.11
System IV UV System (Lamp/Sleeve) Replacement	Utilities	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$1,000,000	Utilities Capital Replacement	UTIL.12
System V Reverse Osmosis Membrane Replacement	Utilities	$100,000	$200,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$1,100,000	Utilities Capital Replacement	UTIL.13
Utility Equipment & Machinery	Utilities	$50,000	$100,000	$75,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$575,000	Utilities Capital Replacement	UTIL.14
Utility IT Infrastructure Repairs & Upgrades	Utilities	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$250,000	Utilities Capital Replacement	UTIL.15
Utility Maintenance & Asset Management System	Utilities	$50,000	$100,000	$100,000	$95,000	$95,000	$90,000	$90,000	$90,000	$90,000	$90,000	$890,000	Utilities Capital Replacement	UTIL.16
Water Main Rehab	Utilities	$1,400,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$10,400,000	Utilities Capital Replacement	UTIL.17
Water Meter Replacement and AMI Upgrade	Utilities	$2,800,000	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000	$4,600,000	FY19 Utilities Reserves ($2,800,000); FY20-28 Utilities Capital Replacement ($1,800,000)	UTIL.18
WTP (III & V) Electrical & Switchgear Repairs & Upgrades	Utilities	$50,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$950,000	FY19 Utilities Reserves ($50,000); FY20-28 Utilities Capital Replacement ($900,000)	UTIL.19
WTP (Sys III & V) SCADA Replacement & Upgrade	Utilities	$50,000	$120,000	$50,000	$120,000	$50,000	$50,000	$120,000	$50,000	$120,000	$120,000	$850,000	FY19 Utilities Reserves ($50,000); FY20-28 Utilities Capital Replacement ($870,000)	UTIL.20
WTP (Sys III & V) Upgrades and Improvements	Utilities	$250,000	$250,000	$250,000	$250,000	$250,000	$250,000	$250,000	$250,000	$250,000	$250,000	$2,500,000	FY19 Utilities Reserves ($250,000); FY20-28 Utilities Capital Replacement ($2,250,000)	UTIL.21
WTP Chemical Feed Systems	Utilities	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000	$2,000,000	FY19 Utilities Reserves ($200,000); FY20-28 Utilities Capital Replacement ($1,800,000)	UTIL.22

EXHIBIT A: TOWN OF DAVIE FY2019 - 2028 CAPITAL IMPROVEMENT PROGRAM
TOWN COUNCIL AGENDA

WTP Groundwater Rule (4-log) Upgrade	Utilities	$175,000	$175,000	$175,000	$175,000	$175,000						$875,000	FY19 Utilities Reserves ($175,000); FY20-28 Utilities Capital Replacement ($700,000)	UTIL.23
WTP Raw Water Infrastructure & Rehabilitation	Utilities	$300,000	$300,000	$300,000	$300,000	$300,000	$300,000	$300,000	$300,000	$300,000	$300,000	$3,000,000	FY19 Utilities Reserves ($300,000); FY20-28 Utilities Capital Replacement ($2,700,000)	UTIL.24
WTPs Systems III & V Pumps & Motors	Utilities	$250,000	$250,000	$250,000	$250,000	$250,000	$250,000	$250,000	$250,000	$250,000	$250,000	$2,500,000	FY19 Utilities Reserves ($250,000); FY20-28 Utilities Capital Replacement ($2,250,000)	UTIL.25
WWTP (II & IV) Chemical Feed Systems	Utilities	$50,000	$100,000	$50,000	$100,000	$50,000	$50,000	$100,000	$50,000	$100,000	$50,000	$700,000	FY19 Utilities Reserves ($50,000); FY20-28 Utilities Capital Replacement ($650,000)	UTIL.26
WWTP (II & IV) Electrical & Switchgear Repairs and Upgrades	Utilities	$50,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$950,000	FY19 Utilities Reserves ($50,000); FY20-28 Utilities Capital Replacement ($900,000)	UTIL.27
WWTP (II & IV) Upgrades and Improvements	Utilities	$100,000	$250,000	$250,000	$250,000	$250,000	$250,000	$250,000	$250,000	$250,000	$250,000	$2,350,000	FY19 Utilities Reserves ($100,000); FY20-28 Utilities Capital Replacement ($2,250,000)	UTIL.28
WWTP (Sys II & IV) SCADA Replacement & Upgrade	Utilities	$50,000	$120,000	$50,000	$120,000	$50,000	$120,000	$50,000	$120,000	$50,000	$120,000	$850,000	FY19 Utilities Reserves ($50,000); FY20-28 Utilities Capital Replacement ($800,000)	UTIL.29
Utilities Totals		$8,010,000	$5,425,000	$5,070,000	$5,230,000	$5,040,000	$4,880,000	$4,930,000	$4,880,000	$4,930,000	$4,950,000	$53,345,000		
Totals		$13,529,833	$14,778,000	$12,008,000	$17,300,835	$15,866,710	$33,731,177	$29,736,436	$17,134,969	$19,301,806	$7,034,000	$180,421,766		

Appendix H BROWARD COUNTY WATER SUPPLY FACILITIES WORK PLAN UPDATE

Attachment B
Broward County Water Supply Facilities Work Plan

BROWARD COUNTY FLORIDA

Water Supply Facilities Work Plan

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LIST OF ACRONYMS

AADF	Annual Average Daily Flow
ASR	Aquifer Storage and Recovery
AWS	Alternative Water Supply
BCPFM	Broward County Population Forecasting Model
BCWWS	Broward County Water and Wastewater Services
BCPDMD	Broward County Planning and Development Management Division
BEBR	Bureau of Economic and Business Research
BMSD	Broward County Municipal Services Districts
CEPP	Central Everglades Planning Project
CERP	Comprehensive Everglades Restoration Plan
CUP	Consumptive Use Permit
EPA	Environmental Protection Agency
EPGMD	Environmental Protection and Growth Management Department
EPCRD	Environmental Planning and Community Resilience Division
FDEP	Florida Department of Environmental Protection
FPL	Florida Power and Light Corporation
F.S.	Florida Statutes
GOPs	Goals, Objectives, and Policies
GPCD	Gallons Per Capita Per Day
IWRP	Integrated Water Resources Plan
LEC	Lower East Coast
LECWSP	Lower East Coast Water Supply Plan
LORS	Lake Okeechobee Regulation Schedule
MFLs	Minimum Flows and Levels
MGD	Millions Gallons Per Day
MGM	Millions Gallons Per Month
NBCRS	Northern Broward County Recharge System
NIS	NatureScape Irrigation Services
O&M	Operations and Maintenance
RO	Reverse Osmosis
SAS	Surficial Aquifer System
SFWMD	South Florida Water Management District
SRW	South Regional Wellfield
TAZ	Traffic Analysis Zones
UAZ	Utility Analysis Zones
USACE	U.S. Army Corps of Engineers
USGS	United States Geological Survey
WCA	Water Conservation Areas

WPA	Water Preserve Areas
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plant

BROWARD COUNTY COMPREHENSIVE PLAN

Water Supply Facilities Work Plan

EXECUTIVE SUMMARY

This Broward County Water Supply Facilities Work Plan (2020 Work Plan) addresses traditional and alternative water supply (AWS) source development and management strategies to meet existing and projected water use demand. The 2020 Work Plan primarily focuses on Broward County's Public Works Water and Wastewater Services (BCWWS) service areas and unincorporated Broward County neighborhoods entitled the Broward County Municipal Services Districts (BMSD). It also contains updates about the implementation of the urban water resource management strategies, including water conservation programs, prioritized at the 2019 Broward Countywide Integrated Water Resources Plan (IWRP), coordinated by Broward County Environmental Planning and Community Resilience Division (EPCRD). Overall, approximately 240,000 people receive water and wastewater services in these areas and the population is expected to be 281,000 by 2040. The BMSD's water and wastewater services are provided by BCWWS and the City of Fort Lauderdale's utilities. BCWWS' southernmost service area receives potable water through connections with the City of Hollywood.

Florida Law (Section 163.3177(6)(c)3., Florida Statutes, F.S.) requires local governments to adopt water supply facilities work plans into their comprehensive plans within eighteen months after the South Florida Water Management District (SFWMD) approves a regional water supply plan update. The SFWMD approved the 2018 Lower East Coast Water Supply Plan Update (LESWSP, SFWMD, 2018) on November 8, 2018, with final administrative order on January 11, 2019. The 2020 Work Plan is Broward County's required update based on that plan's adoption. In addition, Broward County integrated its comprehensive plan's water resources elements and the new version is included in the 2020 Work Plan.

Like most Southeast Florida water utilities, BCWWS' primary public water supply source water is the Surficial Aquifer System (SAS) located from ground surface to approximately 240 feet underground. BCWWS' groundwater withdrawal wells range between 75 to 130 feet below ground. Broward County's primary SAS feature is the Biscayne Aquifer and it provides the vast majority of BCWWS and BMSD populations' water supply needs.

However, the Biscayne Aquifer is considered a finite water resource by the SFWMD. This means that, of the available alternative water supply sources, none can reasonably provide for current area water demands should the Biscayne Aquifer become contaminated. In 2007, the SFWMD mandated through a Regional Water Availability Rule that AWS will be used to serve future population growth (SFWMD, 2007). For example, the brackish Upper Floridan Aquifer (approximately to 1000 – 1700 feet underground) can be withdrawn and treated with more complex processes than used for the Biscayne Aquifer water. Other AWS options include, but are not limited to, water conservation, water reuse, and surface water storage development. The 2020 Work Plan outlines future BCWWS AWS projects to serve future populations as well as projects that maintain and optimize BCWWS' current systems. Similar projects are covered for the City of Fort Lauderdale and the City of Hollywood.

The regional C-51 Reservoir project is the primary BCWWS AWS project to meet future population growth demands. Located in Central Palm Beach County, the C-51 Reservoir project is a public-private partnership to construct 60,000 acre-feet (equal to almost 20 billion gallons) of surface water storage. Captured stormwater from the C-51 watershed will be stored in the reservoir and moved across the region via canal systems to recharge local aquifers. BCWWS is planning to use up to six million gallons a day from the C-51 Reservoir project.

The Broward County and Palm Beach County water reuse partnership is another important regional AWS initiative. This beneficial reuse water project is BCWWS' strategy to comply with Florida's Ocean Outfall Law (Section 403.086(9), F.S). The project also provides beneficial water reuse supply to the Southern Palm Beach County region as well as portions of the North Springs Improvement District, Coconut Creek, Deerfield Beach, and Pompano Beach. BCWWS is currently increasing its water reuse production capacity to twenty-six million gallons a day from the current ten million gallons a day to implement this project.

Additional regional drivers for Broward County's water supply include regional climate impacts such as sea level rise, saltwater intrusion, and extreme weather events. Sea level rise threatens future South Florida water conveyance that could negatively impact aquifer recharge and flood control management practices. Due in large part to a porous aquifer, future sea level rise also will increase saltwater intrusion's negative effect on public water supplies. Saltwater intrusion from the coastal ocean will likely move further inward and pose contamination risk for freshwater aquifers. Future extreme weather events may include longer dry weather patterns that could decrease public water supply levels and also increase saltwater intrusion's landward extent.

Broward County, together with its municipal and regional partners, supports and facilitates water supply and climate change planning integration and implementation including:

- The Broward County Climate Action Plan's water supply actions (BC, 2015) to maintain adequate water supply through conservation and adaptation, and integrated water resource management.
- The Southeast Florida Regional Climate Compact's (Compact) Southeast Florida Regional Climate Action Plan's critical water supply planning components (SFRCCC, 2017).
- The goals of the Resilient Utility Coalition - an outgrowth from the Compact –to "operationalize resilience" in common water utility practices.

A major regional plan to restore Florida's Everglades – the Comprehensive Everglades Restoration Plan (CERP) – will also change future water resource conditions. CERP will construct additional water storage systems to capture wet season flow volumes and provide critical natural system water needs as well as maintain public water supply. CERP features within Broward County and in other SFWMD regions should collectively benefit local water supply sustainability throughout South Florida.

The 2019 IWRP Update provides key planning, assessment and coordination tools to optimally manage water resources. Its five main objectives are to:

- Make the most of local water resources, so that Broward's long-term water supply needs are met;
- Coordinate a diverse water management community, ensuring the efficient and effective management of Broward's water resources;
- Match up local water sources and users to ensure that water supplies are available when and where they're needed;
- Diversify water supplies so that the needs of urban and natural systems are met under wet and dry conditions; and,
- Promote water resource resiliency by evaluating future conditions, including potential climate impacts and adopt strategies, to mitigate, adapt, and prevent disruptions to our overall goal of more efficient and effective water management.

Additionally, the IWRP program developed, and continues to develop, several numerical hydrologic models used in decision making and to assist sustainable investments. Optimizing integrated secondary canal management is one hallmark success for the IWRP modeling. Broward County's Water Reuse Master Plan was developed to facilitate more projects Countywide and its implementation is greatly assisted with the IWRP's AWS grant investments.

Water conservation remains a critical AWS strategy in the 2020 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 that are designed to produce

long-term demand reductions along with water quality improvements. These programs, targeted at various user groups, include: Broward Water Partnership Conservation Pays, NatureScape Irrigation Services (NIS), NatureScape Broward, Know the Flow, Water Matters Day, and the NatureScape Broward School Board Environmental Partnership Agreement. The current IWRP goal of Broward County's water conservation programs combined is 10 gallons per day per capita reduction in water use Countywide by 2028.

Finally, the 2020 Work Plan data analysis demonstrates BCWWS will continue to meet its "Retail Potable Water Level of Service Standards". Special recommendations and a ten-year work plan outline the major C-51 Reservoir (27.6 million dollars) and Palm Beach County Reuse Partnership (104 million dollars) investments and components. In addition, water treatment plant (WTP) upgrades and water conservation projects are described. BCWWS' robust 5-year Capital Improvement Program is scheduled to spend over 123 million dollars on over sixty components to maintain and optimize the current system as well as build new features. All the 2020 Work Plan projects contribute towards BCWWS successfully managing future challenges to provide excellent water and wastewater services for its service areas.

INTRODUCTION

Broward County is located on the Southeastern coast of Florida and is adjacent to the Atlantic Ocean to the east, Miami-Dade County to the south, Collier County to the west and Palm Beach County to the north, Figure WS1 below. This Broward County Water Supply Facilities Work Plan Update (2020 Work Plan) identifies water supply sources, availability and facilities needed to serve existing and new development within the local government's jurisdiction. Chapter 163, Part II, F.S., requires local governments to prepare and adopt work plans into their comprehensive plans within 18 months after the South Florida Water Management District (SFWMD) approves a regional water supply plan update. The 2018 Lower East Coast Water Supply Plan (LECWSP) Update was adopted by the SFWMD's Governing Board on November 8, 2018. Therefore, local governments within the Lower East Coast (LEC) region are required to amend their comprehensive plans and include an updated Water Supply Facilities Work Plan and related planning elements by May 8, 2020.

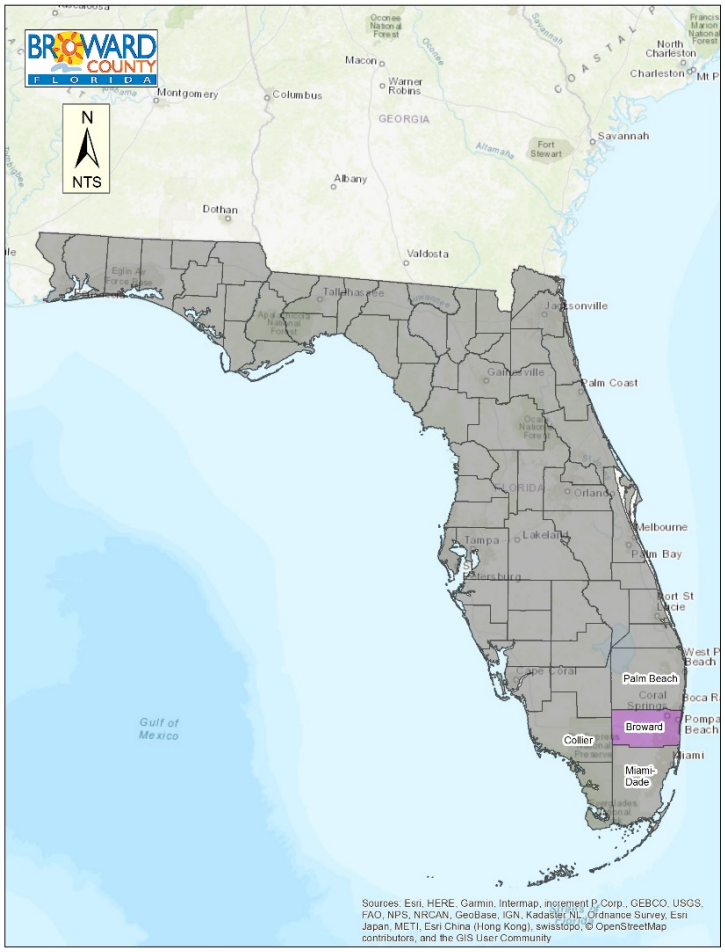

Figure WS1 Broward County Location

Broward County's Public Works Water and Wastewater Services' (BCWWS) produces potable water for its northern and central service areas. BCWWS' southernmost service area receives potable water through connections, with the City of Hollywood. BMSD areas receive water and wastewater services from BCWWS and the city of Fort Lauderdale's utilities. BCWWS and both cities are responsible for ensuring enough capacity is available for existing and future customers.

This 2020 Work Plan will reference the initiatives already identified to ensure adequate water supply for BCWWS and BMSD. According to state guidelines, the work plan and comprehensive plan must address the development of traditional and alternative water supplies, service delivery and conservation and reuse programs necessary to serve existing and new development for at least a 10-year planning period. The work plan will have a planning time schedule consistent with the comprehensive plan and the 2018 LECWSP update. The Broward County 2020 Work Plan is divided into seven sections:

Section 1 – Introduction
Section 2 – Regional Issues
Section 3 – Broward County
Section 4 – Data and Analysis
Section 5 – Special Recommendations and Actions
Section 6 – BCWWS Capital Improvements
Section 7 – Goals, Objectives and Policies

A. Statutory History

The Florida Legislature enacted bills in the 2002, 2004, 2005, and 2011 sessions to address the state's water supply needs. Two of these bills, Senate Bills 360 and 444 (2005 legislative session), significantly changed Chapters 163 and 373, 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 local land use and water supply planning.

B. Statutory Requirements

Broward County has considered the following statutory provision in updates to this 2020 Work Plan.

1. Coordinate appropriate aspects of its comprehensive plan with the LECWSP [Section 163.3177(4)(a), F.S.].
2. Ensure the future land use plan is based upon availability of adequate water supplies and public facilities and services [Section 163.3177(6)(a), F.S.]. 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 for review.

3. Ensure that adequate water supplies and potable water facilities are available to serve new development no later than the issuance by the local government of a certificate of occupancy or its functional equivalent and consult with the applicable water supplier to determine whether adequate water supplies will be available to serve the development by the anticipated issuance date of the certificate of occupancy [Section 163.3180(2), F.S.].
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 AWS project(s) selected by the local government from projects identified in the LECWSP, or alternative projects(s) proposed by the local government under Section 373.709(8)(b), F.S. [Section 163.3177(6)(c), F.S.];
   b. Identify the traditional and AWS projects and the conservation and reuse programs necessary to meet water needs identified in the LECWSP [Section 163.3177 (6) (c) 3, F.S.]; and
   c. Update the work plan for at least a 10-year planning period for constructing the public, private, and regional water supply facilities identified in the element as necessary to serve existing and new development [Section 163.3177(6)(c) 3, F.S.].
5. Revise the Five-Year Schedule of Capital Improvements to include water supply, reuse, and conservation projects and programs to be implemented during the five-year period [Section 163.3177 (3)(a)4, F.S.].
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 10-year planning period, considering the LECWSP, as well as applicable consumptive use permit(s) [Section 163.3177(6)(d), F.S.]. The plan must address the water supply sources necessary to meet and achieve the existing and projected water use demand for the established planning period, considering the applicable regional water supply plan [Section 163.3167(9), F.S.].
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 the LECWSP [Section 163.3177(6)(h) 1, F.S.].

8. While an Evaluation and Appraisal Report is not required, local governments are encouraged to comprehensively evaluate and, as necessary, update comprehensive plans to reflect changes in local conditions. The evaluation could address the extent to which the local government has implemented the need to update its work plan, including the development of alternative water supplies, and determine whether the identified AWS projects, traditional water supply projects and conservation and reuse programs are meeting local water use demands [Section 163.3191(3), F.S.].

REGIONAL ISSUES

The regional issues impacting Broward County include:

1. Climate Impacts and Future Water Supply Conditions: Climate impacts and future water supply conditions need to be integrated into water resources resilience planning efforts;
2. Water Use Limitation: Limitation of fresh surface water and groundwater use by the SFWMD's Regional Water Availability Rule and Everglades and Lake Okeechobee Minimum Flow and Levels (MFL);
3. Alternative Water Supply: The need to develop diverse water sources to meet current and future water needs, including C-51 Reservoir, Floridan Aquifer, and reuse as mandated by the Ocean Outfall law; and,
4. CERP Implementation: Construction of additional storage systems (e.g. CERP's reservoirs, aquifer storage, and recovery systems) to capture wet season flow volumes will be necessary to increase water availability during dry conditions and attenuate damaging peak flow events from Lake Okeechobee.

A. Climate Impacts and Future Water Supply Conditions

Investigations and evaluations conducted at the national, regional, and local levels have reinforced the need to plan for the predicted impacts of different rainfall patterns and more frequent and severe drought, increases in tidal and storm-related flooding, and the loss of coastal wellfield capacity due to saltwater contamination. In the absence of proactive planning, these impacts will present liabilities for coastal and inland communities with implications for urban water supplies, water and wastewater infrastructure, and both regional and local drainage/flood control systems.

Broward County, together with its municipal and regional partners, understands that it is imperative that local governments and water utilities begin to formalize the integration of water supply and climate change considerations as part of their coordinated planning efforts. Water resource resilience can be achieved with relevant updates to Water Supply Facilities Work Plans and focused, actionable enhancements to comprehensive planning GOPs. Key considerations for communities within the Southeast Florida planning areas include: 1) sea level rise, 2) saltwater intrusion, 3) extreme weather, and 4) infrastructure investments to support diversification and sustainability of water supply sources, and adaptive stormwater and wastewater systems.

The 2019 IWRP Report states that it is necessary to understand future conditions, particularly as related to potential climate impacts including extreme droughts and rainfall events, along

with sea level rise and related saltwater intrusion, in order to ensure that Broward's water resources will be sustainable and promote more effective and efficient water resources management. The Broward County water management community works with many groups, including the state and federal government, academia, and the private sector to study the impacts that a changing climate brings and to develop plans for mitigation and adaptation.

Among 2019 IWRP objectives, there is: "to promote water resources resiliency by evaluating future conditions, including potential climate impacts and adopt strategies to mitigate, adapt, and prevent disruptions to Broward's overall goal of more efficient and effective water management."

In addition, the Water Supply Actions within the Broward County Climate Action Plan (2015) are intended to maintain adequate water supply through conservation and adaptation, development of decision support tools necessary to build community resilience, and increase the resilience of natural systems through integrated water resource management. The 11 actions that are proposed include:

- Continue local water conservation programs
- Include climate change in updates of LECWSP
- Investigate regionalization of water supply
- Monitor and protect wellfields
- Develop AWS strategies
- Model the sustainable use of the aquifer
- Evaluate impacts of flooding of contaminated sites
- Evaluate reuse water interaction with and impacts to the natural systems
- Implement reuse strategies
- Evaluate reuse considering sea level rise
- Increase percentage of pervious areas

Both the 2019 IWRP Update and Broward's Climate Action Plan support the work of the Southeast Florida Regional Climate Action Plan (RCAP, SRRCCC 2017), which is the four-County Southeast Florida Regional Climate Compact's guiding tool for coordinated climate action in Southeast Florida. Broward County has taken a lead role as a compact partner in organizing the water section of the Water Goal of the document, which is designed to "advance the water management strategies and infrastructure improvements needed, in parallel with existing water conservation efforts, to mitigate the potential adverse impacts of climate change and sea level rise on water supplies, water and wastewater infrastructure, and water management systems, inclusive of regional canal networks, pumps, control structures, and operations." Twenty-one actions are included within this goal. Compact

documents produced to assist policymakers, administrators, and program staff include "Integrating Climate Change and Water Supply Planning in Southeast Florida" and "Regional Impacts of Climate Change and Issues for Stormwater Management" (SFRCCC, 2019)

1. Sea Level Rise

Sea level rise has significant implications for water management and water supply planning in Southeast Florida, the rate of which is accelerating. During the previous century, the global rate of sea level rise averaged approximately 1.6 mm per year. The rate of rise increased to an average of 1.7 mm per year during the second half of the last century, followed by a more significant increase to 3.3 mm per year measured during the last decade. This trend of rising sea level is reinforced by local tide data which documents an increase in regional sea level of about 9 inches during the last 100 years. While there continues to be uncertainty about the overall extent of sea level rise that might be realized in the coming century, the Fourth National Climate Assessment (NCA, USGCRP, 2018) report presents a probable range of 1 to 6 feet by 2100. In Southeast Florida, partner counties in the Southeast Florida Regional Climate Change Compact, inclusive of Broward, Palm Beach, Miami-Dade, and Monroe counties, have collectively agreed to use modified guidance developed by the U.S. Army Corps of Engineers (USACE) and a planning scenario of 9 to 24 inches additional sea level rise by 2060, consistent with projections presented in the 2014 NCA, Figure WS2 below. This unified sea level rise projection has been formally adopted by Palm Beach, Broward, Miami-Dade and Monroe Counties and is now being used to inform planning processes and project design throughout the region. As the impacts of historic sea level rise are already being realized and acceleration of the rate of rise is expected to compound local impacts and vulnerabilities, it is prudent that planning processes begin to formally reflect consideration of sea level rise as a future condition with recognized implications for near-term and longer-term planning decisions.

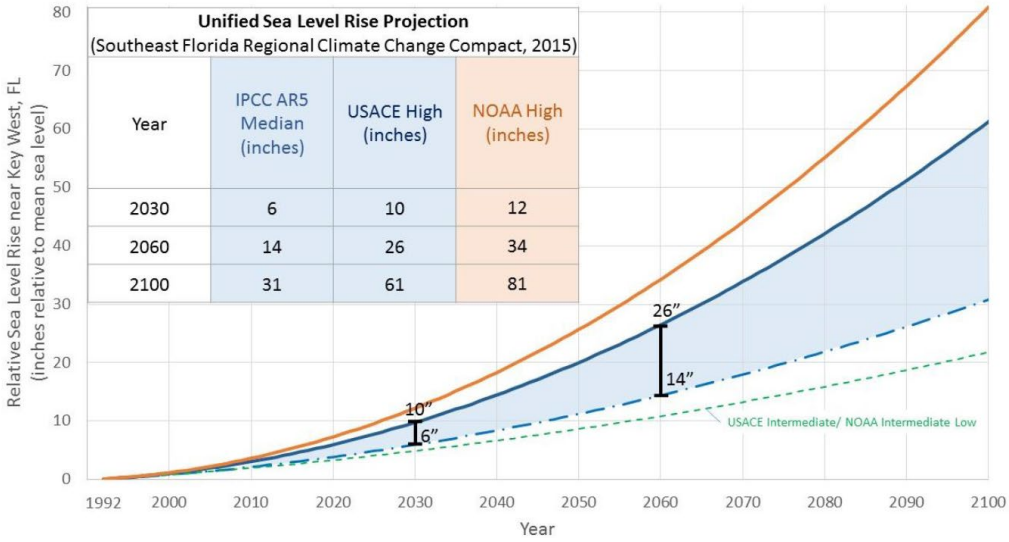

Figure WS2 Southeast Florida Regional Climate Change Compact Unified Sea Level Rise Projection[1]

Sea level rise produces varied challenges with the respect to water resources sustainability, water management, and water/wastewater facilities and infrastructure. Impacts include saltwater contamination of coastal wellfields, infiltration of groundwater with chloride levels into wastewater collection systems, impairing normal operations and maintenance (O&M), as well as opportunities for beneficial use of reclaimed water as an AWS. Water management systems are also at risk with systems constrained by rising groundwater and tail water elevations which reduce soil storage and discharge capacity, with increased potential for both inland and coastal flooding and less opportunity for long-term storage of stormwater for beneficial reuse.

These realities necessitate consideration of plans and investments that may be needed to compensate for loss of existing water supplies through relocation of wellfields and the development of AWS sources, while also seeking opportunities to expand regional water storage opportunities. These investments and considerations are in addition to concurrency planning for population growth and water demands that are typical requirements for water supply planning.

[1] The unified sea level rise projection is updated every 5 years, having its next one anticipated to be released at the Southeast Florida Regional Climate Change Compact Summit, in December 2019.

2. Saltwater Intrusion

Along the coast of Southeast Florida, and several miles inland, groundwater supplies and potable wells are vulnerable to saltwater contamination. The Biscayne Aquifer, which serves as the regional's primary water supply, is a shallow, surficial aquifer characterized by limestone karst geology, which is highly porous and transmissive. As a result, coastal saltwater intrusion of the aquifer has begun to restrict coastal water supplies and necessitated the development of western wellfields, changes in wellfield in water management operations, and investments in reclaimed water projects to enhance aquifer recharge. At the toe of the saltwater front, chloride concentrations exceed drinking water standards of 250 milligrams per liter (mg/L) and thus restrict and/or require abandonment of wellheads located east of the saltwater intrusion line.

While impacts and planning efforts have historically focused on the most at risk utilities and wellfield, the accelerated rate of sea level rise and advancements in modeling and planning tools provide support and justification for a more holistic review of anticipated trends and necessary responses on both a local and regional scale.

As early as the 2000 LECWSP, these impacted water supply entities were classified as:

- Utilities at Risk – Utilities with wellfields near the saltwater interface that do not have an inland wellfield, have not developed adequate alternative sources of water, and have limited ability to meet user needs through interconnects with other utilities; and
- Utilities of Concern – Utilities having wellfields near the saltwater interface, the ability to shift pumpages to an inland wellfield, or an alternative source that is not impacted by the drought.

Technical assessments have further identified changes in land use, drainage of the Everglades, wellfield operations, and sea level rise as contributing factors to the historical movement and current location of the saltwater front within the productive layer of the aquifer.

Hydrologic modeling has revealed that sea level rise, when combined with coastal wellfield pumping, has accelerated the movement of the front, doubling the rate at which the front has progressed during the last several decades at certain locations. It is expected that sea level rise will constitute an increasingly significant influence on the rate of saltwater migration during the decades to come and that critical

wellfield capacity will be lost with an additional 2-foot increase in sea level, the extent of which will vary along the coast. Conditions will be further influenced by temporal hydrologic conditions and responses in water management operations. It is therefore prudent for water utilities throughout the region (both inland and coastal) to consider adaptation plans that might include wellfield relocation or expansion of western wellfields as part of planned efforts to meet shared regional water demands. Continuation of groundwater monitoring and modeling efforts will be critical to predicting the movement of the front under sea level rise scenarios anticipated over the next several decades and adaptation efforts should continue to be refined in accordance with predicted and realized trends. Regional and local data will be important in informing decision-making.

In 2006, Broward County's EPCRD contracted with the United States Geological Survey (USGS) to develop a numerical model to evaluate various influencing factors on the saltwater movement within the Biscayne Aquifer in the northern third of the County. This tool was proven to be effective in representing historic and future conditions and was demonstrated to have utility as a planning tool for future water resources projects and development of resilience strategies. This modeling effort was subsequently expanded to the central and southern portions of the County to simulate historic saltwater intrusion and to test the extent to which wellfield pumpage, surface water management, and sea level rise contribute to and influence the movement of saltwater and how the aquifer can be expected to respond to future climate conditions. The tool will also investigate the implications on the viability of water supplies and be used to identify and test possible adaptive strategies. This model was published and publicly released in March 2016.

The County is also enhancing this investment with concurrent development of a Climate Vulnerability/Inundation model focused on coupled hydrologic impacts of saltwater intrusion, surface water/groundwater elevations, and stormwater inundation. This model, also developed in cooperation with USGS, builds upon the County's Variable Density Model to assess the influence of changing climatic conditions on urban water resources and infrastructure. The current initial effort integrates bias-corrected, dynamically downscaled data from Global Circulation models into the updated surface/groundwater model that will be used for predictions Countywide. Refinements such as Surface Water Routing (SWR) and Urban Runoff (URO) components offer more detailed conceptualization of the surface water/groundwater interactions that can be then used to assess the predictive scenarios and comparison of alternative water resource strategies in a

smaller study area of the County. This model was published and publicly released in February 2019. Initial results of the implementation of the SWR and URO packages in the study area were successful and, as such, expansion of the two packages throughout the entire urban extents of the County are currently underway.

In the recent restudy of Flood Insurance Rate Maps completed in 2014 by FEMA, the County's MIKE SHE/MIKE 11 model was utilized and updated. Since 2018 the County is updating this map to anticipate 100-year flood elevations that are expected to occur by 2060-2070, taking into account sea level rise and more intense rain storms. The effort includes data collection of recent or previously not included drainage infrastructure, refined model grid and associated LiDAR, land use updates, roughness coefficient improvements, addition of detention storage and ponded drainage routines, and incorporation of future tide levels. It is anticipated the Future Conditions 100-Year Flood Elevation Map will be completed in Fall of 2019, when approval process will be initiated.

The mapping of the current saltwater intrusion front is elaborated based on the end of dry season data available at 93 monitoring stations supported by local governments throughout the region, the USGS, and the SFWMD. The current Saltwater Intrusion Line for Broward County, Figure WS3 was last updated in 2014 and the SFWMD is currently working to advance, with an anticipated publishing date of December 2019.

3. Extreme Weather Events

As extreme events increase in frequency and severity, 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 impacts. Conversely, more intense rainfall will cause flooding, increased runoff, impacts to the natural systems and provide less recharge potential for wellfields. Integrated water resource management strategies will help to mitigate for 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 (ASR) systems are potentially viable AWS projects and climate adaptation strategies.

4. Infrastructure Development

With increasing climate disruptions, there is a need to diversify water supply sources, improve treatment technologies and to support the development of adaptive

stormwater and wastewater infrastructure design criteria to ensure long-term sustainability of key facilities. Conversely, alternative water treatment technologies generally have a high energy demand and carbon footprint that can exacerbate climate change impacts. Strategic infrastructure planning should incorporate these constraints and work within with the GOPs of the Comprehensive Planning process and Water Supply Facilities Work Plans to provide for long-term sustainability and a balanced approach to future development.

Increases in groundwater deviations, as both direct and indirect response to sea level, will challenge the function of drainage systems and is expected to exacerbate flooding, for even mild storm events. Conditions will be more severe with extreme rainfall events increasing damage to low-lying utility infrastructure and contribution 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.

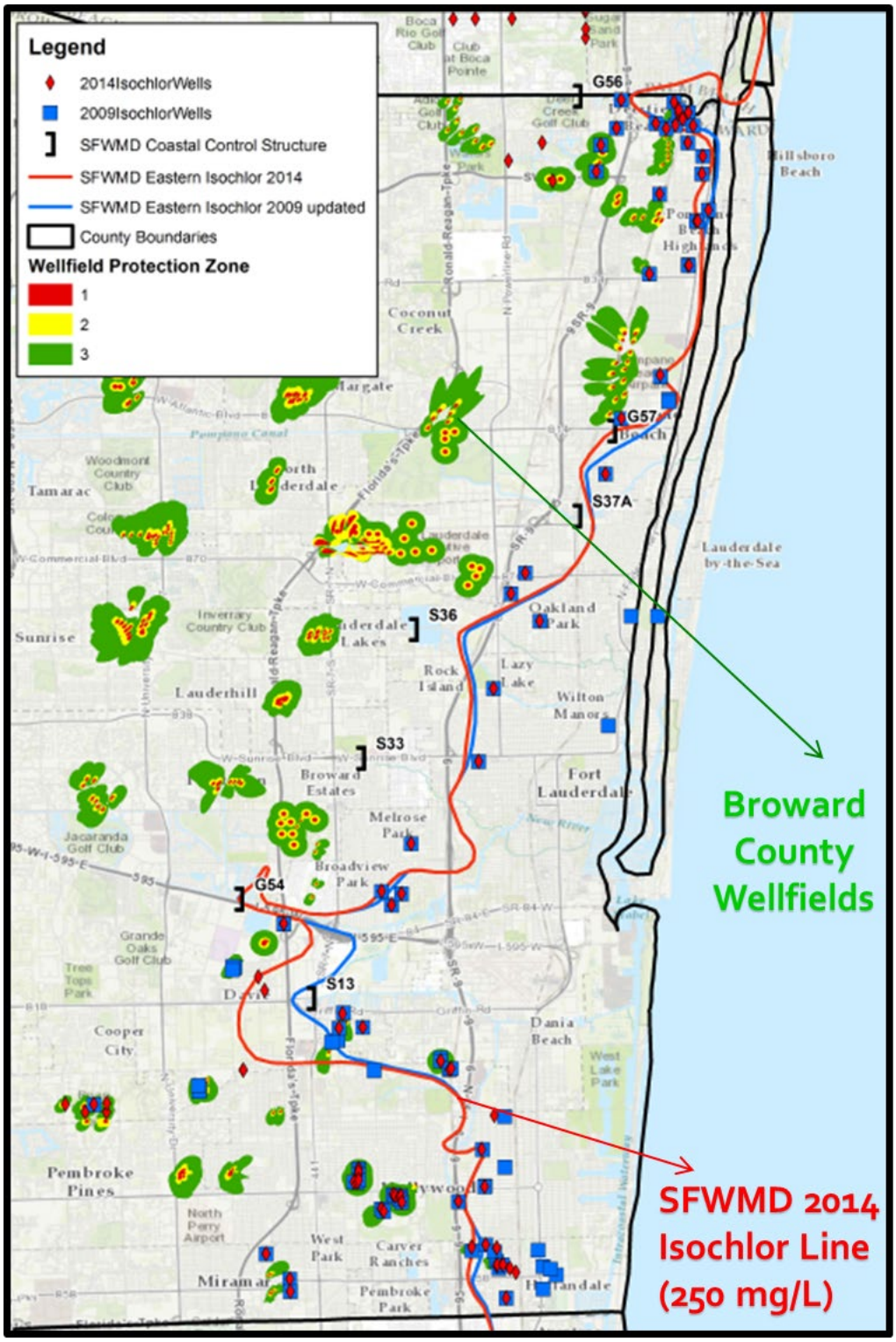

Figure WS3 Saltwater Intrusion Line (2014 SFWMD Isochlor Line – 250mg/L) for Broward County

Options that provide for a diversification of water projects and protection of resources will be fundamental and may include: regional water storage such as the C-51 Reservoir;

ASR; the development and use of highly treated wastewater (reverse osmosis - RO) for recharge as hydrodynamic barriers; the relocation and/or regionalization of wellfields and treatment facilities away from low-lying areas; and enhancing operational flexibility.

B. Water Use Limitation

The MFLs outlined in the Florida State Statutes are defined as the "limit at which further withdrawals would be significantly harmful to the water resources or ecology of the area" (Section 373.042(1), F.S.). They serve to protect the SAS from saltwater intrusion, ensure adequate groundwater levels for maintenance of natural systems, and prevent excessive groundwater seepage or surface water flows from the regional (Everglades) system.

As part of the establishment of MFLs, the regional water management district must determine whether the existing flow or level in the water body is below or projected to fall below the MFL criteria within the next 20 years. If so, then the district must develop a recovery or prevention strategy and, when appropriate, include development of additional water supplies, water conservation, and other efficiency measures consistent with the provisions in Sections 373.0421 and 373.709, F.S., and provide the information and timelines for these strategies within the regional water supply plans. The 2005-2006 LECWSP Update (2005-2006 LECWSP) had included the Everglades MFL and identified key water resource development projects in the CERP as the recovery and prevention strategies to meet the Everglades MFL criteria.

After the approval of the 2005-2006 LECWSP, continued concern over the safety of Lake Okeechobee's dike and ecological impacts warranted that the USACE set a new regulation schedule for lake water releases. The Lake had historically provided water supplies directly to a few rural utilities, irrigation water for the Everglades agricultural area, and backup water source for urban users in the coastal basins during droughts and dry times as 'pass through' water to the Water Conservation Areas (WCAs). With the 2008 Lake Okeechobee Regulation Schedule (2008 LORS) and lower stage levels, an average loss of approximately 430,000 acre-feet of storage diminished the level of certainty for existing legal users (SFWMD, 2013). This mandated that a prevention and recovery strategy be implemented with water resources strategies identified to meet the MFL criteria, as was done for the Everglades MFL. Therefore, in August 2008 the 2005-2006 LECWSP, Appendix J was amended to include a recovery strategy for the Lake Okeechobee MFL and, as with the Everglades MFL, the Lake MFL recovery strategy relies upon key CERP projects to be completed in addition to the completion of the Herbert Hoover Dike repairs.

In 2007, additional restrictions on the LECWSP's consumptive use water allocations were implemented as Restricted Allocation Areas to protect the Everglades and Lake Okeechobee

MFLs. In 2019, USACE initiated the development of the new Lake Okeechobee System Operating Manual (LOSOM) with the purpose to reevaluate and define operations for the Lake Okeechobee regulation schedule that take into account additional infrastructure that will soon be operational. The additional infrastructure that are being taken into consideration include the Herbert Hoover Dike rehabilitation, Kissimmee River Restoration Project, as well as the CERP C-43 West Basin Storage Reservoir and C-44 Reservoir and Stormwater Treatment Area.

The SAS in the Southeastern Florida peninsula, which includes the Biscayne Aquifer, is one of the most productive aquifers in the world and is currently the primary source of freshwater to residents of Broward County, Miami-Dade County, and Southeastern Palm Beach County. In 1979, it was designated a sole source aquifer by U.S. Environmental Protection Agency (EPA), under the Safe Drinking Water Act (1974). The SFWMD is the state agency responsible for water supply planning in the LEC planning area, which includes all of Broward County.

Withdrawals from the SAS are managed by the SFWMD through the issuance of Consumptive Use Permits (CUPs). In order to secure and maintain a CUP, applicants, consisting of water utilities, developers, agricultural operations, and water control districts, must meet the permitting criteria of: 1) being a reasonable and beneficial use of the resource; 2) demonstration of no adverse impact to other existing legal uses of water; and 3) assurance that the use of the requested quantity of water is necessary for economic and efficient use and is both reasonable and consistent with the public interest.

These uses must include compliance with the MFLs established for surface water and groundwater sources, Chapter 373, F.S. In the implementation of prevention strategy for the Everglades and Lake Okeechobee MFLs, the Governing Board of the SFWMD adopted Restricted Allocation Areas in 2007 and 2008. For the LEC planning region, this mandated that new water demands requiring recharge from the Everglades system be met through the development of AWS. The numerous (115) AWS projects that were recommended as part of the 2005-2006 LECWSP Update were driven largely by these Restricted Allocation Areas and the concurrent consumptive use restriction for future water supply withdrawals from the surficial aquifer to historic levels (prior to April 1, 2006).

Opportunities for assistance for these AWS projects occurred in 2005 with the passage of Senate Bill 444, creating a funding and incentives program to encourage the development of alternative water projects as defined in Section 373.019, F.S. The projects were defined as from the following sources: saltwater; brackish water; surface water captured during wet-weather flows; sources made available through the addition of new storage capacity

for surface or groundwater; water that has been reclaimed after one or more public water supply, municipal, industrial, commercial, or agricultural uses; the downstream augmentation of water bodies with reclaimed water; stormwater; and any other water supply source that is designated as nontraditional for a water supply region in the applicable water supply plan.

This program funding has since been severely limited within the LEC region and has directly impacted the ability of local water supply entities to advance the development of AWS projects through their own individual efforts.

C. Alternative Water Supply

1. Reclaimed Water

In 2008, the Florida Legislature enacted an ocean outfall statute (Section 403.086(9), F.S.). This requires the elimination of the use of six ocean outfalls in Southeastern Florida as the primary means for disposal of treated domestic wastewater, two of which are in Broward County. The affected wastewater utilities must reuse at least 60 percent of the historic outfall flows by 2025. The objectives of this statute are to reduce nutrient loadings to the environment and to achieve the more efficient use of water for water supply needs. South Florida utilities are working to advance reuse projects to meet the requirements.

2. Upper Floridan Aquifer

On occasions when local utilities seek use of the Floridan Aquifer to supplement their Biscayne Aquifer-sourced water, they are faced with higher energy costs associated with treatment of the Floridan Aquifer water in South Florida, which has elevated chloride concentrations above those that are found elsewhere in Northern and Central Florida. Typically, the utilities in Broward County that utilize the Floridan Aquifer mix that water with Biscayne water supplies, thereby diluting the chlorides and subsequently providing a finished water requiring less treatment than water that is derived solely from the Floridan Aquifer.

3. C-51 Reservoir

The C-51 Reservoir project is a public-private partnership for the construction of 60,000 acre-feet of storage for use as an AWS source in Southeastern Florida. Diversion and improved management of freshwater flows was formally identified as a priority restoration strategy for the Lake Worth Lagoon dating to the 1992 Restudy of the C & SF Flood Control Project. Coordination between Broward and Palm Beach water utilities and Counties was initiated in 2006. The C-51 Reservoir is presented at

the 2018 LECWSP as an AWS source to meet with regional projected 2040 water demands. Beyond water supply, the reservoir contributes to capture of excess flows and enhanced stormwater management, reduced harmful discharges and associated nutrient loads to Lake Worth Lagoon and mitigation of saltwater intrusion by maintaining higher canal stages and recharging coastal wellfields.

D. COMPREHENSIVE EVERGLADES RESTORATION PLAN Implementation

The CERP is the blueprint for refitting the region's outdated water management infrastructure. By addressing the needs of the natural system with those of the urban areas and agriculture, the plan provides considerable benefits throughout the system and is a first step towards a sustainable South Florida. The CERP is designed to capture, store, or convey water now discharged to tide, making it available for all users and yielding benefits for both the regional system and local partners. The USACE and the SFWMD are partners in the re-plumbing of the Everglades with the objective of "getting the water right". This watershed plan is linked to the SFWMD's LECWSP, which addresses water supply issues in Miami-Dade, Broward, and Palm Beach Counties over the next twenty years.

In October 2011, the South Florida Ecosystem Restoration Task Force endorsed a state-federal initiative to speed up planning for key restoration projects in the heart of the Everglades. The Central Everglades Planning Project (CEPP) incorporates updated science and technical information gained over the last decade to allow more water to be directed south to the central Everglades, Everglades National Park, and Florida Bay while protecting coastal estuaries. The USACE led the CEPP planning effort in partnership with the SFWMD.

A component of the CERP, the reservoir will send needed clean water south to the Everglades while reducing damaging discharge events from Lake Okeechobee to the northern estuaries. The project will hold 240,000 acre-feet of water and include a new constructed treatment wetland, known as a Stormwater Treatment Area, necessary to meet state and federal water quality standards. Congress authorized the EAA Storage Reservoir in October 2018, with passage of the America's Water Infrastructure Act of 2018. Currently, the SFWMD is working to prepare the site for construction as well as designing the Stormwater Treatment Area and surveying canals to design conveyance improvements needed for the project (SFWMD, 2019).

BROWARD COUNTY

This section identifies the future water supply needs of those areas serviced by either BCWWS or other BMSD water suppliers to ensure that water supply allocations and projects will be sufficient to meet projected demands. The role of the EPCRD and BCWWS are to identify the future water supply needs and available supplies of the BCWWS service area (see Data and Analysis Section) as well as for those served within the BMSD. Currently, water service is provided by BCWWS to the BMSD areas of Broadview Park and Hillsboro Pines. The City of Fort Lauderdale utility serves the BMSD areas of Washington Park, Franklin Park, Boulevard Gardens, and Roosevelt Gardens. In coordination with the Fort Lauderdale's Planning and Zoning Department and Water utilities, the EPCRD has identified current and future water supply needs and water supplies as detailed below.

A. Broward County Settings

Broward County (County) is located along the lower east coast of Florida, between Miami-Dade County to the south, Palm Beach County to the north, and Collier and Hendry Counties to the west. The County was formed from parts of Palm Beach and Dade Counties in 1915. At that time, the population was 4,763 (Florida State Census). In 2010, the Census estimated the population of the County to be 1,748,066 making it the second most populated county in the State after Miami-Dade (2010 Census Data). The University of Florida's BEBR, (2018) estimates the County's population at 1,873,970.

In land size, the County contains more than 1,225 square miles, however, only the eastern third of the County (approximately 422 square miles) is urbanized. The remaining two-thirds of the County is composed of wetlands that constitute a large part of the Everglades WCAs. This portion of the County is actively undergoing the planning and construction related to restoration of the Everglades, the largest natural system restoration effort in the world. With a population of nearly 1.8 million living on approximately 422 square miles of relatively low-lying developable urban land, the population density of the County is approximately 4,200 people per square mile.

Balancing Everglades restoration efforts and climate change impacts with our growing communities presents the County with significant water resource planning challenges. However, Broward has long recognized that water is a shared regional resource and that effective and efficient water management requires Countywide and regional coordination. To this end, the County is a founding member of the Southeast Florida Regional Climate Change Compact and board member of the Resilient Utility Coalition to ensure sustainability of the water resources in our region.

Southeast Florida is widely considered one of the most vulnerable regions with respect to the impacts of 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 2.0), including 142 recommendations in twelve primary focal areas, with 21 specific to the focal area of "Water", Table WS1 below. 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. Recommendations are incorporated throughout this 2020 Work Plan and related comprehensive planning element updates.

Table WS1 Water Supply Recommendations from the Regional Climate Action Plan 2.0

WS-1	Develop and share new water management information, methods, technical capabilities, and trends addressing key climate variability and sea level rise concerns through the Compact's collaborations with state and federal agency partners and academic institutions, as well as through the RCAP. Establish a method for a periodic exchange of ideas between water resource managers, policymakers, stakeholders, scientists, and researchers in collaboration with the Compact, the South Florida Water Management District, and local academic partners.
WS-2	Ensure all water resource policy, planning, and management decisions in the Lower East Coast Water Supply Planning Area are consistently aligned with: a) the latest Southeast Florida unified sea level rise projections; b) regional climate scenarios for planning (e.g., storm surge, design storm events); and, c) hydrologic models used in adaptation planning, from local to regional scales. Ensure all water resource policies consider regional water management issues, including flooding and water variability. For flooding, use impact assessments for observed and predicted climate variability on the frequency, duration, and intensity of flooding connected to sea level rise, extreme tidal excursions, storm surges, and 100-year rainfall events. Use impact assessments to determine where impacts will likely be greatest. For water availability, examine the effects of climate change and sea level rise on water availability and groundwater vulnerability to saltwater intrusion, based on potential changes in precipitation and evapotranspiration patterns and associated extreme drought and flood events.
WS-3	Encourage the South Florida Water Management District to integrate potential future climate conditions, sea level rise scenarios, and potential impacts to water quality and supply into the regional water management models used to support the Lower East Coast Water Supply Plan, environmental resource permitting, and consumptive use permitting.

WS-4	Ensure consistency in efforts to map saltwater intrusion across the region to create better information and improve management decisions for protecting regional freshwater aquifers. Coordinate the methodology and schedule for the saltwater intrusion mapping used to maintain and update the regional saltwater intrusion baseline mapping conducted by the South Florida Water Management District and the U.S. Geological Survey, at a minimum of every five years. Utilize saltwater intrusion models and validated data to identify wellfields and underground infrastructure at risk of contamination or infiltration by saltwater due to rising sea levels.
WS-5	Coordinate among city and county government public works agencies, water utilities, and other operators of water infrastructure to develop and maintain local and regional inventories of existing potable water supply wellfields, treatment and distribution systems, wastewater treatment and collection infrastructure, and septic tanks and drain fields. Assess the potential for climate change impacts on each component of water infrastructure under different climate change scenarios and develop adaptation strategies for affected systems, including infrastructure that may require replacement, reinforcement, or relocation to ensure the long-term viability of the system.
WS-6	Track the climate resilience projects for water infrastructure being designed and built by local governments and utility districts across Southeast Florida to aid local peer learning. Develop a regionally coordinated geodatabase to illustrate and catalog local and regional resilience projects, planning tools, and infrastructure investments, and a formal data management strategy for water infrastructure projects that could be scaled in the future to include other infrastructure (e.g., communications, transportation, and energy).
WS-7	Modernize permitting, planning, and design standards for development and infrastructure improvements to drainage systems, surface water management systems, and finished floor elevations based on updates to groundwater table maps, flood elevation maps, and tidal elevations. Prioritize design standards that maintain project compatibility, infrastructure connectivity, and level of service under potential future climate conditions.
WS-8	Coordinate with the South Florida Water Management District and local public officials to request a comprehensive assessment of the Central and South Florida flood control system by the U.S. Army Corps of Engineers. Determine the regional flood control system's performance under potential future climate conditions based on the U.S. Army Corps of Engineers' comprehensive assessment. Develop a resilience strategy that will ensure existing levels of service are maintained or improved under future conditions.
WS-9	Advocate for an update of the Florida Department of Environmental Protection's Stormwater Management Rule, "SFWMD Environmental Resource Permit Applicant's Handbook – Volume II," through the Southeast Florida Regional Climate Collaborative Policy advocacy process. Advocate for rule changes that integrate potential future climate conditions and stormwater harvesting initiatives in permitting criteria at all levels, including average wet season groundwater elevations; unified sea level rise projections; and intensity, duration, and frequency curves.
WS-10	Continue to utilize a combination of inundation maps and stormwater models to identify areas and infrastructure at increased risk of flooding. Evaluate the potential impacts of changes in groundwater levels on wastewater and stormwater systems (including septic systems, wastewater collection, and conveyance and storage systems), with consideration of water quantity and quality (including public health-related metrics). Use the results of the above-stated analyses as the basis for site planning and regulation, and for identifying and prioritizing adaptation needs and strategies.

WS-11	Promote the development of green infrastructure and alternative, net-zero greenhouse gas emission strategies for water supply, stormwater, and wastewater management focused on achieving a balance between water availability and consumption, limiting energy use to the amount produced on-site via renewable energy, and eliminating solid waste sent to landfills. Create comprehensive strategies to advance the multiple benefits and sustainability of services provided by net-zero practices.
WS-12	Coordinate across regional, state, and federal agencies to develop and apply appropriate hydrologic and hydraulic models to further evaluate the efficacy of existing water management systems and flood control and drainage infrastructure under variable climate conditions. Quantify the capacity and interconnectivity of the surface water control network and develop feasible adaptation strategies. Develop common data standards and database protocol for maintaining water management system components.
WS-13	Convene forums to promote a joint assessment and planning strategy involving local water utilities, wastewater service providers, water managers, and partners to the Southeast Florida Regional Climate Change Compact for coordinated consideration of: a) stormwater use and disposal; b) rainfall-derived inflow and infiltration; c) traditional and alternative water supplies; d) wastewater disposal; e) expansion of reuse and water conservation measures (e.g., maintaining adequate aquifer levels and minimizing the use of potable water for irrigation purposes); and, f) amendments to applicable development codes and regulations. Develop local integrated water management plans based on joint assessment and planning strategies.
WS-14	Undertake a comprehensive evaluation of stormwater improvements necessary to expand surface water storage, enhance water quality treatment, and reduce stormwater discharges in the delivery of flood protection needs and environmental priorities for the Everglades and estuarine and coastal ecosystems. Improve stormwater management through distributed storage, integrated stormwater systems, and additional best management practices.
WS-15	Encourage collaborative programs with local universities—including the Compact's partnership with the Florida Climate Institute—to improve community and stakeholder communication and education efforts regarding potential local and regional climate change impacts. Build partnerships and technology exchanges with public, private, academic, domestic, and international partners to bring additional experience and innovation to resilience planning, projects, and decision support. Continue to encourage, foster, and support collaborative investigative work and scientific research that improves water resource management, including: a) downscaling global climate models to represent precipitation patterns at the regional and local scale and to develop standardized precipitation scenarios for the region; b) identifying and targeting gaps in monitoring and data availability (e.g., light detection and ranging, environmental and water quality data, or data supporting regional climate indicators) to improve the quantification of the hydrologic system and its response to climate change (e.g., evapotranspiration, surface and groundwater levels, water quality, precipitation, and local sea level) through local program efforts, agency collaborations, and advocacy for additional state and/or federal resources, as needed; and c) developing integrated risk-based decision-support tools and processes for application in the analysis and selection of infrastructure design, water resource management, natural systems management, and hazard mitigation alternatives. Tools should facilitate the consideration of the potential economic costs of comparative planning scenarios, management decisions, and infrastructure investments, as well as the evaluation of potential trade-offs.

WS-16	Cultivate partnerships with regional, federal, and state agencies and professional associations with expertise in integrated water resource planning as sources of important research, including: a) the U.S. Army Corps of Engineers Institute for Water Resources; b) the United States Geological Survey; c) the Environmental Protection Agency; d) the National Oceanic and Atmospheric Administration; and, e) water foundations..
WS-17	Identify, incorporate, and prioritize preferred climate adaptation improvement projects pertaining to water supply, wastewater systems, stormwater management, and flood protection as part of capital improvement plans. Develop projects, pursue funding options (including independent funding mechanisms), and implement projects.
WS-18	Coordinate the implementation of innovative water management technologies across multiple jurisdictions as part of piloted solutions to foster shared investments. Facilitate knowledge sharing about the results, costs, and savings from management technologies. Scale successful cross-jurisdictional technologies to reduce the potential for redundant investments and achieve economies-of-scale while fairly distributing costs and benefits across multiple project beneficiaries.
WS-19	Identify existing underperforming infrastructure and implement adaptable infrastructure strategies that facilitate targeted investments, allow managed performance, and achieve greater flexibility in system operations.
WS-20	Continue to support the Comprehensive Everglades Restoration Plan (CERP) and its updated versions as fundamental to Everglades restoration. Contribute to the ongoing implementation of CERP and updates to implementation plans (such as the Integrated Delivery Schedule) through the South Florida Ecosystem Restoration Task Force and relevant working groups. Publicize the role of CERP as a regional climate resilience strategy, particularly as a way to increase freshwater flows to the Everglades system, which improves water quality, maximizes regional freshwater storage and aquifer recharge, and creates the potential to abate saltwater intrusion, an increasingly important effort under variable climate conditions and in the face of sea level rise.
WS-21	Develop new and combine existing land acquisition priorities in a regional setting to protect, preserve, and enhance water storage. Develop regional and distributed surface water storage (e.g., C-51 reservoir and interconnected urban systems) to increase the potential for stormwater capture and reuse for water supply, aquifer recharge, flood management, and environmental benefits.

The Resilient Utility Coalition established in 2016 seeks to advance utility infrastructure resiliency efforts and provide essential value to its members and partners. The Resilient Utility Coalition provides leadership in assessing and adapting utility operations to address risks and improve water management decision-making in the face of climate uncertainty. In its strategic plan, it has also prioritized the concept of One Water including the development of the One Water Academy.

Recognizing that water is a shared resource, the One Water approach, promoted by the U.S. Water Alliance, is essentially an expanded version of integrated water resources planning and envisions managing all water in an integrated, inclusive, and sustainable manner to secure a bright, prosperous future for our children, our communities, and our country. One Water approaches are progressing in multiple arenas: from using advanced technologies to recover nutrients and energy from wastewater; to using green stormwater techniques to mitigate flooding while beautifying neighborhoods; to undertaking

watershed-level planning and collaboration to address water quality issues; to implementing innovative financing and partnership models.

B. Broward CountyWide Integrated Water Resource Plan

In 1997, Broward County initiated its IWRP to improve the effectiveness and efficiency of local water management. The principle of the IWRP is that water should be viewed as a regional resource, independent of municipal and utility service area boundaries.

Broward's IWRP, approved by the County Commission in 2010, has four main objectives:

- To make the most of local water resources, so that Broward's long-term water supply needs are met;
- To coordinate a diverse water management community, ensuring the efficient and effective management of Broward's water resources;
- To match up local water sources and users to ensure that water supplies are available when and where they're needed; and
- To diversify water supplies so that the needs of urban and natural systems are met under wet and dry conditions.

A fifth objective was added in the 2019 IWRP Update: Promote water resources resiliency by evaluating future conditions, including potential climate impacts, and adopt strategies to mitigate, adapt, and prevent disruptions to our overall goal of more efficient and effective water management.

Successful implementation of the plan requires coordination amongst a diversity of stakeholders including water managers, utility directors, drainage districts, and state and local government entities. The water management community in Broward County consists of 27 water providers, 23 special districts and 15 wastewater providers across 31 municipalities, Table WS2 below.

Table WS2 Lists of Municipalities, Utilities, and Districts in Broward County

Broward County Municipalities				
City of Coconut Creek	City of Cooper City	City of Coral Springs	City of Dania Beach	Town of Davie
City of Deerfield Beach	City of Fort Lauderdale	City of Hallandale Beach	Town of Hillsboro Beach	City of Hollywood
Lauderdale Lakes	Lauderdale-by-the-Sea	City of Lauderhill	Lazy Lake Village	Lighthouse Point
City of Margate	City of Miramar	City of North Lauderdale	Oakland Park	Parkland
Pembroke Park	City of Pembroke Pines	City of Plantation	City of Pompano Beach	Sea Ranch Lakes
Town of Southwest Ranches	City of Sunrise	City of Tamarac	City of Weston	City of West Park
Wilton Manors				
Potable Water Providers				
Broward County-District 1	Broward County-2A/North Regional	Broward County-South Regional	Cooper City	Coral Springs
Coral Springs Improvement District	Dania Beach	Davie	Deerfield Beach	Tindall Hammock Irrigation and Soil Conservation District
Fort Lauderdale	Hillsboro Beach	Hallandale	Hollywood	Lauderhill
Margate	Miramar	North Lauderdale	North Springs Improvement District	Parkland Utilities, Inc.
Pembroke Pines	Plantation	Pompano Beach	Royal Utility	Sunrise
Seminole Tribe of Florida	Tamarac			
Drainage / Water Control Districts				
Bonaventure Development District	Broward County Water Control District #2	Broward County Water Control District #3	Broward County Water Control District #4	Central Broward Water Control District
Cocomar Water Control District	Coral Bay Community Development District	Cypress Cove Community Development District	Indian Trace Development District	Lauderdale Isles Water Management District
North Lauderdale Water Control District	North Springs Improvement District	Oakridge Community Development District	Old Plantation Water Control District	Pine Tree Water Control District
Plantation Acres Improvement District	South Broward Drainage District	Sunshine Water Control District	Tindall Hammock Irrigation and Soil Conservation District	Turtle Run Community Development District
Twin Lakes Water Control District	West Lake Community Development District			
Wastewater Providers				
Broward County North Regional	Cooper City	Coral Springs Improvement District	Town of Davie	Ferncrest
Fort Lauderdale – G.T. Lohmeyer	Hollywood	Margate	City of Miramar	City of Pembroke Pines
Plantation Regional	Sunrise No. 1 (Springtree)	Sunrise No. 3 (Sawgrass)	Sunrise Southwest	

The work of the Water Resources Assessment Program within Broward County's EPCRD provides vital information and guidance that support the programs in the Broward County IWRP and the development of AWS sources such as water reuse, harvesting of excess stormwater (C-51 Reservoir), the use of the Upper Floridan Aquifer, ASR, and secondary canal integration. Among these urban water strategies, Broward County has prioritized water conservation as the least costly effort to offset future water demands. The technical assessment of these projects and planning for future mitigation strategies against climate change are investigated through several robust hydrologic models, developed over many years and with significant municipal partner support.

1. Water Reuse in Broward

Broward County has focused on the advancement of beneficial reuse and, in 2014, developed the Regional Reuse Master Plan in coordination with its regional partners. This effort included the active participation of local municipalities, water managers, water and wastewater utilities, local planning agencies, Florida Department of Transportation, and other state and regional agencies. This plan sets the foundation for the long-term implementation strategy to further regional reclaimed water development through several innovative and dynamic planning tools. The plan data was updated in 2018 and report design was modernized from a paper document to digitally interactive. The plan is now delivered to our regional partners in the new interactive online format. The Regional Reuse Master Plan and Implementation Strategy support a cost-effective, regional approach for the development of beneficial reuse throughout the County's water and wastewater providers.

The objective is to advance cost-effective development of reclaimed water initiatives through coordinated planning and implementation. The Plan is designed to:

1. Provide coordination and support among Broward County, state agencies, water and wastewater treatment providers, and municipalities to deliver, update, and maintain a comprehensive database of existing and planned reclaimed water infrastructure.
2. Coordinate the installation of reclaimed water lines for recommended projects with public works projects such as transportation improvements, stormwater and other wastewater improvement projects that may be necessitated through local, state, and federal permitting requirements.

To support this strategy, IWRP grant funds provide preferential funding consideration for those projects that are contained within and are consistent with the Reuse Master Plan. On average, four feasibility and design projects are granted

bi-annually as well as two to three construction projects. Permitting incentives include the potential reuse credit that the SFWMD could allow as an offset to increase traditional water sources withdrawals in a CUP.

Additional financial incentives may be available through state funding as indicated in Section 373.1961(3)(f)(6), F.S., that provides encouragement for projects in which the construction and delivery to end users of reuse water is a major component. This statute requires governing boards to give such projects significant weight when selecting AWS projects for funding under Section 403.89, F.S.; Water Protection and Sustainability Program (FDEP, 2016).

Requirements of the outfall program include a functioning reuse system that reuses a minimum of 60 percent of the facility's actual flow on an annual basis installed no later than December 31, 2025. State or the SFWMD funding assistance must give first consideration to water supply development projects that replace existing sources or implement reuse projects to eliminate ocean outfalls. Broward County is planning to meet the 60 percent reuse requirement by expanding its public access irrigation in Northern Broward and Southern Palm Beach Counties, including expanding reuse systems in the Cities of Pompano Beach and Coconut Creek and North Springs Improvement District.

2. C-51 Reservoir

Over the past decade, the SFWMD, Lake Worth Drainage District, Palm Beach Aggregates, local governments, water managers, and public water supply utilities from Broward and Palm Beach County jointly investigated the feasibility of a regional reservoir to capture and store excess surface water runoff discharged to Lake Worth Lagoon, primarily during wet weather conditions, and release into the C-51 Canal during dry periods to meet water demands.

The C-51 Reservoir project is a public-private partnership for the construction of 60,000 acre-feet of storage for use as an AWS source in Southeastern Florida. Diversion and improved management of freshwater flows was formally identified as a priority restoration strategy for the Lake Worth Lagoon dating to the 1992 Restudy of the C & SF Flood Control Project. C-51 Reservoir is presented at the 2018 LECWSP as an AWS source to meet with regional projected 2040 water demands.

C-51 Reservoir location is adjacent to the SFWMD's existing L-8 Flow Equalization Basin in Palm Beach County and is expected to share the same impermeable geologic formation that provides for significant inground ground storage capacity with limited seepage losses or additional construction requirements. The initial

intended purpose was to capture excess stormwater discharged to the Lake Worth Lagoon via the C-51 Canal. Currently, the benefits of this proposed project include:

- Reduces harmful water quality and quantity discharges to the LWL via the S-155 structure.
- Supports water quality improvements in the Everglades Protected Areas by offering additional storage and, in conjunction with the L-8 Flow Equalization Basin, optimizing flows to the Stormwater Treatment Areas (STAs).
- Operated in conjunction with the L8 Flow Equalization Basin, could aid the SFWMD in meeting objectives of the Loxahatchee River Watershed Restoration Project.
- Opportunity to improve water quality delivered to the STAs via blending with the L8 Flow Equalization Basin water.
- Mitigates stormwater impacts and flooding for Western and Central Palm Beach County.
- Mitigates for saltwater intrusion and protects wellfields in coastal communities.
- Serves as a regional AWS source.
- Supports water resource protection and potential adaptations strategies in light of sea level rise and during drought.

Among economic benefits, there are:

- Provides "Economies-of-Scale" as a regional water resource development project providing diverse benefits to the region.
- Capitalizes on the current construction and engineering work on the existing L-8 Flow Equalization Basin, including the use of the L-8 Flow Equalization Basin's intake structure and pumping facilities.
- The SFWMD will operate and maintain the C-51 Reservoir in conjunction with the L-8 Flow Equalization Basin, resulting in operational coordination and reduced costs.
- Provides a cost-competitive solution relative end-of-pipe water quality treatment, environmental degradation and economic losses, impacts of flooding, and the costs of alternative water supplies and treatment technologies.
- Capitalizes on current mining activities and construction of rock pit.
- Relies largely upon existing conveyance infrastructure.
- Reduces longer-term need for new water infrastructure and energy-intensive treatment technologies.

Hydrologic modeling indicates the ability to capture sufficient basin runoff so as to reduce excess stormwater flows from the western C-51 Basin flows to the LWL by approximately 40% with a concomitant reduction in associated nutrient loads. Excess stormwater capture in the C-51 Reservoir can be later redistributed through the existing canal network for the benefit of providing aquifer recharge and helping to sustain regional water resources. The C-51 Reservoir is modeled to support approximately 150 million gallons per day (MGD) in stormwater reuse for beneficial purposes while achieving critical water quality improvements in the LWL.

In January 2017, the SFWMD designated the C-51 Reservoir Phase 1 as a pilot AWS development project, pursuant to Section 373.037, F.S. public water supply utilities have executed agreements with the property owners to purchase capacity as part of total reservoir storage. The utilities have received or are processing modifications to their water use permits to reflect this AWS source as a means for meeting future demands.

The mining operation for Phase 1 is complete and designed to store an estimated 14,000 acre-feet of surface water and provide 35 MGD of canal/SAS recharge near public water supply withdrawals. The FDEP has issued a diversion and impoundment consumptive use permit and an environmental resource permit for construction and operation of Phase 1. Phase 2 of the project could provide an additional 46,000 acre-feet of storage, most likely for natural systems [Section 373.4598, F.S.]. The FDEP has issued a conceptual environmental resource permit for Phase 2.

Additionally, water routed south to the Hillsboro Canal could be redistributed to recharge local canals and drainage districts in Broward County, pursuant to an operations and maintenance agreement between the SFWMD and Palm Beach Aggregates and implemented through an operating plan with the SFWMD (under development) or other local water control districts.

To date, agreements have been executed for 13 MGD of storage capacity out of the available 35 MGD of storage capacity in Phase 1: Broward County (6 MGD); Sunrise (5 MGD); and Hallandale Beach and Dania Beach (1 MGD each). Permitting for each of these participants is in various stages but not yet complete. In 2017, the Florida Legislature approved the project as a priority water supply project under enabling legislation Senate Bill 10. A commitment for construction financing has been extended to June 30, 2019. It is hoped that construction can commence in October 2019 and be completed by October 2021. Phase 2 would expand the project area to include 46,000 acre-feet of storage and potentially another 115 MGD, which is envisioned for environmental purposes. Senate Bill 92 (2019) clarified language and the intent of the project and allowed the SFWMD to negotiate for any portion of the project not already committed to partners for water supply.

3. Floridan Aquifer

As an AWS, the expanded use of the Floridan Aquifer system is currently being investigated with respect to its long-term viability as a water supply resource through additional modeling and studies. Broward County has, in cooperation with USGS, completed Phase 1 Feasibility Study of the Upper Floridan Aquifer in March 2014. The study compiled all available well information and commissioned a new well (G-2984) to be drilled, cored, and logged. Using borehole and core sample data (84 wells at 33 sites), the hydrogeologic framework of the Floridan Aquifer system in Eastern Broward County was delineated. This effort helped to construct unique cross-sections and maps representing the stratigraphic and hydrogeologic units of the Floridan Aquifer system in urban Broward County. An additional component of the project was to complete seismic profiling along approximately 14 miles of the Hillsboro Canal, which resulted in seismic reflection data that were then correlated to the borehole geophysical data (Reese et al., 2014).

The results offer better definition of the stratigraphic and hydrogeologic characteristics of the aquifer, which will improve upon the selection of new well locations or for water storage options, such as ASR. Building on the successful use of seismic profiling in the first study, Phase 2 of this Feasibility Study was commissioned and completed in 2017 (Cunningham et al., 2018). It further refined the hydrogeologic framework and regional extent of information by collecting 80 miles of high-resolution seismic profiles from canals in Broward County along with well logs and cores or cutting from 44 wells. Mapping of the Oldsmar, Avon Park, and Arcadia formations was completed over the 425-square mile study area. In addition, many unconformities that might identify faults that are either near-vertical reverse faults or karst collapse structures throughout the County. Water utilities in these areas may consider further studies around these features when planning project near their vicinities.

4. Hillsboro Aquifer Storage & Recovery (ASR)

ASR is a recognized AWS technology and can serve as an effective component of an integrated water management system. This project was originally designed, constructed, and tested over an 18-year period as a potential component of CERP. The project required the collaboration of a multiagency, multidisciplinary team of hydrogeologists, engineers, and environmental scientists. The Hillsboro ASR system was built to capture excess surface water from the Hillsboro Canal, store it in the Upper Floridan Aquifer, and recover stored water back into the Hillsboro Canal when surface water levels are low. The ASR well was constructed in 1999/2000 and

consisted of a 24-inch diameter casing completed to a depth of 1,015 feet below land surface in the Upper Floridan Aquifer. The surface facilities were constructed between 2006 and 2007 and consisted of an intake/discharge structure, screen filters, UltraViolet disinfection units, pumps, piping, valves, electrical controls, and meters. The well was designed to recharge and recover approximately 5 MGD of surface water.

Initial background water quality was collected and analyzed in 2008 prior to cycle testing. Cycles 1, 2, and 3 were performed between 2010 and 2012. The well remained inactive between 2012 and 2016. A second background water quality sampling was performed in 2016 and Cycle Test 4 (SFWMD 2018) was completed in 2017. The below is a summary of the testing conclusions.

- During recovery, the ASR well was to flow freely back to the Hillsboro Canal under artesian pressure at a flow rate of 2 MGD.
- The recovery efficiency for Cycle 4 was approximately 60 percent, greater than previous cycles.
- Water quality data indicated that recharge water mixed and diffused with Upper Floridan Aquifer groundwater at distances of 330 and 1,010 feet away from the ASR well.
- Recovered water had an initial arsenic concentration of 25 parts per billion (ppb), which decreased to less than 10 ppb after 3 weeks.
- Arsenic was not detected at distance from the ASR well during the recovery period.

The SFWMD approached BCWWS following the completion of Cycle 4 to suggest a limited operation of the well facilities to support urban water supply demands. Due to the age and required maintenance of the surface facilities, the permit requirements, and the need to continue building a storage zone with hope of improving the well recovery efficiency, BCWWS declined the offer of limited operation.

5. Secondary Canal Integration

Secondary canal integration remains a relatively attractive urban water management strategy given the vast network of canals that exist in Broward County and the relatively inexpensive infrastructure (culverts, pumps, etc.) required to implement greater integration of the system. Although progress has been made on the Northern Broward County Recharge System, it has not yet been completed. There are three identified projects that need to be completed to integrate the system:

- The C-1/C-2 Interconnect near Sample Road and the CSX Railroad. The project has been designed and construction funding is being sought.
- The study of a potential C-4 Interconnect between north and south Tradewinds Park was completed and it was determined that the environmentally friendly directional drilling project is not financially feasible at the present time.
- The C-7 Interconnect just north of Sample Road in the Coconut Creek Main Street Project will coincide with development of the area. The basin divide control structure is being constructed with the development of the parcel just to the north of Sample Road. The interconnect will be complete when the final canal segment is built with the development of the remaining farm land.

Depending upon the final routing of water deliveries associated with development of the C-51 reservoir project, additional construction may be required in the central and southern parts of the County to further integrate the system.

6. Water Use Efficiency/Conservation

The County has implemented diverse water conservation initiatives to protect the quantity and quality of Broward's existing and future water resources to help meet our current and projected demands. Consistent with this objective, the County has implemented a broad set of water conservation programs under the "Water Matters" campaign which are designed to produce long-term demand reductions along with improvements in water quality. These programs, targeted at various user groups, include: NatureScape Broward, Know the Flow, Water Matters Day, Conservation Pays, NIS, and the NatureScape Broward School Board Environmental Partnership Agreement. The overall goal of the Water Matters programs is to reach a sustained minimum 10% reduction in water use Countywide over 20 years. Further support for water conservation is found in a number of conservation-oriented measures, including changes to the Florida Building Code for cooling towers and high efficiency plumbing devices, year-round irrigation measures, model irrigation codes, Go Green Sustainability Programs, and other water conservation policies and regulations.

The water conservation initiatives are listed below.

- Conservation Pays Program. This effort was launched in 2011 in collaboration with 18 partners to provide a coordinated regional campaign focused on water conservation and the distribution of rebates and other incentives. Rebate dollars are used for the replacement of older, wasteful toilets in addition to the distribution of other water efficient fixtures and devices such as aerators and

commercial pre-rinse spray valves. A consistent marketing and media campaign advances water conservation efforts as part of the Commission's value of encouraging investments in renewable energy, sustainable practices, and environmental protection. Additional Commission support is promoted by the goal to increase water quality protection efforts and lead creative approaches to water storage and aquifer recharge, as well as diversification of water supplies regionally. To date, the program has saved more than two billion gallons of water.

- NatureScape Irrigation Services. Launched in 2005, the NIS is implemented by the EPCRD with cost-share provided by BCWWS and 18 local water utilities. The program targets large water users, including government facilities, parks, schools, and homeowner associations, where the greatest potential exists for significant water savings. To date, water savings exceed one and a half billion gallons with over 3,000 irrigation system evaluations. Best management practices that encourage the 'right plant in the right place' and smart irrigation help to promote water conservation messaging that adds to long-term water savings.
- NatureScape Broward Program. Launched in 2003, the NatureScape Broward program promotes water conservation, water quality protection, and the creation of wildlife habitat through Florida-friendly landscape practices that encourage the prudent use of water resources, and the planting of native, non-invasive and other drought-tolerant plants in Broward County. Broward County was the first county in the U.S. to be certified under the Community Wildlife Habitat program. In addition, there are 14 certified and 9 registered County municipalities and over 4,500 landscapes that have been certified to date.

7. Technical Water Resources Assessment

The numerical hydrologic models developed within the IWRP program provide for informed decisions and sustainable investments essential for comprehensive and integrated water resource management strategies throughout Broward County and the LEC planning region.

In 2006, Broward County's EPCRD contracted with the USGS to develop a numerical model to evaluate to various influencing factors on the saltwater movement within the Biscayne Aquifer in the northern third of the County. This tool was proven to be effective in representing historic and future conditions and was demonstrated to have utility as a planning tool for future water resources projects and development of resilience strategies. This modeling effort was subsequently expended to the central and southern portions of the County to simulate historic saltwater intrusion and to test the extent to which wellfield pumpage, surface water management and

sea level rise contribute to and influence the movement of saltwater and how the aquifer can be expected to respond to future climate conditions. The tool also investigates the implications on the viability of water supplies and can be used to identify and test possible adaptive strategies.

The County is also enhancing this investment with concurrent development of an Inundation Climate vulnerability model focused on coupled hydrologic impacts of saltwater intrusion, surface and groundwater elevations, and stormwater inundation. This model, developed in cooperation with USGS, builds upon the County's Variable Density Model to assess the influence of changing climatic conditions on urban water resources and infrastructure. The initial effort integrated bias-corrected, dynamically downscaled data from Global Circulation models into the updated surface/groundwater model for predictions Countywide. A smaller study of the County was later refined using SWR and URO components that offered more detailed conceptualization of the surface/groundwater interactions, used to assess the predictive scenarios and comparison of alternative water resource strategies. Based on the successful implementation of the SWR and URO packages, Broward County is currently partnering with USGS to advance the expansion of the two packages throughout the entire urban extent of the County.

In February 2017, Broward County approved the creation of a Future Conditions Map Series in the Broward County Code of Ordinances and, effective July 01, 2017, adopted the first regulatory map of the series, the Future Conditions Average Wet Season Groundwater Elevations Map. The approved map ensures that future climate conditions are accounted for in the design and construction of local surface water management systems and that future investments will deliver the necessary level of flood protection and water quality treatment necessary for the duration of the expected useful life of both public and private investments. This map provides an important basis for advancing the resiliency standards and investments needed across our entire region, as it provides a model for the establishment and application of modernized standards based on the integration of science and technology in policy and planning and community buy-in achieved through a comprehensive public process.

The calculated average groundwater elevation is based on model outputs for the wet season months of May through October over a ten-year period of 2060-2069. The models used to simulate average future conditions were the Broward County Inundation Model and the Broward County Northern Variable Density model, both developed in cooperation with the USGS. The future conditions applied in the

modeling process consist of both precipitation and sea level rise. The future precipitation pattern is based on the Center for Ocean-Atmospheric Prediction Studies downscaled Community Climate System Model global model and represents an increase of 9.1% rainfall from the base case of 1990-1999 (53.4 inches/year to 58.2 inches/year). Sea level rise was based on the USACE National Research Council Curve 3, which equates to an increase of 26.6 to 33.9 inches to the future period from 1992 levels.

In the recent restudy of Flood Insurance Rate Maps completed in 2014 by FEMA, the County's MIKE SHE/MIKE 11 model was utilized and updated. The MIKE SHE platform was originally developed to look at surface water groundwater interaction issues beginning with the North Aquifer Drainage Assessment (NADA), which was then extended to the CADA (2000-2002) and SADA (2003-2005). The County then combined the NADA, CADA, and SADA to form the Consolidated Broward County MIKE SHE model. As part of the 2011 Integrated Water Resources Master Management Plan, the consolidated model was updated to run additional water recharge projects to test whether demands for future population projections could be sustained without adverse conditions to the Biscayne Aquifer. In 2018, Broward County began using the results of the FEMA study to calculate 100-year flood elevations that are anticipated to occur in 2070, taking into account sea level rise and more intense rainstorms. The effort includes data collection of recent or previously not included drainage infrastructure, refined model grid and associated LiDAR, land use update, addition of detention storage and ponded drainage routine, model calibration to a recent flooding storm event, and incorporation of future tide levels and a 100-year rainstorm event. It is anticipated the modeling will be completed in the Fall of 2019 and, once approved, will be formalized as the second map of the Future Conditions Map Series.

C. Comprehensive Everglades Restoration Plan

Among the over 60 CERP components, the Central Everglades Planning Project, Broward Water Preserve Areas (WPAs), and Secondary Canal Interconnect.

1. Central Everglades Planning Project

The USACE states that CEPP "will identify and plan for projects on land already in public ownership to allow more water to be directed south to the central Everglades, Everglades National Park, and Florida Bay." The full project's design will send an approximately 210,000 acre-feet of water south from Lake Okeechobee each year. The WCAs are a major resource affected by this future project. Thus, this regional

CERP project is very important locally to Broward County as its water supply is critically linked to the WCAs. The CEPP was authorized in the 2016 Water Resources Development Act 2016. Currently, the USACE is working on a validation study to implement Phase 1 in the southernmost area that will increase flows to Everglades National Park.

(https://usace.contentdm.oclc.org/utils/getfile/collection/p16021coll11/id/3139).

2. Water Preserve Areas

The WPAs are a series of marshes, reservoirs, and groundwater recharge areas along the eastern side of the WCAs in Broward, Palm Beach, and Miami-Dade Counties. In Broward County, the WPA extends along the western urban limits, adjacent to Levees 37 and 68A. The projects within the WPAs are intended to serve multiple uses such as increasing the spatial extent of wetlands, reducing seepage losses from the WCAs, improving water supply and quality, and establishing a buffer between the Everglades and developed areas. The benefits to the County's urban area include: the storage of stormwater runoff; groundwater recharge; management of saltwater intrusion; and increased urban water supplies. The WPAs are in the CERP and were authorized in the 2014 Water Resources Reform and Development Act. The current USACE schedule projects the C-11 component to be constructed by 2021.

(https://usace.contentdm.oclc.org/utils/getfile/collection/p16021coll11/id/2552).

The USACE forecasts the WPAs' remaining construction timelines beyond 2023.

3. Secondary Canal Improvement Project

The Broward County Secondary Canal Improvement Project, as part of the CERP, is a water management project to optimize the integration and operation of the County's secondary canal system and support Everglades restoration by reducing the County's reliance on water from the regional system.

Authorized and to be funded by the U.S. Congress, State of Florida, and local government, the goals of the Broward County Secondary Canal Improvement Project are to capture as much annual rainfall as possible for storage and recharge of the Biscayne Aquifer, to maintain water levels in wetlands, and to stabilize saltwater intrusion. Additionally, through more efficient management of the local water resources, urban demand on the regional system is expected to be reduced, as well as seepage losses from the WCAs, as the project has the potential to raise groundwater levels on the east side of the levee.

DATA AND ANALYSIS

The following section provides information in support of the requirements of Section 163.3177(1)(f), F.S., as outlined:

- All mandatory and optional elements of the comprehensive plan and plan amendments must be based upon relevant and appropriate data and an analysis by the local government that may include, but not be limited to, surveys, studies, community goals and vision, and other data available at the time of adoption of the comprehensive plan or plan amendment. (Section 163.3177(1)(f), F.S.).
- Data must be taken from professionally accepted sources (Section 163.3177(1)(f)2., F.S.) and reacted to in an appropriate way, to the extent necessary as indicated by the data available on that subject at the time of adoption of the plan or plan amendment at issue. (Section 163.3177(1)(f), F.S.).

The planning horizon for the 2020 Work Plan spans 20 years, covering 2020 to 2040.

A. CountyWide Population Analysis

This 2020 Work Plan identifies and analyzes the future water supply needs for the BMSD areas of Broward County and those areas serviced by BCWWS. The role of the EPCRD is to identify the future water supply needs of BMSD areas of Broward County and to present regional strategies supporting Countywide water supply needs and water resource management. The role of BCWWS is to identify the future water supply needs of their service areas, which include both BMSD areas and incorporated areas, and to determine strategies to meet any unmet demands.

Several of the BMSD areas Figure WS4 are provided water service by BCWWS; hence these areas were included in the BCWWS analysis. For the remaining BMSD neighborhoods, the City of Fort Lauderdale is the largest of the water utility providers while the City of Sunrise is only providing for six residential units. EPCRD has coordinated with the Fort Lauderdale Planning and Zoning Department and the water utility in identifying the current and future water supply needs within their water utility's service area.

Needs assessments were developed based on current utility operations and the existing customer base, compared to population projections through 2040. The population modeling was performed by Broward County Planning and Development Management Division (BCPDMD) using the Broward County Traffic Analysis Zones (TAZ) and municipal forecasts updated in 2017 to develop the projected populations based on the University of Florida's BEBR Bulletin 175, "Detailed Population Projections by Age, Sex, Race, and Hispanic

Origin, for Florida and Its Counties, 2020-2045, With Estimates for 2015" to Broward County's 2017 Traffic analysis Zones (TAZ) and municipalities. The demographic forecast model update is detailed in, "Broward County and Municipal Population Forecast and Allocation Model (PFAM), 2017 (BCPDMD, 2017) based on the original PFAM developed in 2012 and updated in 2014.

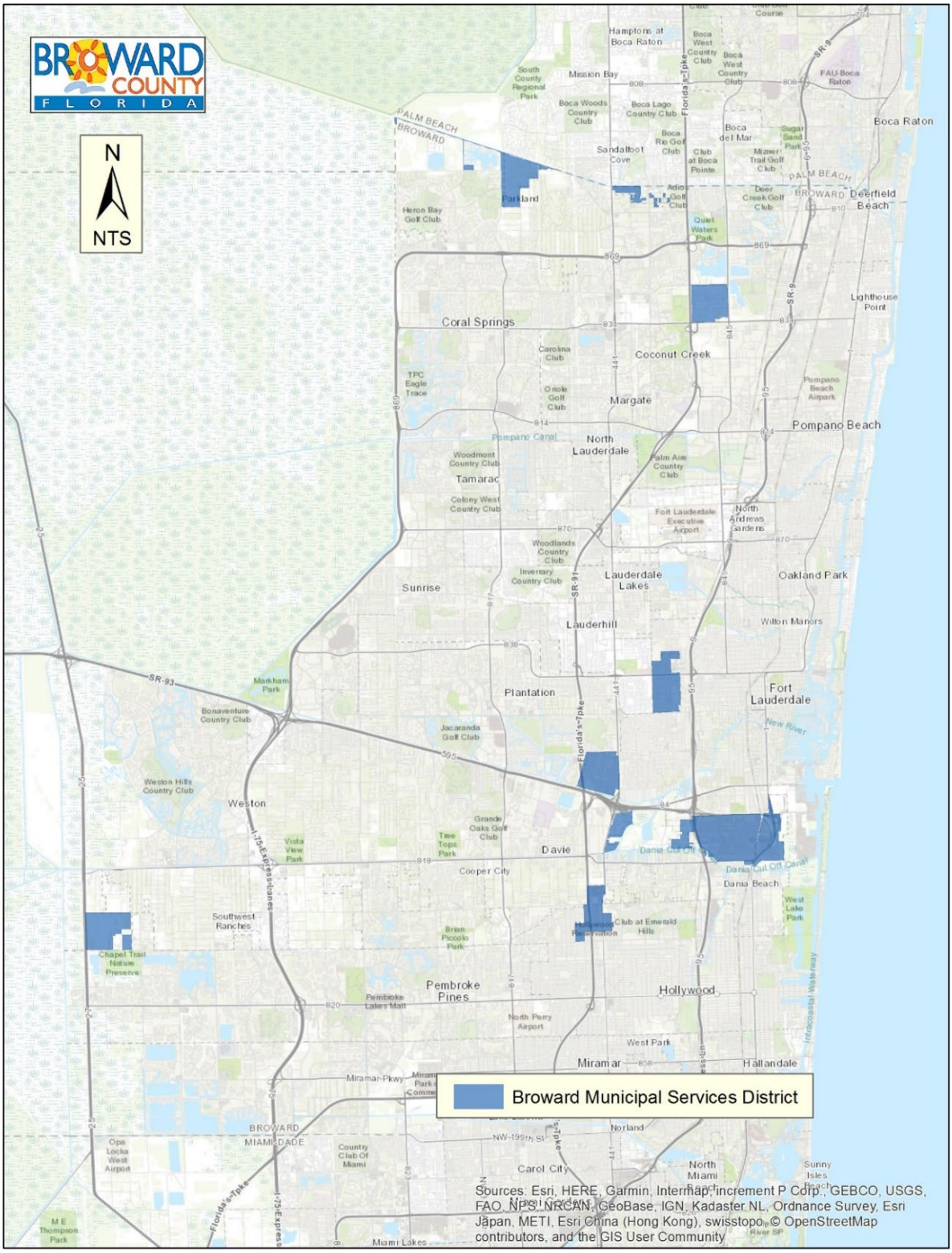

Figure WS4 Broward County Municipal Service Areas

This 2020 Work Plan includes analysis of existing water facilities, current and projected water demands versus water availability and the presentation of the water supply plan for the Fort Lauderdale water utility. Future water demands prepared for this analysis are compared to projected demands presented in the 2018 LECWSP Update, with discussion of any deviations.

BCPDMD is responsible for providing updated population forecasts throughout the County. The Broward County PFAM 2017 update was used to develop County population by jurisdiction. Updated population projections from University of Florida's BEBR Bulletin 178 and the Broward County PFAM 2017 update are summarized below in 5-year increments through 2040, Table WS3 below.

Table WS3 Broward County Population Projections 2020-2040

Year	BEBR Population Estimates [1]	BCPDMD Population Estimates [2]	SFWMD Population Estimates [3]
2020	1,914,498	1,894,285	1,931,057
2025	1,989,753	1,990,171	2,029,704
2030	2,052,432	2,051,056	2,109,543
2035	2,111,652	2,110,602	2,175,718
2040	2,158,080	2,156,835	2,232,397

[1] BEBR Medium Populations from "Detailed Population Projections by Age, Sex, Race, and Hispanic Origin for Florida and its Counties 2020-2045, with Estimates for 2015, June 2016," 2016

[2] BCPDMD Broward County and Municipal Population Forecast and Allocation Model, 2017

[3] SFWMD, Lower East Coast Water Supply Plan, November 2018

The percent difference between the BEBR and the BCPDMD projections is no more than one percent. The percent difference between the BCPDMD and the SFWMD projections ranges between 2 and 3 percent from 2020 through 2040. The PFAM is structured using 953 TAZ within 31 municipalities in the County. The BEBR forecasts by age are converted to household using a weighted average of the households by age group data from the 2000 and 2010 Census. The household forecasts are then assigned to TAZ based on: (1) the change in household size distribution; (2) TAZ level distribution of households; and (3) the capacity of each TAZ to absorb additional housing units. BCPDMD also obtained input from the local planning and service delivery entities and referenced the Broward County Land Use Plan to estimated household distributions within TAZ and municipal boundaries (BCPDMD, 2017).

B. Current and Future Served Areas

The current and future served areas for BCWWS and the Cities of Fort Lauderdale and Hollywood are described in the sections below.

1. BCWWS

BCWWS is one of 25 utilities that provide potable water service within the urbanized area of the County. The utility was created on January 31, 1962, with the County's purchase of a small, investor-owned water and wastewater utility. Between 1962 and 1975, the County acquired a number of investor-owned systems. Under the County Code of Ordinances, the Broward County Board of County Commissioners exercises exclusive jurisdiction, control, and supervision of the utility system. BCWWS is the County organizational unit directly responsible for the utility.

The water utility delivers potable water to customers in service areas in north, mid, and south County and to one bulk water user. The water utility has grown to serve a population of approximately 239,000. The bulk water user, City of Coconut Creek, accounts for a population of approximately 56,000. Including the City of Coconut Creek, the utility serves about 12 percent of the County's total population. For the year 2017, treated water sold to retail customers equaled about 19 MGD on an annual average basis. Metered water sales to Coconut Creek equaled an additional 5 MGD. Notably, finished water production (treated water at point of delivery) has decreased in recent years. This may be attributable to a downturn in the economy, slowdown in population growth, and the County's water conservation efforts, including year-round irrigation conservation measures. Water conservation became increasingly important following a series of significant drought years, coupled with limitations to the County's traditional water source, and remains a critical initiative.

BCWWS operates three service districts known as District 1, District 2, and District 3. These service districts are shown on Figure WS5 below and cover about 43 square miles. The three service districts are operated as independent entities, but are supported by BCWWS Operations as a single entity:

- District 1 service area contains all of Lauderdale Lakes and portions of the Cities of Fort Lauderdale, Lauderhill, North Lauderdale, Oakland Park, Plantation, Pompano Beach, and Tamarac;
- District 2 service area contains portions of the Cities of Deerfield Beach, Lighthouse Point, and Pompano Beach and provides water to portions of the City of Coconut Creek as described below; and
- District 3 service area contains portions of the Cities of Dania Beach, Davie, Fort Lauderdale, Miramar, West Park, Pembroke Park, Pembroke Pines, and Hollywood and provides water to the Fort Lauderdale-Hollywood International Airport.

All three service districts also include some small BMSD as highlighted on Figure WS4. BCWWS supplies water primarily to retail customers, but also provides water to the City of Coconut Creek under a bulk water resale agreement. Without prior approval from the County, the City is prohibited from buying or otherwise providing water within its service area from any source other than the County.

To plan and coordinate water supply utility activities within its three service areas, BCWWS uses utility analysis zones (UAZ) which divide service districts into smaller units by UAZ. Pulling TAZ information into UAZ involves allocating populations based on the split in residential units between the TAZ-UAZ subsections using the Broward County Property Appraiser (BCPA) parcel shapefile. The parcel shapefile permits the calculation of single-family and multi-family units within each TAZ-UAZ subsection.

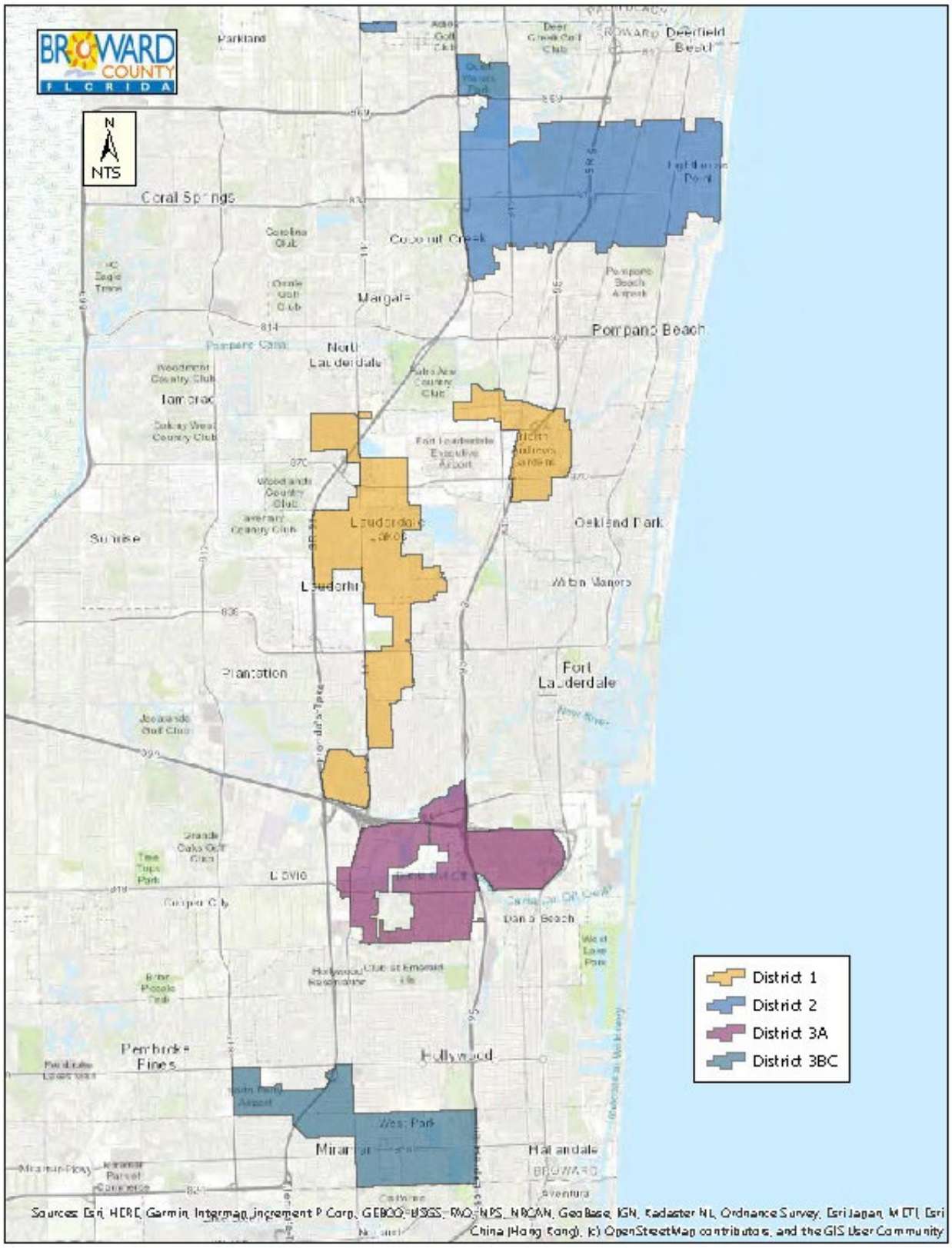

Figure WS5 BCWWS Retail Water Service Areas

A TAZ-UAZ subsection is a portion of a UAZ sits within a TAZ. The calculation method sums up the total residential units (single family and multi-family) within each TAZ-UAZ subsection. The population is allocated based on the percent of residential units in a TAZ-UAZ subsection out of the total TAZ dwelling units count. The projected BCWWS populations are shown in Table WS4 below and are based on the results of an update to the AWS Conceptual Master Plan produced by Brown and Caldwell (Brown & Caldwell, 2019).

Table WS4 BCWWS Service Area Population Projections 2015-2040[1]

BCWWS Service Area	2015	2020	2025	2030	2035	2040
District 1	75,931	78,718	84,292	89,479	92,895	95,299
District 2 Total	110,278	113,023	114,814	119,226	121,410	122,631
D2	55,052	54,510	55,702	57,779	58,493	58,672
CCk	55,226	58,513	59,112	61,447	62,917	63,959
District 3A	16,321	16,908	18,083	19,075	19,686	20,109
District 3BC	36,263	37,486	38,889	41,146	42,639	43,625
BCWWS Total	238,793	246,135	256,078	267,859	276,630	281,278

[1] Based on 2017 BCPDMD TAZ estimate translation to UAZ populations performed by Brown and Caldwell for BCWWS, 2019

2. City of Fort Lauderdale

The municipal utility owned and operated by the City of Fort Lauderdale is the single largest purveyor of potable water in Broward County in terms of total water delivery, providing service to approximately 225,000 customers in 2017. The utility's service area, shown in Figure WS6, encompasses a total area of 43 square miles, approximately one-tenth the total area of urban Broward County. Customers include residential, commercial and industrial properties within the Cities of Fort Lauderdale, Lauderdale Lakes, North Lauderdale, Oakland Park, and Wilton Manors; portions of BMSD and the Cities of Tamarac, and Lauderhill; Port Everglades; Towns of Lauderdale-By-The-Sea and Davie; and Villages of Lazy Lake and Sea Ranch Lakes. Emergency potable water interconnections are maintained with the Cities of Dania Beach, Pompano Beach, and Plantation and BCWWS service area. The population of Fort Lauderdale and the other municipalities in the water service area was forecasted based on 2017 BCPDMD TAZ estimate translation to UAZ

populations performed by EPCRD using 2018 SFWMD LECWSP Service Area Boundaries.

Table WS5 City of Fort Lauderdale Utility Service Area Population Projections 2015-2040*

Service Area	2015	2020	2025	2030	2035	2040
City of Fort Lauderdale	220,018	224,931	252,173	268,024	278,650	287,106

* Based on 2017 BCPDMD TAZ estimate translation to UAZ populations performed by EPCRD using 2018 SFWMD LECWSP Service Area Boundaries, 2019. The City of Fort Lauderdale uses their own projections, which may be different.

Table WS6 City of Fort Lauderdale Major Wholesale/Retail Area Population Projections (2015-2040)*

Wholesale Area	2015	2020	2025	2030	2035	2040
Lauderdale by The Sea	4,353	4,304	4,208	4,259	4,271	4,277
Lauderhill	263	258	278	298	311	322
Oakland Park	30,388	31,458	32,615	34,601	36,055	37,111
Tamarac	2,557	2,528	2,487	2,536	2,664	2,729
BMSD	6,344	6,940	7,538	8,103	8,488	8,813
Wilton Manors	11,654	11,584	12,828	13,912	14,614	15,248

* Based on 2017 BCPDMD TAZ estimate translation to UAZ populations performed by EPCRD using 2018 SFWMD LECWSP Service Area Boundaries, 2019. The City of Fort Lauderdale uses their own projections, which may be different.

3. City of Hollywood

The City of Hollywood's service area includes population projection of approximately 230,000 out to the year 2040, Table WS7 below. Through the bulk sales agreements with BCWWS, the City of Hollywood provides treated water to BCWWS to serve its southernmost service areas (District 3A, 3B/C). The City of Hollywood utility service area include the Cities of Hollywood and West Park, portions of the City of Dania Beach, Town of Davie, City of Fort Lauderdale, and Seminole Tribe of Florida Hollywood Reservation.

Table WS7 City of Hollywood Utility Service Area Population Projections 2015-2040*

Service Area	2015	2020	2025	2030	2035	2040
City of Hollywood	194,411	200,574	207,352	216,861	223,595	228,166

* Based on 2017 BCPDMD TAZ estimate translation to UAZ populations performed by EPCRD using 2018 SFWMD LECWSP Service Area Boundaries. The City of Hollywood uses their own projections, which may be different.

C. Potable Water Level of Service Standard

The potable water level of service standards for BCWWS and the Cities of Fort Lauderdale and Hollywood are detailed in the sections below.

1. BCWWS

BCWWS has the responsibility to determine if it can adequately serve existing and potential customers. To that end, BCWWS has set potable water level of service standards as shown by Table WS8.

BCWWS Land Development Standards contain the methodology currently used to determine if the level of service standard can be met. The Comprehensive Plan Potable Water Element adopted by the County Commission in January 2015 states:

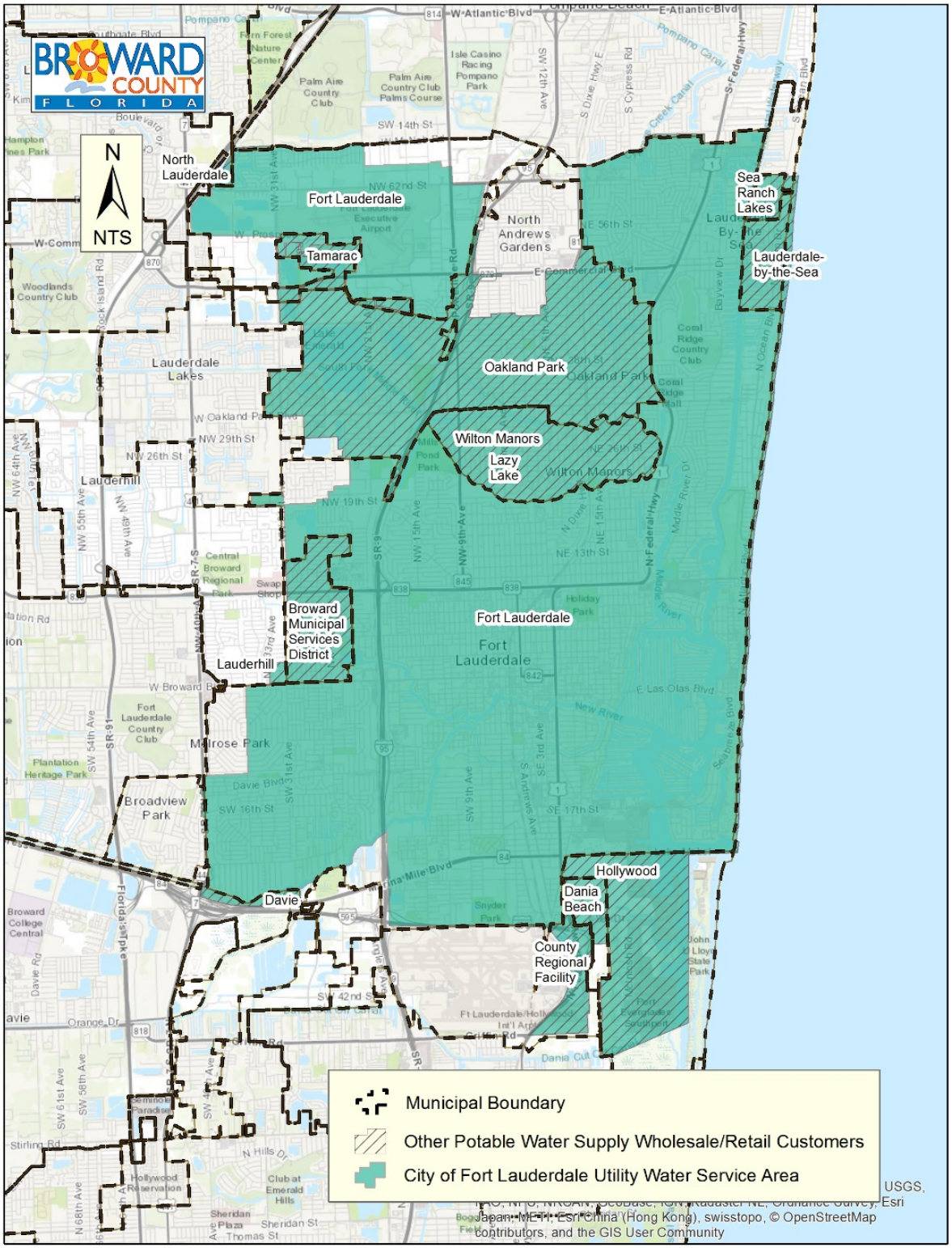

Figure WS6 City of Fort Lauderdale Service Area

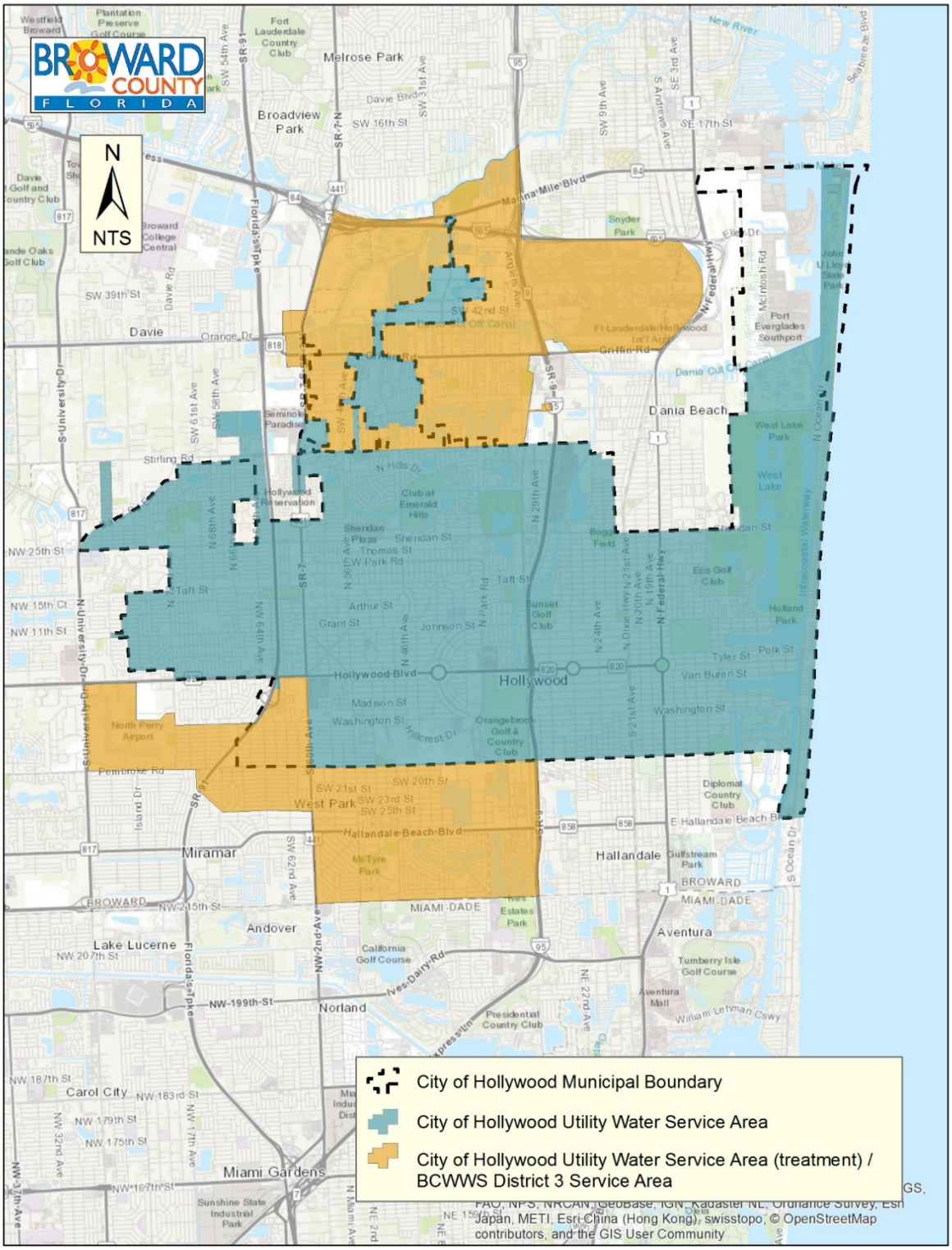

Figure WS7 City of Hollywood Service Area in District 3A, 3B, and 3C

POLICY WM1.6 WWS will continue to use the development review process outlined in the Broward County Land Development Code to require applicants for development permits within the Broward County utility districts to enter into an agreement to connect to existing potable water, sanitary sewer, and reclaimed facilities. When adequate facilities, based on the adopted level of service (LOS) standards, are not available and no fiscally feasible plan to construct or expand facilities is proposed, Broward County may require the developer to construct improvements to the potable water, sanitary sewer, and reclaimed water reuse systems, as necessitated by the proposed development.

BCWWS changes the methodology administratively from time to time as new information becomes available. The following is the current available information.

Table WS8 BCWWS Retail Potable Water Level of Service Standards

Facility	Level of Service Standard
Raw Water Supply	Maximum Day Plus In-Plant Uses
Treatment Plant	Maximum Day
Finished Water Storage	40% of Maximum Day demand to cover operational (10%) and emergency (30%) storage; plus fire protection storage of 630,000 gallons (3,500 gallons per minute for 3 hours)
Transmission/ Distribution System	The most stringent of: Peak Hour at 45 psi residual pressure, or Maximum Day Plus Fire Flow at 25 psi residual pressure

2. City of Fort Lauderdale

The City of Fort Lauderdale has the responsibility to determine if it can adequately serve existing and potential customers. To that end, Fort Lauderdale has adopted their level of service for finished water at 170 gallons per day finished water per person (SFWMD LECWSP, 2018). In 2016, the average day demand throughout their service area was 41.4 MGD. The finished water per capita demand averaged 173 gallons per person per day from 2013 to 2016.

3. City of Hollywood

The City of Hollywood has the responsibility to determine if it can adequately serve the existing and potential customers within their service areas. To that end, Hollywood has adopted a level of service of 116 gallons per day finished water per person (2016). In 2016, the average day demand throughout their service area was 22.79 MGD. The finished water per capita demand averaged 113 gallons per person per day from 2013 to 2016.

D. Water Supply Provided by Local Governments

Water supply provided by local governments is summarized in the sections below.

1. BCWWS District 1:

District 1 has a combined service area of 11.9 square miles with 248 miles of water distribution and transmission mains. BCWWS maintains water system interconnections with the City of Fort Lauderdale, the City of Tamarac, the City of Plantation, and the City of Lauderhill to provide for emergency water supply. In District 1, raw water is treated at the District 1 WTP located in the City of Lauderdale Lakes prior to distribution to retail customers. The plant was expanded in 1994 to its current capacity of 16.0 MGD to treat Biscayne Aquifer raw water using lime softening treatment. Figure WS8 shows the location of the District 1 WTP, storage tanks, and finished water distribution pipe 12-inches and larger within the District 1 service area.

The District 1 wellfield is located in the area surrounding the WTP and is comprised of nine Biscayne Aquifer wells, all of which are currently in service. The total design capacity of the wellfield is approximately 23.5 MGD. Two Floridan Aquifer test wells were completed in 2014; one well is located on the WTP site and one is located in an easement northeast of the WTP. Test results from the Floridan well construction revealed that upper Floridan Aquifer production zone chloride concentrations are approximately 4,000 mg/L and total dissolved solids concentrations are 7,500 mg/L (MWH, 2013). Based on the water quality test results, water produced from the well will likely require high pressure RO treatment. Currently, BCWWS has no plans to build a RO WTP at the District 1 site nor to convert the Floridan test wells to production wells.

BCWWS was issued a SFWMD CUP (No. 06-00146-W) in April 2008 for a 20-year permit duration to withdraw water from the Biscayne Aquifer and Floridan Aquifer. The permit allocates an annual withdrawal from the Biscayne Aquifer of 3,664 million gallons (MG) with a maximum month of 333 MG and an annual withdrawal from the Floridan Aquifer of 1,410 MG with a maximum month of 128 MG. Water use demand projections are presented in Table WS9 below for finished water and Table WS10 for raw water through year 2040. The projected raw water use accounts for 56 percent of the WTP capacity in year 2040.

Table WS9 District 1 Actual and Projected Finished Water Demands

Planning Year	Population (UAZ Estimate)	Finished Water Demands		
		Annual (MG)	Average Day (MGD)	Per Capita Use
Actual Water Use [1]				
2010	75,091	2,596	7.11	95
2011	75,259	2,677	7.33	97
2012	75,427	2,669	7.31	97
2013	75,595	2,606	7.14	94
2014	75,763	2,617	7.17	95
2015	75,931	2,740	7.51	99
2016	76,488	2,681	7.35	96
2017	77,046	2,686	7.36	96
Projected Water Use [2]				
2020	78,718	2,755	7.55	96
2025	84,292	2,950	8.08	96
2030	89,479	3,132	8.58	96
2035	92,895	3,252	8.91	96
2040	95,299	3,336	9.14	96

[1] BCWWS Monthly Operating Reports for Water Treatment Plant Finished Water Flow

[2] Projected Water Use based on Finished Water Per Capita (5-Year Average) of 96 gallons per capita day

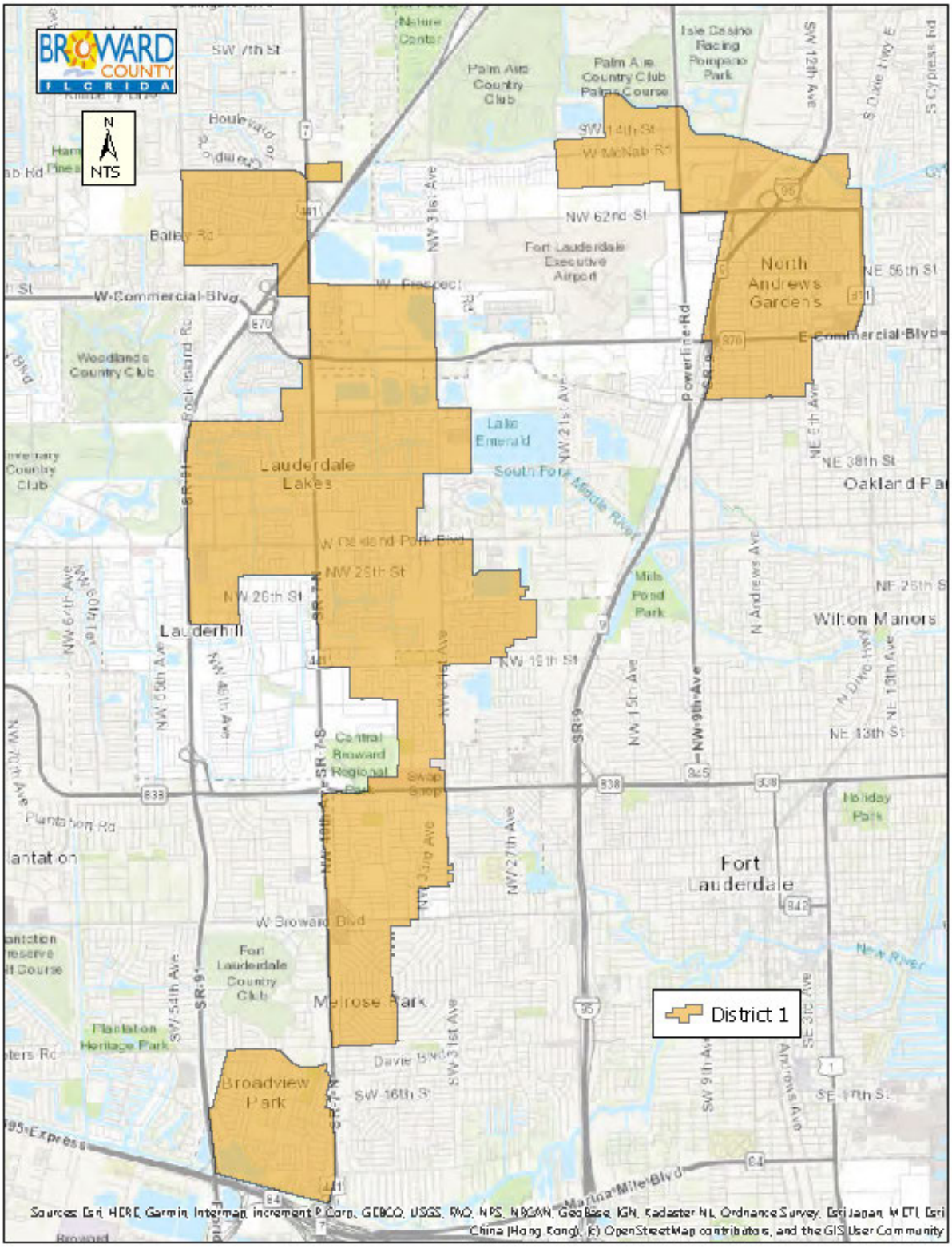

Figure WS8 BCWWS District 1 Service Area

Table WS10 District 1 Actual and Projected Raw Water Demands

Planning Year	Finished Water Annual Demand (MG)	Raw Water Demands			
		Raw : Finished Ratio	Annual (MG)	Average Day (MGD)	Maximum Month (MGM)
Actual Water Use [1]					
2010	2,596	1.08	2,794	7.65	247
2011	2,677	1.13	3,023	8.28	273
2012	2,669	1.10	2,946	8.07	258
2013	2,606	1.09	2,843	7.79	260
2014	2,617	1.06	2,763	7.57	246
2015	2,740	1.05	2,886	7.91	267
2016	2,681	1.06	2,849	7.81	253
2017	2,686	1.05	2,809	7.70	257
Projected Water Use [2, 3]					
2020	2,755	1.05	2,904	7.96	263
2025	2,950	1.05	3,110	8.52	282
2030	3,132	1.05	3,301	9.04	299
2035	3,252	1.05	3,427	9.39	311
2040	3,336	1.05	3,516	9.63	319

[1] BCWWS Monthly Operating Reports for Individual Well Pumpages
[2] Projected Raw Water based on Actual Raw Water to Finished Water Ratio (3-Year Average) of 1.05
[3] Projected Maximum Month based on Actual Maximum Month to Average Day Ratio (5-Year Average) of 33.07

2. BCWWS District 2:

District 2 has a service area of 14.8 square miles and contains 253 miles of water distribution and transmission mains. The facilities of District 2 are interconnected with the City of Deerfield Beach, the Town of Hillsboro Beach, the City of Pompano Beach, and Palm Beach County to provide for emergency water supply. In District 2, raw water is treated at the District 2 WTP located in the City of Pompano Beach prior to distribution to BCWWS retail customers and the City of Coconut Creek. The District 2 WTP was expanded in 1994 to its current capacity of 30.0 MGD to treat Biscayne Aquifer raw water using lime softening treatment. Figure WS9 shows the location of the District 2 WTP, storage tanks, and finished water distribution pipe 12-inches and larger with the District 2 service area.

The District 2 WTP treats raw water supplied by the District 2 and the North Regional Wellfields under SFWMD CUP No. 06-01634-W issued in March 2008 for a 20-year permit duration to withdraw water from the Biscayne and Floridan Aquifers. The District 2 wellfield has a design capacity of 27.1 MGD and is comprised of seven production wells. The North Regional wellfield has a design capacity of 20.2 MGD and is comprised of 10 production wells. The District 2 and North Regional Wellfields

each provide approximately 50 percent of the raw water demand. While Floridan Aquifer production wells were planned as part of the original permit to provide AWS, no wells have been constructed to date. The permit allocates an annual withdrawal from the Biscayne Aquifer of 6,388 million gallons (MG) with a maximum month of 585 MG and an annual withdrawal from the Floridan Aquifer of 1,664 MG with a maximum month of 152 MG. Water use demand projections are presented in Table WS11 for finished water and Table WS12 for raw water through year 2040. The projected raw water use accounts for approximately 49 percent of the WTP capacity in year 2040.

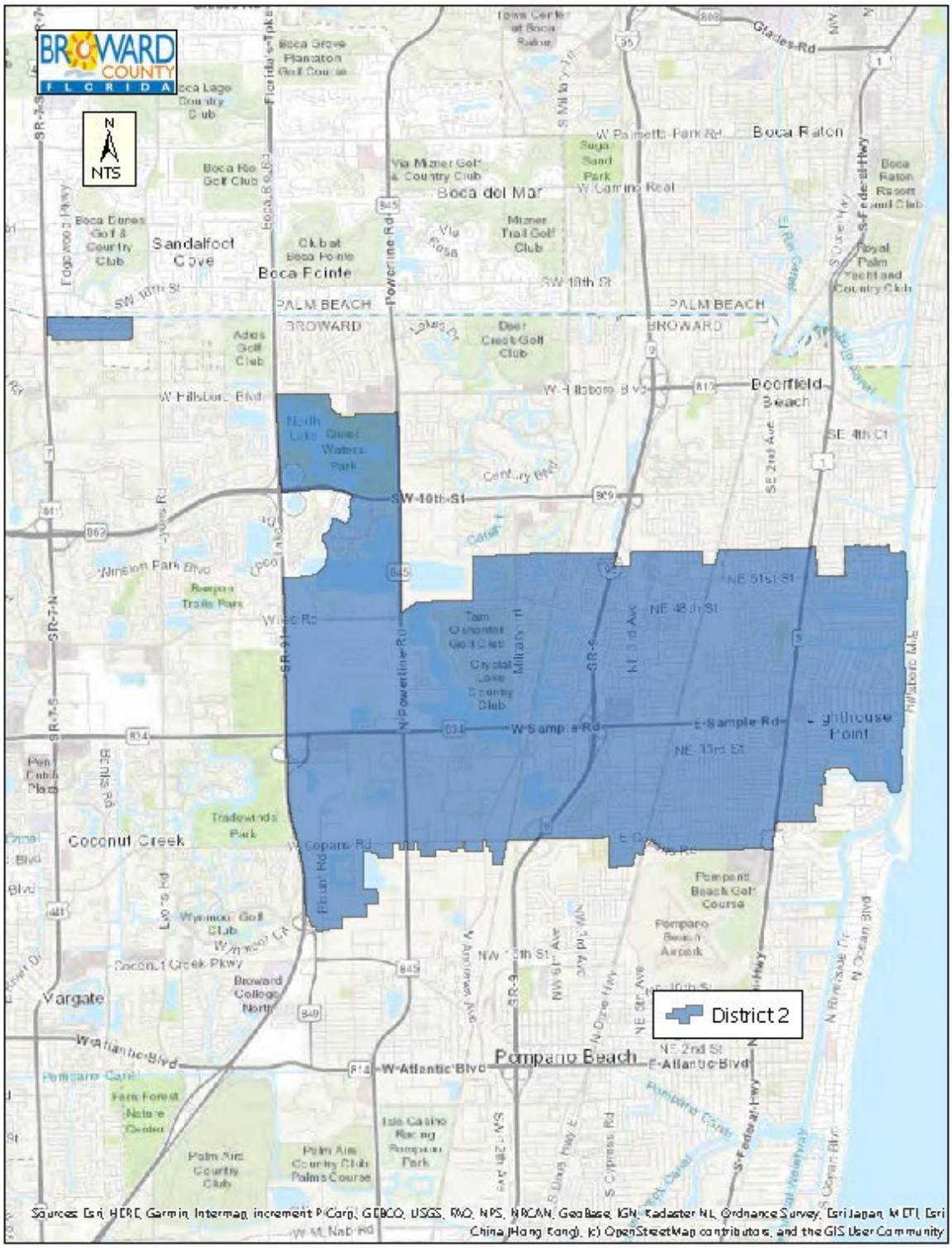

Figure WS9 BCWWS District 2 Service Area

Table WS11 District 2 Actual and Projected Finished Water Demands

Planning Year	Population (UAZ Estimate)	Finished Water Demands		
		Annual (MG)	Average Day (MGD)	Per Capita Use
Actual Water Use [1]				
2010	109,181	4,560	12.49	114
2011	109,400	4,496	12.32	113
2012	109,620	4,326	11.85	108
2013	109,839	4,496	12.32	112
2014	110,059	4,322	11.84	108
2015	110,278	4,599	12.60	114
2016	110,827	4,554	12.48	113
2017	111,376	4,661	12.77	115
Projected Water Use [2]				
2020	113,023	4,630	12.69	112
2025	114,814	4,704	12.89	112
2030	119,226	4,885	13.38	112
2035	121,410	4,974	13.63	112
2040	122,631	5,024	13.76	112

[1] BCWWS Monthly Operating Reports for Water Treatment Plant Finished Water Flow
[2] Projected Water Use based on Finished Water Per Capita (5-Year Average) of 112 gallons per capita day

Table WS12 District 2 Actual and Projected Raw Water Demands

Planning Year	Finished Water Annual Demand (MG)	Raw Water Demands			
		Raw: Finished Ratio	Annual (MG)	Average Day (MGD)	Maximum Month (MGM)
Actual Water Use [1]					
2010	4,560	1.08	4,942	13.54	440
2011	4,496	1.04	4,689	12.85	418
2012	4,326	1.04	4,488	12.30	415
2013	4,496	1.03	4,629	12.68	415
2014	4,322	1.05	4,520	12.38	413
2015	4,599	1.04	4,793	13.13	432
2016	4,554	1.03	4,709	12.90	423
2017	4,661	1.04	4,833	13.24	434
Projected Water Use [2, 3]					
2020	4,630	1.04	4,880	13.37	442
2025	4,704	1.04	4,957	13.58	449
2030	4,885	1.04	5,148	14.10	466
2035	4,974	1.04	5,242	14.36	475
2040	5,024	1.04	5,295	14.51	480

[1] BCWWS Monthly Operating Reports for Individual Well Pumpages inclusive of the Deerfield Beach Raw Water Large User
[2] Projected Raw Water based on Actual Raw Water to Finished Water Ratio (3-Year Average) of 1.04
[3] Projected Maximum Month based on Actual Maximum Month to Average Day Ratio (5-Year Average) of 32.90

3. BCWWS District 3A and 3BC:

District 3 service area is divided into two geographically separate subdistricts 3A, Figure WS10, and 3BC, Figure WS11. The County purchases bulk treated water primarily from the City of Hollywood interconnect and distributes the treated water through the County's distribution system. District 3 has a combined service area of approximately 14.3 square miles and contains 223 miles of transmission and distribution mains. Subdistrict 3A has interconnects with the City of Hollywood, for is primary water supply, and with the City of Fort Lauderdale and the City of Dania Beach, to provide for emergency water supply. Subdistrict 3BC 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.

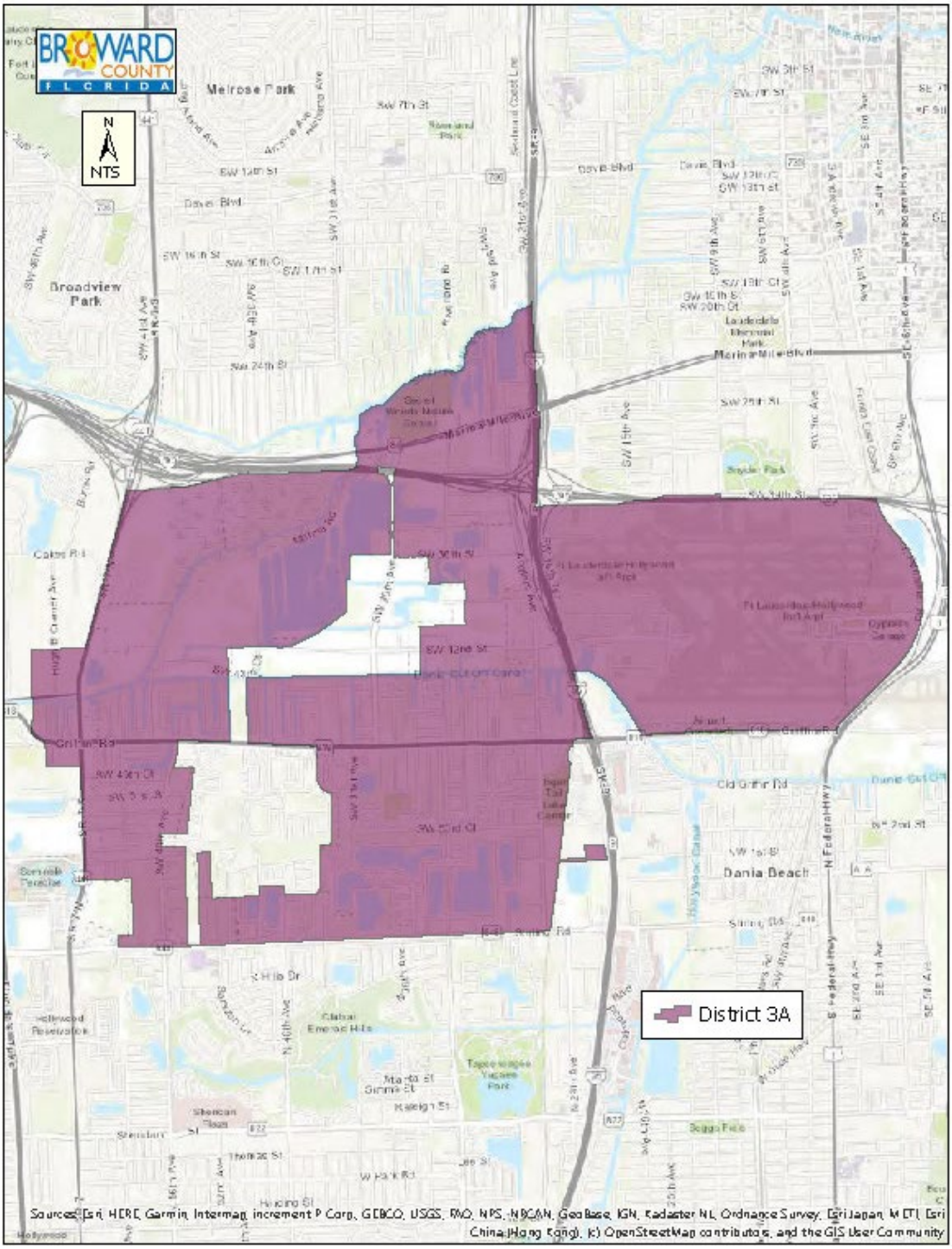

Figure WS10 BCWWS District 3A Service Area

The City of Hollywood is responsible for ensuring adequate raw water supply and treatment facilities to serve the County District 3 service areas. The City's existing CUP (Permit No. 06-00038-W) was issued by the SFWMD on April 9, 2008, and expires April 9, 2028. The Hollywood CUP raw water allocation for

the subdistrict 3A/3BC areas is 13.16 MGD to meet demands through the year 2028.

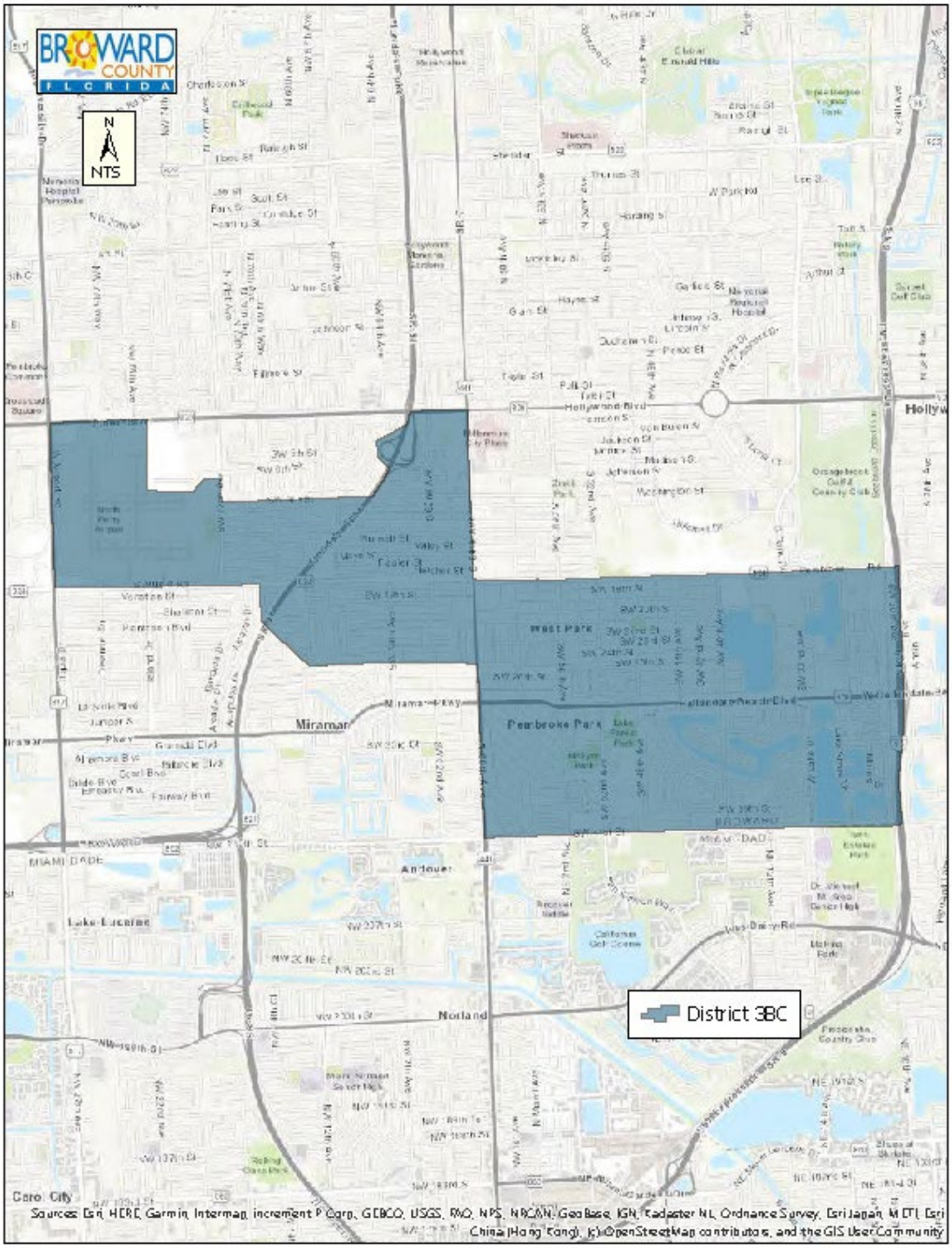

Figure WS11 BCWWS District 3BC Service Area

BCWWS' current finished water demand for District 3 averages around 6.4 MGD and is projected to increase to 8.3 MGD by 2040 as shown Table WS13 below. District 3's raw water demand is anticipated to be around 9.0 MGD in 2045 as shown in Table WS14, based on historical raw to finished water ratio of 1.09. BCWWS continues to coordinate closely with the City to ensure that future demands for District 3 are adequately addressed.

Table WS13 District 3A and 3BC Actual and Projected Finished Water Demands

Planning Year	Population (UAZ Estimate)	Finished Water Demands				
		Annual (MG)	Average Day (MGD)	Per Capita Use	Maximum Month (MGM)	Max Mo : Avg Day Ratio
Actual Water Use [1]						
2010	32,480	2,080	5.70	118	192	33.74
2011	49,158	2,210	6.05	126	196	32.42
2012	50,014	2,230	6.11	122	200	32.79
2013	50,871	2,362	6.47	127	204	31.59
2014	51,727	2,369	6.49	125	221	33.99
2015	52,584	2,490	6.82	130	222	32.51
2016	52,946	2,491	6.82	129	218	31.97
2017	53,308	2,383	6.52	122	212	32.48
Projected Water Use [2, 3]						
2020	54,394	2,523	6.91	127	244	32.51
2025	56,972	2,642	7.24	127	256	32.51
2030	60,221	2,793	7.65	127	270	32.51
2035	62,325	2,891	7.92	127	280	32.51
2040	63,734	2,956	8.09	127	286	32.51

[1] BCWWS Monthly Operating Reports for 3A, 3B and 3C Finished Water Meters
[2] Projected Water Use based on Finished Water Per Capita (5-Year Average) of 127 gallons per capita day
[3] Projected Finished Water Maximum Month based on Actual Finished Maximum Month to Average Day Ratio (5-Year Average) of 32.51

Table WS14 District 3A and 3BC Actual and Projected Raw Water Demands

Planning Year	Finished Water Annual Demand (MG)	Raw Water Demands			
		Raw: Finished Ratio	Annual (MG)	Average Day (MGD)	Maximum Month (MGM)
Actual Water Use [1]					
2010	2,080	1.09	2,267	6.21	210
2011	2,210	1.09	2,409	6.60	214
2012	2,230	1.09	2,431	6.66	218
2013	2,362	1.09	2,575	7.05	223
2014	2,369	1.09	2,582	7.07	240
2015	2,490	1.09	2,714	7.44	242
2016	2,491	1.09	2,715	7.44	238
2017	2,383	1.09	2,599	7.12	231
Projected Water Use [2, 3]					
2020	2,523	1.09	2,743	7.52	244
2025	2,642	1.09	2,873	7.87	256
2030	2,793	1.09	3,037	8.32	270
2035	2,891	1.09	3,143	8.61	280
2040	2,956	1.09	3,214	8.81	286

[1] BCWWS Monthly Operating Reports for 3A, 3B and 3C Finished Water Meters
[2] Projected Raw Water based on SFWMD LECWSP 2018 Update, Appendix B, Table B-4 entry for Hollywood of 1.09
[3] Actual and Projected Raw Water Maximum Month based on Actual Finished Maximum Month to Average Day Ratio (5-Year Average) of 32.51

4. South System Regional Wellfield (SRW):

BCWWS operates the SRW located in Cooper City, west of Pine Island Road, just north of Sheridan Street. The SRW supplies Biscayne Aquifer raw water from eight production wells to the Cities of Dania Beach, Hollywood, and Hallandale Beach and to the Florida Power and Light (FPL) Dania Beach Energy Center under large user agreements. The SRW CUP (06-01474-W) issued March 2018, and successfully modified July 10, 2019, reflects the complexities of providing regional raw water. The CUP allocation is divided into three portions that have individual expiration dates as shown in Table WS15.

Table WS15 SRW CUP Allocation Summary

Limitation	Duration	Average Day (MGD)	Maximum Month (MGM)
Temporary 5-Year Allocation	March 2018 to March 2023	15.64	533.17
Base Condition Allocation [a]	March 2023 to March 2038	11.62	396.13
TOTAL C-51 Offset Allocations[b]	March 2023-December 2065	5.00	170.33
TOTAL SR Wellfield Allocation	March 2023-December 2065[b]	16.62	566.19

[a] The Base Condition Allocation must be renewed every 20 years.

[b] Broward County purchased 3.0 MGD of C-51 Reservoir storage to provide for demands in the BCWWS 3A/3BC service area through December 2065. The City of Dania Beach and the City of Hallandale Beach have purchased 1 MGD each of C-51 Reservoir storage to meet their projected demand with supply from SR Wellfield. Table WS16 summarizes the SRW raw water demands through 2040.

Table WS16 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)
Temporary 5-Year Allocation (March 2018 - March 2023)	3.02	3.61	7.27	1.74	15.64
Base Condition Allocation [a] (March 2018 - March 2038)	1.58	3.26	5.78	1.00	11.62
C-51 Offset Allocations [b] (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 Allotments Under Agreements	1.00	1.00	3.00	---	5.00

[a] Renewal of the Base Condition Allocation of 11.62 MGD is required every 20 years.

[b] Broward County purchased 3.0 MGD of C-51 Reservoir storage to provide for demands in the BCWWS 3A/3BC service area through December 2065. The City of Dania Beach and City of Hallandale Beach have purchased 1 MGD each of C-51 Reservoir storage to meet their projected demand with supply from SR Wellfield.

5. City of Fort Lauderdale

The City of Fort Lauderdale water utility has sufficient Biscayne wellfield capacity and treatment capacity to meet the projected water supply demand in 2040, based on current water sources and treatment technology.

In 1926, the 6 MGD capacity Peele-Dixie lime softening WTP was opened in western Fort Lauderdale. Over the years, the plant has been expanded and modernized, increasing its capacity to 20 MGD. In 2008 the WTP was converted from a lime

softening to membrane facility with a treatment capacity of 12 MGD at 85 percent treatment efficiency. The Fiveash lime softening WTP was built in 1954 to treat 8 MGD. Through a series of expansions, the plant has been able to keep pace with the rapid growth experienced in Fort Lauderdale and today has a designed capacity of 70 MGD. The Fiveash WTP is supplied raw groundwater for treatment from the Prospect Wellfield.

Raw water for the City of Fort Lauderdale is supplied by the Peele-Dixie and Prospect wellfields, which draw from the SAS. The raw water is treated at two water treatment facilities, the Peele-Dixie nanofiltration plant and the Fiveash lime softening plant. There are a total of 37 active wells between the two wellfields and 16 wells in operation at a given time. The Peele-Dixie and Prospect wellfields have a combined pumping capacity of approximately 127 MGD. Wholesale customers receive finished water from the Fiveash WTP.

The City of Fort Lauderdale's CUP (Permit No. 06-00123-W) issued on September 11, 2008, for 20 years, allows the City to pump a combined annual average daily allocation for the two wellfields of 52.55 MGD. In 2016, the combined pumpage from the Peele-Dixie and Prospect wellfields averaged 41.4 MGD (11.15 MGD below the permitted allocation). Although the Peele-Dixie and Fiveash WTPs have a combined design capacity of 82.0 MGD, hydraulic constraints at the Fiveash WTP limit its operating capacity to between 55.0 and 60.0 MGD, Table WS17 below.

The City of Fort Lauderdale maintains a total of 10 water system interconnections with BCWWS District 1 (3), the Cities of Plantation (1), Tamarac (3), and Pompano Beach (1), and Town of Davie (1).

Table WS17 Fort Lauderdale Biscayne and Floridan Aquifer Withdrawal Limits (CUP 06-00123-W)

Category	Withdrawal Limitations		
	Million Gallons per Year	MGM	MGD
Annual Biscayne Aquifer Withdrawal	19,181	---	52.55
Maximum Month Biscayne Aquifer Withdrawal	---	1,857	59.90
Peele-Dixie Wellfield Biscayne Withdrawal	5,475	465.0	15.00
Prospect Wellfield Biscayne Withdrawal	15,853	1,534.5	43.43
	Annual Allocation	Max Month Allocation	
Annual Upper Floridan Aquifer Withdrawal	4573	380	

Fort Lauderdale has adopted its finished water level of service for potable water at 170 GPCD (SFWMD LECWSP, 2018). In 2016, the average per capita demand throughout their service area was 177 GPCD, Table WS18 below.

Table WS18 Fort Lauderdale Water Demand Forecast*

Year	Population	Overall Raw Water Per Capita (GPCD)	Finished Water Per Capita (GPCD)	AADF Biscayne Aquifer Raw Water Demand (MGD)	AADF Finished Water Demand (MGD)	Max Day Finished Water Demand (MGD)
2016	220,018	183	177	41.4	38.94	50.63
2020	224,931	175	173	39.36	38.91	48.14
2025	252,173	175	173	44.13	43.63	53.97
2030	268,024	175	173	46.90	46.37	57.36
2035	278,650	175	173	48.76	48.21	59.64
2040	287,106	175	173	50.24	49.67	61.45

*The City of Fort Lauderdale uses their own projections, which may be different.

E. Conservation

Conservation practices for Broward County and the City of Fort Lauderdale are presented in the sections below.

1. Broward County

Water Use Restriction/Initiatives: As required in Chapter 40E-24, Florida Administrative Code, Broward County has enacted its own irrigation ordinance under Chapter 36, "Water Resources and Management," Article II, "Water Emergencies," Section 36-55 "Restrictions on landscape irrigation, Year-round landscape irrigation measures", of the Broward County Code of Ordinances. This imposes year-round, Countywide landscape 2-day per week irrigation restrictions.

The County's service areas have been under either the SFWMD's mandatory Phase I and/or Phase II water restrictions or under the County's year-round ordinance since 2005. Since then, the overall per capita consumption has dropped in response to a combination of conservation messaging, financial incentives (High Efficiency Toilet rebates), and ordinance restrictions.

BCWWS has developed and implemented a successful strategy to systematically identify and eliminate, where possible, causes of lost water due to inaccurate flow metering and/or leaky pipes. This comprehensive strategy includes regular inspection, calibration and repair/ replacement of meters, and the replacement of

aging infrastructure. These actions have significantly improved water losses by reducing leaks and per capita consumption.

An essential part of the Broward initiatives is the implementation of high efficiency plumbing requirements supported by the Broward County Board of County Commissioners, the Broward League of Cities, and the Broward Water Resources Task Force. Chapter 6, Section 604.4, of the Florida Building Code contains standards for ultra-low volume plumbing fixtures to be used in all new construction and Chapter 9, Section 908.8.1, requires a minimum of 8 cycles of concentration for cooling towers and contains requirements for reuse concentrate of cooling tower makeup water for air handling systems with a 4-ton BTU capacity air handling system or greater as a condition for the receipt of a certificate of occupancy.

Use of Florida-Friendly Landscape Principles: Pursuant to Section 373.228, F.S., Chapter 39, "Zoning," Article VIII, "Landscaping for Protection of Water Quality and Quantity," of the Broward County code of Ordinances, reflects the Florida-Friendly and NatureScape Broward program principles that promote water and energy conservation, while creating a climate resilient landscape. This is in effect for the BMSD areas of Broward County and individual municipalities are adopting as a model landscape code. The Florida-Friendly Landscaping™ program has developed nine principles for sustainable landscapes:

1. Right plant, right place
2. Water efficiently
3. Fertilize appropriately
4. Mulch
5. Attract wildlife
6. Manage yard pests responsibly
7. Recycle yard waste
8. Reduce stormwater runoff
9. Protect the waterfront

Water Conservation-Based Rate Structure: Rate structures that encourage water conservation reward consumers that have low rates of water consumption with the lowest per gallon charge and penalize those showing higher rates of water consumption with a higher per gallon charge. BCWWS adopted a tiered rate structure in 2012 to incentivize water conservation. More information on the rate structure may be found at the web address below:

http://www.broward.org/WaterServices/RatesAndFees/Pages/SingleFamily.aspx

Rain Sensor Overrides for New Lawn Sprinkler System: Broward County's "Landscaping for Protection of Water Quality and Quantity" ordinance is codified in the Broward County Code of Ordinances Sections 39-75 to 39-94. Subsection 39-79(b)(11) includes the requirement for the location and specification of controllers of rain shutoff devices and soil moisture sensors as part of the landscape plan.

Public Information Program: Broward County has several targeted outreach programs for Broward County residents including NatureScape Broward, Water Matters Day, Know the Flow, NIS, and the NatureScape Broward School Board Environmental Partnership Agreement. NatureScape Broward provides educational workshops and training on the need for water conservation, the principles of NatureScape, and assistance in the design of a NatureScape landscape. Residents are encouraged to apply for NatureScape certification following adoption of NatureScape best management practices on their landscapes.

BCWWS has developed a public education program that includes the development and distribution of brochures, educational materials for elementary and high school students, and presentations to homeowner and condominium associations regarding water supply, treatment, and conservation. The utility also supports the Water Matters Program by purchasing and distributing rain gauges at the annual Broward Water Matters Day event.

2. City of Fort Lauderdale

The City of Fort Lauderdale has an active water conservation program, as detailed in the City's CUP, ordinances, and in their 2014 Water Supply Plan Update. In the 2008 CUP Renewal, the City used an aggressive approach to control its water demand by developing a conservation program through several initiatives. The first is the City's current efforts at retrofitting and upgrading significant portions of the water delivery systems, including leak detection. The City anticipates that the percentage of unaccounted for water loss will be reduced as this process is implemented. The second is the passage of an ordinance that the City estimated would meet a 10 percent reduction in the projected demands, compared to historical demands. The final initiative is the continued implementation of existing programs such as: limitation of irrigation hours, ultra-low volume plumbing in new developments, xeriscaping principles, conservation-based rate structure, rain sensor requirements, and the City's water conservation education program. More recently, the city is planning on implementing advanced metering infrastructure system wide to enable two-way communication between utilities and customers through the use of smart meters, communication networks and data management systems. The City

expects to achieve certain quantifiable goals in the implementation of this program and the City will provide data to the SFWMD on the progress of this demand management program. The City estimates this effort will result in an estimated per capita use rate of approximately 170 gallons per day, which was used for calculating the future demands for the service area.

The City also participates in the Broward Countywide Conservation Pays Program, in collaboration with 18 partners, to provide a coordinated regional campaign focused on water conservation and the distribution of rebates and other incentives.

As partners in the NIS with 18 local water utilities, the City annually selects a number of large water users, including government facilities, parks, schools, and homeowner associations, where the greatest potential exists for significant water savings. Tailored irrigation evaluations are performed by the NIS team of certified experts to capture measured water savings. Best management practices that encourage the 'right plant in the right place' and smart irrigation are included in each report to help to promote water conservation messaging that adds to long-term water savings.

Fort Lauderdale is a registered County municipality in the community wildlife habitat program through NatureScape Broward. This program promotes water conservation, water quality protection, and the creation of wildlife habitat through Florida-friendly landscape practices that encourage the prudent use of water resources, and the planting of native, non-invasive, and other drought tolerant plants.

F. REUSE

Section 373.250(1), F.S., states that, "the encouragement and promotion of water conservation and reuse of reclaimed water, as defined by the department, are state objectives and considered to be in the public interest." In addition, Section 403.064(1), F.S., states, "reuse is a critical component of meeting the state's existing and future water supply needs while sustaining natural systems." This section highlights the current levels of reuse within each water supply entities' service area.

1. Broward County

BCWWS operates the Broward County North Regional Wastewater Treatment Plant (WWTP) located in the City of Pompano Beach. The facility has a FDEP-permitted capacity of 95.0 MGD. It provides wastewater services for northern Broward County. In 2018, the annual average daily wastewater flow at the facility was 71.8 MGD.

Wastewater effluent is divided between deep injection well disposal and ocean outfall discharge. Approximately 3.6 MGD of the treated wastewater is reused at the facility or at adjacent facilities for irrigation, process or cooling water. Approximately 0.2 MGD of the reuse generated at the North Regional WWTP is delivered for residential and public access area irrigation. The primary users include Broward County Septage Receiving Facility, Broward County North Regional WWTP, Fedex, Pompano Business Center, Freshpoint Pompano, and Pompano Center.

Based on historic flows to the ocean outfall, the facility is required to reuse 21.45 MGD of treated wastewater by 2025 to comply with the 2008 Ocean Outfall statute (Section 403.086(9), F.S.). BCWWS is promoting collaborative regional water supply strategies to meet the required 60 percent water reuse by 2025. BCWWS has developed a regional reuse master plan and County Ordinance No.2017-05 created mandatory reuse under Chapter 34, Article XI, Reclaimed Water, in the Broward County Code of Ordinances.

Disposal of the treated wastewater is primarily via deep injection wells (44 MGD) and by ocean outfall (24 MGD). However, of the water sent to the ocean outfall, an average 3 MGD was captured by the City of Pompano Beach for further treatment and distribution for irrigation use. The City of Pompano Beach Oasis Reclaimed WTP has a capacity to treat 7.5 MGD of secondarily treated wastewater. Overall, water reuse at the facility and through the City of Pompano Beach accounts for approximately 5 percent of the wastewater treated at the facility.

The County has initiated several reclaimed pipeline projects over the past few years. Northeast of the North Regional WWTP is the City of Pompano Beach, Pompano Highlands neighborhood. BCWWS has installed reclaimed water pipelines as part of a neighborhood improvements program. The reclaimed system is complete, and the City of Pompano Beach has agreed to provide reclaimed water for residential landscape irrigation from the City of Pompano Beach Oasis Reclaimed WTP, which draws secondarily treated effluent for feed water from a North Regional WWTP pipeline. The City of Coconut Creek entered into an interlocal agreement with BCWWS in April 2016 to receive up to initially 1.4 MGD of reclaimed water with a long-term expectation of 3 MGD. Two connections were established to serve Coconut Creek.

BCWWS is proceeding with expansion of the North Regional WWTP Reclaimed System as well as extending a 42-inch diameter reclaimed pipeline to serve beneficial reuse users in both Broward and Palm Beach Counties. The expansion of

the Reclaimed Water Treatment System at the North Regional WWTP is underway and a contract has been let for construction. Pre-construction activities are nearing completion and it is anticipated that construction will commence the first quarter of 2019. The project scope includes approximately 5 miles of 42-inch diameter reclaimed transmission main from the North Regional WWTP to the Palm Beach County line. Approximately 20 MGD of potential reclaimed users have been identified in the, "Broward County Outfall Rule Detailed Plan North Regional Wastewater Treatment Plant Report," prepared by Hazen and Sawyer in 2013. County staff are also pursuing new potential users. The County continues to work towards meeting the requirements of the 2008 Ocean Outfall statute before 2025.

2. City of Fort Lauderdale

The City of fort Lauderdale's George T. Lohmeyer Wastewater Treatment Facility is a central regional facility used to treat wastewater in a region encompassing Port Everglades, the Cities of Fort Lauderdale, Wilton Manors, and Oakland Park and parts of the City of Tamarac, Town of Davie, and BMSD. The facility has an FDEP-permitted capacity of 56.6 MGD and a 2016 annual average daily flow (AADF) of 37.6 MGD. Treated effluent from the facility is disposed through five deep injection wells. The City of Fort Lauderdale continues to consider water reuse and options that can be used to help develop AWS sources.

3. City of Hollywood

The City operates a regional WWTP that is subject to the requirements of the 2008 Ocean Outfall statute. The City is implementing a 10 MGD feasible reuse capacity by the 2025 deadline through credit for existing onsite process reuse, additional reuse application within the City and contracted reuse with other utilities.

SPECIAL RECOMMENDATIONS AND ACTIONS

BCWWS, as a Water Supply Entity, is responsible for the implementation of the water supply development projects identified in the 2018 LECWSP Update, as approved by the SFWMD governing Board, in November 2018. The County projects listed in Chapter 6 and Appendix E of the 2018 LECWSP Update are listed below.

A. Broward County Water Reuse Projects

BCWWS, in compliance with the requirements of the ocean outfall legislation, developed the "Broward County Outfall Rule Detailed Plan North Regional Wastewater Treatment Plant Report", prepared by Hazen and Sawyer in 2013. This plan documents the County's intent to produce an additional 21.45 MGD of reclaimed water. Of the 21.45 MGD reclaimed water production, 19.7 MGD will be produced at North Regional WWTP. (The remaining reclaimed water will be produced through the Pompano Beach filter facility.) BCWWS reclaimed system projects are outlined below.

North Regional WWTP Capacity Improvements: The capacity improvements construction project will consist of a 16 MG reclaimed water filter capacity expansion with high level disinfection and associated pumping facilities for future expansion of the reclaimed water distribution system at the North Regional WWTP. The project will expand the use of reclaimed water for irrigation. The expansion will include a treatment module, pumping, piping and chemical modifications, emergency power, and related site improvements. Construction is anticipated to be complete by 2021 at an estimated cost of $59 million.

North Regional WWTP Reclaimed Water Transmission System: The reclaimed water transmission system for new customers in Palm Beach County will be constructed through an Interlocal Reclaimed Water Agreement between Broward County and Palm Beach County. In this agreement, Broward County is tasked with construction of transmission and treatment facilities to provide approximately 10.5 MGD of reclaimed water to Palm Beach County and 3 MGD to North Springs Improvement District. In addition, potential new users along the transmission corridor in Broward County will be identified for service. The project will expand the use of reclaimed water for irrigation. The project construction is anticipated to be complete by 2021 at an estimated cost of $33 million.

North Regional WWTP Reclaimed Water Transmission System Expansion: Approximately four miles of 24-inch diameter reclaimed water main will be constructed from NW 39th Avenue in Coconut Creek to North Springs Improvement District, to

connect with approximately 4,000 linear feet of reclaimed water main that was constructed as part of the County's Hillsboro Pines Neighborhood Project. The project will expand the use of reclaimed water for irrigation. The project construction is anticipated to be complete by 2021 at an estimated cost of $12 million.

B. C-51 Reservoir Project

BCWWS has associated 3 MGD of their total 6 MGD purchase with their SR Wellfield CUP to offset demands for raw water from their 3A/3BC service area. Construction is scheduled to begin in October 2019 with full operation anticipated by October 2021.

C. Technical Water Resources Assessments

Climate change and sea level rise pose significant threats to regional water supplies. Local impacts are accelerated by increased wellfield pumpage, rising sea level, and aging urban drainage infrastructure, leaving municipalities and water utilities grappling with how to balance the planning needs with the financial challenges.

The County is continuing to partner with USGS to advance the expansion of the Inundation Climate vulnerability model focused on coupled hydrologic impacts of saltwater intrusion, surface and groundwater elevations, and stormwater inundation, using the SWR and URO packages, throughout the entire urban extent of the County.

The County is also using the results of the 2014 FEMA study to calculate Future Conditions 100-year flood elevations that are anticipated to occur in 2070 taking into account sea level rise and more intense rainstorms. The effort includes data collection of recent or previously not included drainage infrastructure, refined model grid and associated LiDAR, land use update, addition of detention storage and ponded drainage routine, model calibration to a recent flooding storm event, and incorporation of future tide levels and a 100-year rainstorm event. It is anticipated the modeling will be completed in the Fall of 2019 and, once approved, will be formalized as the second map of the Future Conditions Map Series.

1. Upper Floridan Aquifer Geotechnical Study

Broward County, in cooperation with USGS, completed the Phase 1 Feasibility Study of the Upper Floridan Aquifer in March 2014. The study has compiled all available well information and commissioned a new well (G-2984) to be drilled, cored, and logged. Using borehole and core sample data (84 wells at 33 sites), the hydrogeologic framework of the Floridan Aquifer system in Eastern Broward County was delineated. This effort helped to construct unique cross-sections and maps representing the stratigraphic and hydrogeologic units of the Floridan Aquifer system in urban Broward County. An additional component of the project was to

complete seismic profiling along approximately 14 miles of the Hillsboro Canal, which resulted in seismic reflection data that were then correlated to the borehole geophysical data (Reese et al., 2014).

The results offer better definition of the stratigraphic and hydrogeologic characteristics of the aquifer, which will improve upon the selection of new well locations or for water storage options, such as ASR. Building on the successful use of seismic profiling in the first study, Phase 2 of this Feasibility Study was commissioned and completed in 2017 (Cunningham et al., 2018). It further refined the hydrogeologic framework and regional extent of information by collecting 80 miles of high-resolution seismic profiles from canals in Broward County along with well logs and cores or cutting from 44 wells. Mapping of the Oldsmar, Avon Park, and Arcadia formations was completed over the 425 square mile study area. In addition, many unconformities that might identify faults that are either near-vertical reverse faults or karst collapse structures throughout the County were identified. Water utilities in these areas may consider further studies around these features when planning project near their vicinities.

D. Broward County Water Partnership

The Broward County Water Partnership is an ongoing High Efficiency Toilet Replacement and Water Conservation Incentives Program. Broward Water and Wastewater Services are media partners in the Countywide Water Conservation Incentives Program, launched in 2011. This program has provided approximately 4,500 high efficiency toilets with an estimated water savings of 450 thousand gallons per day. The program utilizes monthly promotional material, public service announcements, radio adds, etc., to promote a consistent water conservation messaging throughout the partner service areas. This covers almost 80 percent of Broward County. Historically, this program has been supported, in part, through the SFWMD's Water SIP and Cooperative Funding Programs, which have provided $277,000 in matching funds through 2018. Neither of these programs are currently funding the partnership.

Additionally, BCWWS' High Efficiency Toilet Rebate Program has been in existence since 2010 and has offered over $250,000 in billing credits for replacing 2,500 water wasting toilets. This effort is supported by $30,750 of matching funds from the SFWMD. Promotion of this program throughout the BCWWS service area will continue through this next five-year planning period unchanged.

E. NatureScape Irrigation ServiceS

The NIS water conservation program provides irrigation system evaluations for large properties in 20 cities and water districts. The NIS team conducts a test of the irrigation

system and provides comprehensive recommendations for improving overall efficiency - saving water, reducing runoff of pollutants, and keeping canals and water bodies clean in our urban areas. The program has saved more than 1.5 billion gallons of water since 2005. In 2019, the program initiated a new residential incentive program to offer rebates for outdoor irrigation systems updates.

BCWWS CAPITAL IMPROVEMENTS

This section provides a brief description of the BCWWS Capital Improvements Program and Policies for Water Supply.

A. Work Plan Projects

The 2020 Work Plan includes the listing of public and regional water supply projects and programs over the next 10-year period (at a minimum) that may be necessary to serve the BCWWS service area and large users. The following sections include additional information related to the development of traditional and AWS sources, and conservation and reuse initiatives that are being advanced to support water resource and water supply protections.

Broward County, as a Water Supply Entity, is responsible for the implementation of the water supply development projects identified in the 2018 LECWSP Update, as approved by the SFWMD Governing Board in November 2018. BCWWS reviewed the information in the 2018 LECWSP Update pertaining to the AWS projects. BCWWS determined that, because additional water supply above what is currently permitted by the SFWMD is not needed in the next 20-year period, the District 1 and District 2A/North Regional WTP expansion and Floridan Aquifer development projects would be unfunded in the County's Capital Improvement Plan. These projects will be re-evaluated and re-established as funded projects when the need for additional water supply arises.

BCWWS continues to evaluate raw and finished water demands throughout their utility service areas and provide the SFWMD with annual progress reports regarding the status of the AWS projects. Table 19 and Table 20 below summarize the AWS and water conservation projects contained in the 2018 LECWSP Update that are directly related to BCWWS' water supply development. Table CI-F, excerpted from the 2019 Broward County Capital Improvement Plan, is provided below for comparison.

The County projects listed in Chapter 8, Table 8-1, of the 2018 LECWSP Update are described below with an update on the project status.

- District 1A Treatment Plant Expansion and Floridan Aquifer Development. (RO, WTP, Floridan Wells, and a Disposal Well) Two Floridan Test/Production wells were completed in 2014 and found to have a Total Dissolved Solids concentration greater than 7,000 mg/L. The County is re-assessing the potential production capacity and water quality of the Upper Floridan source for ASR use. The District 1A 3 MGD Treatment Plant Expansion project has been unfunded and will be evaluated annually for future funding based on projected water demands.

- District 2A Treatment Plant Expansion and Floridan Aquifer Development. (RO, WTP, Floridan Wells, and a Disposal Well) The addition of 6 MGD of RO treatment, concentrate disposal, development of a Floridan Aquifer source, and raw water transmission piping and pumping facilities project has been unfunded and will be evaluated annually for future funding based on projected water demands.
- C-51 Reservoir Phase 1 – North Regional Wellfield. BCWWS has entered into an agreement for capacity allocation in Phase 1 of the C-51 Reservoir with Palm Beach Aggregates and may, in the future, modify the existing CUP to add 3 MGD of C-51 Reservoir offset water to create more operational flexibility between the District 2A and North Regional Wellfields.
- C-51 Reservoir Phase 1 – South Regional Wellfield. BCWWS has entered into an agreement for capacity allocation in Phase 1 of the C-51 Reservoir with Palm Beach Aggregates and has a CUP allocation for 3 MGD of C-51 Reservoir offset water to offset the SR Wellfield raw water demands for the 3A/3BC service area. The C-51 Reservoir is scheduled to begin construction in September 2019 and be operational by October 2021.
- Broward Water Conservation Programs. The conservation programs detailed in the previous sections have a water savings goal of reducing the per capita consumption by 10 gallons per day by 2029, as established in the 2019 IWRP update.

Table WS19 Proposed Potable and Non-Potable Public Water Supply Development Projects Listed in SFWMD 2018 LECWSP Update

Implementing Entity	Project Name	Project Description	Project Capacity (MGD)	Total Capital ($M)	Estm. Date Complete
POTABLE - FLORIDAN AQUIFER SYSTEM					
BCWWS	District 1 Water Supply Improvement Alternatives	Construct Floridan Aquifer System water supply wells, connecting raw water transmission main, and RO treatment facility	3.00	5.6	2025
BCWWS	District 2 Water Treatment Plant Expansion	Construct Floridan Aquifer System water supply wells, connecting raw water transmission main, and RO treatment facility	6.00	33.3	2026
Fort Lauderdale	Dixie Floridan Aquifer System Water Supply/Treatment Facility	Expansion of the Peele-Dixie nanofiltration Water Treatment Plant to include RO treatment	6.00	22.9	2030
Hollywood	RO Train E	Installation of new RO train	2.00	2.0	2030
Hollywood	Floridan Aquifer System Wells F14 and F15	Construction of 2 Floridan Aquifer System wells	4.00	3.0	2034
NONPOTABLE - STORAGE/ASR					
BCWWS	South Regional Wellfield C-51 Reservoir Phase 1 Recharge Offset	BCWWS and PBA agreement for capacity allocation in C-51 Reservoir Phase 1 for BCWWS South Regional Wellfield (Authorized under Current CUP)	3.00	13.8	2020
BCWWS	District 2/ North Regional Wellfield C-51 Reservoir Phase 1 Recharge Offset	BCWWS and PBA agreement for capacity allocation in C-51 Reservoir Phase 1 for BCWWS North Regional Wellfield (not yet under CUP)	3.00	13.8	2026
Dania Beach	BCWWS South Regional Wellfield C-51 Reservoir Phase 1 Recharge Offset	Dania Beach and PBA agreement for capacity allocation in C-51 Reservoir Phase 1 for BCWWS South Regional Wellfield (Authorized under Current CUP)	1.00	4.6	2023
Hallandale Beach	BCWWS South Regional Wellfield C-51 Reservoir Phase 1 Recharge Offset	Hallandale Beach and PBA agreement for capacity allocation in C-51 Reservoir Phase 1 for BCWWS South Regional Wellfield (Authorized under Current CUP)	1.00	4.6	2023

Table WS20 Water Conservation Projects Listed in SFWMD 2018 LECWSP Update

Project Name	Entity Name	Project Type	Fiscal Year	Proposed Water Savings (MGY)
USEPA WaterSense HET Replacement/ Credit Program	Broward County Board of County Commissioners	Indoor Plumbing	2013 – 2017	18.3
HET Rebate Program	Broward Water Partnership	Indoor Plumbing	2013 – 2017	42.2
NatureScape Irrigation Services Smart Irrigation Tech. Retrofit Program	Broward Water Partnership	Irrigation	2015 - 2017	66.8

B. Capital Improvements Element (CIE) /Schedule

The purpose of the CIE is to evaluate the need for public facilities as identified in other Comprehensive Plan elements. The CIE also includes: cost estimates for improvements for which the County has fiscal responsibility; an analysis of the fiscal capacity of the County to finance and construct improvements; and financial policies to guide the funding of improvements to address needs identified in other Comprehensive Plan elements. The CIE also ensures that an adequate concurrency management system is implemented by the County pursuant to Section 163.3180, F.S. The CIE shows how infrastructure needs identified in other elements of the Comprehensive Plan will be funded. The Element contains a list of the various improvement projects for public infrastructure that are scheduled in the next five years, including the Transportation Improvement Program (TIP), potable water, sanitary sewer, drainage, recreation, aviation, Port Everglades, beach renourishment, transit, community development, and public school facilities.

The focus of the CIE Policies is to:

- Evaluate and proactively plan for the County's infrastructure needs
- Plan and implement adaptation strategies for short and long-term climate change events and impacts
- Implement and regulate infrastructure in a sustainable manner
- Monitor feasibility of construction of improvements
- Coordinate and collaborate with state, regional and local agencies and governments on infrastructure funding strategies

BCWWS planning is conducted on a 10-year cycle to identify system improvements necessary to accommodate future growth and to address regulatory changes. Comprehensive planning efforts were first initiated in 1988 with the "Water and Wastewater Master Plan", which was revised in 2004. The Plan addressed the need for facility improvements based upon anticipated build-out conditions in each of the BCWWS service

areas over a 20-year planning horizon. The Alternative Water Supply and the Effluent Disposal and Reclaimed Water master plans were completed in 2010. The plans identify treatment plant improvements and/or expansions needed to accommodate the projected population and new regulatory requirements. The Retail Facilities Master Plan was completed in 2016 to analyze retail distribution and collection network improvements the through year 2040. A Regional Wastewater System Master Plan effort is scheduled to begin in July 2019. Broward County CIP incorporates the various master plan recommendations. Projects are funded through BCWWS revenue bonds and pay-as-you-go funding supported with user fees.

The Capital Improvements Element Table CI-F for Water and Wastewater Capital is provided below.

Table CI-F Water and Wastewater Capital

Table CI-F
WATER AND WASTEWATER CAPITAL

	FY19	FY20	FY21	FY22	FY23
REVENUES					
User Fees	33,000,000	37,598,090	37,932,580	36,947,580	19,763,580
Capital Recovery Charges	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000
Future Bond Proceeds	86,589,200	45,000,000	9,000,000	65,000,000	0
TOTAL REVENUES	$121,589,200	$84,598,090	$48,932,580	$103,947,580	$21,763,580
APPROPRIATIONS					
Retail Water & Wastewater					
Generic Administrative Campus Facilities Replacement	400,000	0	0	0	0
Capital Project Support	973,370	1,078,480	1,078,480	1,078,480	1,078,480
Generic Developer Agreement Funding	300,000	300,000	300,000	300,000	300,000
Automatic Meter Reading Technology	100,000	0	0	0	0
District 2A & North Regional Wellfield Expansion	0	350,000	850,000	0	0
District 2 Septic Tank Elimination - Area 2-F	0	3,000,000	0	0	0
District 2 Septic Tank Elimination Area 2-G	20,010	0	0	0	0
District 3A Septic Tank Elimination - Area 3A-N	1,909,000	0	0	0	0
District 3A Septic Tank Elimination - Area 3A-O	0	0	1,800,000	0	7,000,000
District 3A Septic Tank Elimination - Area 3A-Y	0	0	1,030,000	0	4,000,000
District 3A Collection System Model 300	4,270	0	0	0	0
District 3BC Septic Tank Elimination	2,589,240	2,300,000	0	23,700,000	0
Generic Facilities Rehabilitation	300,000	400,000	300,000	300,000	300,000
Generic Utility Locating and GIS Mapping	350,000	350,000	350,000	300,000	300,000
Facility Chlorination System 3B	359,340	0	0	0	0
Tier 4 EPA Generator Compliance	109,460	0	0	0	0
Hillsboro Mile Wastewater System Improvements	2,313,850	0	0	0	0
Incident Command Center HVAC Replacement	151,000	0	0	0	0
Davis Isles New Sewers and Water Main Replacement	0	2,220,000	0	0	0
Lift Station 30E & 50K2 Relocation	251,160	0	0	0	0

WATER AND WASTEWATER CAPITAL

	FY19	FY20	FY21	FY22	FY23
Generic Lift Station Rehabilitation	2,800,000	2,550,000	2,300,000	2,300,000	2,300,000
Master Pump Station 220 Rehabilitation	27,460	598,830	0	0	0
Lift Station 300 Emergency Generator	0	60,000	500,000	0	0
Lift Station 222 Generator & Odor Control	500,000	0	0	0	0
UAZ** 362 & 363 Water Main Replacement	801,080	0	0	0	0
Generic Multi-District Inflow/Infiltration Reduction Program	1,500,000	1,000,000	1,000,000	1,000,000	1,000,000
Reclaimed Water Transmission System Expansion	1,000,010	0	0	0	0
Ravenswood Road 12" WM & 16" FM Crossing	40,000	0	0	0	0
Generic Septic Tank Elimination Program	3,000,000	3,000,000	3,000,000	1,300,000	1,300,000
Generic Short Line Extensions & Relocations	1,000,000	750,000	750,000	750,000	750,000
Sludge Handling System Improvement WTP 1A & 2A	0	100,000	0	0	0
UAZ** 108 Water/Sewer Pipe Improvements	1,524,090	16,000,000	1,724,000	0	0
UAZ** 110/111 Water/ Sewer Pipe Improvements	17,860,000	0	0	0	0
UAZ** 113 Water/Sewer Pipe Improvements	0	15,700,000	0	0	0
UAZ** 122/123 Water/ Sewer Pipe Improvements	200,000	18,750,000	0	0	0
UAZ** 362 & 363 Water Services	125,000	1,425,000	0	0	0
Water Storage Tank 1A2	0	5,580	0	0	0
Water Storage Tank 2A	2,800,600	0	0	0	0
3A Facility High Service Pump Replacement	475,000	0	0	0	0
1A & 2A WTP Switchgear Replacement	0	0	15,695,000	0	0
3B & 3C 4-log Inactivation	133,100	5,105,100	0	0	0
Water System Improvements 3C	1,320,000	1,320,000	1,320,000	12,430,000	0
1A & 2A Treatment Units Rehabilitation	800,000	0	0	0	0
WWS Building 2 and Warehouse Improvements	250,000	0	0	0	0
Water Treatment Plant Expansion 2A	0	0	0	500,000	0
Subtotal	46,287,040	76,362,990	31,997,480	43,958,480	18,328,480

WATER AND WASTEWATER CAPITAL

	FY19	FY20	FY21	FY22	FY23
Regional Treatment					
Capital Project Support	1,505,880	1,668,810	1,668,810	1,668,810	1,668,810
NRWWTP* Capacity Improvement	183,400	0	0	0	0
NRWWTP* Reclaimed Transmission System	6,000,000	0	0	0	0
NRWWTP* - Bulk Sodium Hypochlorite Facility	0	500,000	0	0	0
NRWWTP* Effluent Outfall Pump Station	100,000	3,500,000	0	38,500,000	0
NRWWTP* - Facilities Improvements	53,687,000	0	0	0	0
NRWWTP* Modules A, B, and D Fine Bubble Conversion	5,240,640	0	0	0	0
Generic NRWWTP* Rehabilitation	800,000	800,000	800,000	800,000	800,000
Regional Master Meter Improvements	4,600	0	0	0	0
Subtotal	67,521,520	6,468,810	2,468,810	40,968,810	2,468,810
Regional Transmission					
Capital Project Support	420,750	466,290	466,290	466,290	466,290
Master Pump Station 450 Improvements	287,360	0	0	0	0
Master Pump Station 224 Force Main Replacements	3,300,000	0	0	0	0
Wastewater Meter M-471 Replacement	619,990	0	0	0	0
NRWWTP* Secondary Effluent Pump Station	0	800,000	0	18,054,000	0
Master Pump Stations 452, 458, & 462 Rehabilitation	2,400,000	0	13,500,000	0	0
Master Pump Station Controls Upgrade	2,540	0	0	0	0
Generic Master Pump Stations Rehabilitation	500,000	500,000	500,000	500,000	500,000
Regional Transmission System Master Plan	250,000	0	0	0	0
Subtotal	7,780,640	1,766,290	14,466,290	19,020,290	966,290
TOTAL APPROPRIATIONS	121,589,200	84,598,090	48,932,580	103,947,580	21,763,580

*NRWWTP - North Regional Wastewater Treatment Plant
**UAZ - Utility Analysis Zone

GOALS, OBJECTIVES AND POLICIES

Existing goals, objectives, and policies (GOPs) of the recently adopted BrowardNEXT2.0 Comprehensive Plan (2019) were reviewed to determine if any updates would be needed to meet new and existing statutory requirements, as well as for consistency with the 2020 Work Plan. The following issues were considered:

- Implementation of the work plan
    - Policies implementing the work plan by incorporating the work plan into the Comprehensive Plan or adopting the work plan by reference
- When adopting the work plan by reference, the policy must identify the title and author of the document and clearly indicate what provisions and edition of the document are being incorporated [Section 163.3177(1)(b), F.S.]
- Concurrency provisions for water supply availability
- Water conservation programs and activities specific to the local government
- AWS projects
- Local governments must incorporate into the Sanitary Sewer, Solid Waste, Drainage, Potable Water, and Natural Groundwater Aquifer Recharge element AWS project(s) selected from the those identified in the applicable regional water supply plan, pursuant to Section 373.709(2)(a), F.S., or proposed by a local government under Section 373.709(8)(b), F.S. [Section 163.3177(6)(c)(3), F.S.]
- Reclaimed water programs
- Level of service standards specific to the local government
    - Update and/or review the level of service standards. The level of service standards need to be consistent throughout the Comprehensive Plan and work plan
- Population projections
- Update and/or review the population projections. The projections should be consistent throughout the Comprehensive Plan and work plan update. If they are not consistent, explain why
- Water supply/source needs and demands
- Intergovernmental coordination with the SFWMD, water suppliers, and other local governments, including areas that cross jurisdictional boundaries. Identify any joint planning areas and joint infrastructure service areas related to water supply
- Incorporation of the work plan into the Comprehensive Plan
- Incorporation of another local government's or water supplier's work plan into the Comprehensive Plan
- Sector Plan coordination and implementation

The BrowardNEXT 2.0 Comprehensive Plan Elements already includes several GOPs that support the County's Water Supply Facilities Work Plan and the requirements of Chapters 163 and 373, F.S. The supporting GOPs can be found within the following elements:

- Capital Improvements (CI)
- Climate Change (CC)
- Conservation (C)
- Coastal Management (CM)
- Intergovernmental Coordination (IC)
- Water Management (WM)

More specifically, the selected GOPs reflect the County's commitment to water supply planning and water resource protections and are inclusive of any recommended changes that will be made. The GOPs listed below are organized by issue topic, as discussed above.

Issue #1 – Implementation of the Work Plan

OBJECTIVE WM1 – Water and Wastewater Services
Broward County's Water and Wastewater Services (WWS) will provide raw water, potable water, sanitary sewer, surface water, and storm water management services within the agency's designated service areas that are cost-effective, equitable, adequate, and sustainable, while meeting applicable federal, state, and local design, construction, and operational standards and regulations.

POLICY WM1.1 WWS will provide potable water and sanitary sewer to current and future customers of the WWS systems using cost-effective, equitable, and adequate potable water, and sanitary sewer infrastructure and facilities that meet applicable federal, state, and local standards.

POLICY WM1.2 WWS will maintain funding for systems improvements identified in the Broward County Capital Improvements Program (CIP) to alleviate potable water and sanitary sewer deficiencies within its service area.

POLICY WM2.1 Within eighteen (18) months of the adoption of an update to the SFWMD LECWSP, utilities located within Broward County will update and adopt their 10-Year Water Supply Facilities Work Plans, pursuant to Chapters 163 and 373 of the Florida Statutes, to incorporate the Regional Alternative Supply Plan and to evaluate water resource needs, identify water supply deficiencies, and plan for alternative water supply sources and projects to serve existing and new development within the County.

Issue #2 - Concurrency for Water Supply Availability

POLICY BMSD 1.1.5 Future land uses shall be coordinated with the availability of public facilities and services.

OBJECTIVE BMSD 1.2 – Future Land Use Map Amendments

Proposed amendments to the BMSD Future Land Use Map shall be evaluated based on the availability of public facilities and services, site suitability, compatibility with surrounding uses, complete streets, transportation infrastructure, affordable housing, and potential impacts on natural resources.

POLICY BMSD 1.2.1 Future land use amendments shall include the minimum amount of land needed to ensure:

1. Adequate facilities and services are available to support the uses
2. The site is suitable for the proposed use
3. Mobility options of the site are suitable for the proposed use and are designed using Complete Streets Principles outlined in the Transportation Element
4. Urban Sprawl is discouraged
5. Sufficient affordable housing is provided to meet the needs of the area
6. The proposed use is compatible with surrounding uses

POLICY BMSD 1.2.2 Availability and capacity of the following public facilities and services shall be considered:

1. Potable water
2. Sanitary sewer
3. Solid waste
4. Roads, sidewalks, and bicycle facilities
5. Public transit
6. Drainage
7. Parks and recreation facilities
8. Hurricane shelters and evacuation routes
9. Public Schools

OBJECTIVE CI1 – Evaluate and Proactively Plan for the County's Infrastructure Needs. The Capital Improvements Element (CIE) will be reviewed and updated annually to reflect the County's budget process to ensure it includes the resources and improvements required to address present infrastructure deficiencies and future infrastructure needs, as discussed in other Elements of this Comprehensive Plan. These deficiencies and needs are addressed in the Capital Improvements Program (CIP) on Tables CI-A through CI-N.

POLICY CI1.1 Capital projects will be evaluated using the following criteria:

1. Elimination of hazards that impact public health and safety,
2. Promotion of efficient development and prevention of urban sprawl,
3. Level of impact on operating budget,
4. Protection of prior infrastructure investments,
5. Consistency with County plans and the plans of other agencies,
6. Elimination of existing deficiencies,
7. Maintenance of adopted levels of service (LOS),
8. Availability of funds and reflection of sound fiscal policies,
9. Implementation of County Commission adopted goals,
10. Climate resilience.

POLICY CI1.2 Continue implementation of approved master plans as outlined within the Transportation, Water Management, Solid Waste, Public Schools Facilities, Airport, and other Comprehensive Plan Elements.

POLICY CI1.8 Continue to allocate funds for the replacement and renewal of infrastructure in an amount which will minimize operating costs and maximize the life of the infrastructure.

POLICY CC2.7 Broward County shall update the assessment of public investments and infrastructure at risk from sea level rise and other climate change related impacts every 5 years. Specifically, the County shall analyze vulnerability to facilities and services, including but not limited to: buildings; water and wastewater treatment plants, transmission lines and pumping stations; storm water systems; roads, rail, bridges, and all transportation and transit infrastructure; power generation facilities and power transmission infrastructure; critical airport and seaport infrastructure; hospitals; city halls; and police and fire stations.

POLICY WM2.8 Broward County will identify water infrastructure at risk from unified sea level rise projections of 9 to 26 inches (timeframe of 2010 to 2060) and other climate change related impacts by 2025 and update this assessment every 5 years.

Issue #3 - Water Conservation Programs

POLICY CC3.8 Broward County, in conjunction with its municipalities, shall promote species diversity, the planting of native and drought-tolerant landscapes, and sustainable urban forestry practices in order to protect the health and resiliency of our natural resources to the impacts of climate change.

POLICY CC3.9 Broward County shall continue to implement the NatureScape Broward program and encourage the use of native and non-invasive, subtropical, and rare native plants

in the urban landscape in order to promote water and energy conservation while creating a climate resilient landscape. Furthermore, these plants should be salt, wind, and drought tolerant, where appropriate, and maintained consistent with NatureScape Broward and Florida-Friendly Landscaping Best Management Practices.

POLICY CC5.9 Broward County, through the Master Partnership Agreement with the School Board of Broward County, shall continue to support existing County and municipal education and outreach programs including, but not limited to: energy efficiency and water conservation; waste reduction and recycling; urban forests and native landscaping; and air quality and GHG reduction. The County will also support education and outreach programs on other sustainable issues and work cooperatively to link these overlapping themes with local climate impacts in all educational materials and messages.

POLICY WM1.8 WWS will continue to implement a leak detection program, conservation-oriented utility service rate structure, and other conservation measures required by Broward County ordinance.

POLICY WM1.9 WWS will maintain comprehensive water use profiles for service area customers including customer class, utility rate profiles, water usage patterns, and seasonal variations to increase the effectiveness of conservation efforts by focusing methods on those elements with the greatest water savings potential. WWS will reference the water use profile to expand and/or implement programs that promote conservation of water resources such as toilet rebates and water use analyses.

POLICY WM2.2 In order to protect and conserve the Surficial Aquifer System and limit demands on the regional water management system, the Broward County Environmental Protection and Growth Management Department (EPGMD) will continue to investigate and promote the development of alternative water supply strategies such as: 1. Continued promotion of water conservation; 2. Brackish water aquifer development; 3. Storm water capture, storage, and reuse; 4. Aquifer recharge; 5. Aquifer Storage and Recovery (ASR); 6. Reclaimed water use; 7. Improvements to the secondary canal infrastructure; 8. Additional regional surface water storage; and 9. Other technologies and management strategies consistent with the goals of the most recently adopted LECWSP Update and Broward IWRP.

POLICY WM3.27 Broward County will advocate for water conservation measures in building practices and will implement programs to support plumbing retrofits, toilet rebates, Florida-friendly landscaping and Florida Yards and Neighborhoods best management practices (BMPs), and water conservation education.

POLICY WM3.32 Broward County will protect aquifers from depletion through water conservation and preservation of the functions of high recharge areas including, but not limited to, the water conservation areas and water preserve areas.

POLICY WM3.33 Broward County will continue to enforce Chapter 39, "Zoning," Article VIII, "Landscaping for Protection of Water Quality and Quantity," of the Broward County Code of Ordinances, which reflects the NatureScape Broward program principles that promote the use of native and Florida Friendly landscaping and the preservation of native habitats in support of sustainable urban landscapes and the conservation of water resources.

POLICY WM4.8 Broward County will coordinate with Broward County entities, FDEP, and EPA in the implementation of Florida's Ocean Outfall Law requirements, per Section 403.086, Florida Statutes, and support and promote collaborative regional and sub-regional water resource and supply strategies, water resource development, conservation, and reclaimed water projects that provide economies of scale and regional benefits, with special emphasis on those areas that currently contribute to the volume of wastewater being discharged through open ocean outfalls, with the goal of achieving 60% reuse of water currently discharged via outfalls by the year 2025.

POLICY WM4.17 Broward County, in partnership with local municipalities and water and wastewater entities, will continue to develop and implement programming for Countywide water conservation and initiatives, including the Conservation Pays Program, Water Matters education and outreach programs, NatureScape Broward, and the NatureScape Irrigation Services, to promote water and energy conservation.

Issue #4 - Alternative Water Supply Projects

POLICY WM1.4 WWS shall identify and plan for development of alternative water supplies by the year 2025 sufficient to meet public water supply needs through the year 2040.

POLICY WM2.1 Within eighteen (18) months of the adoption of an update to the SFWMD LECWSP, utilities located within Broward County will update and adopt their 10-Year Water Supply Facilities Work Plans, pursuant to Chapters 163 and 373 of the Florida Statutes, to incorporate the Regional Alternative Supply Plan and to evaluate water resource needs, identify water supply deficiencies, and plan for alternative water supply sources and projects to serve existing and new development within the County.

POLICY WM2.2 In order to protect and conserve the Surficial Aquifer System and limit demands on the regional water management system, the Broward County Environmental Protection and Growth Management Department (EPGMD) will continue to investigate and promote the development of alternative water supply strategies such as: 1. Continued promotion of water

conservation; 2. Brackish water aquifer development; 3. Storm water capture, storage, and reuse; 4. Aquifer recharge; 5. Aquifer Storage and Recovery (ASR); 6. Reclaimed water use; 7. Improvements to the secondary canal infrastructure; 8. Additional regional surface water storage; and 9. Other technologies and management strategies consistent with the goals of the most recently adopted LECWSP Update and IWRP.

POLICY WM3.25 Broward County will encourage the use of reclaimed water as an integral part of its wastewater management program and evaluate the costs and benefits of adaptation alternatives to increase efficiency and optimize the capacity of existing reclaimed water facilities where economically, environmentally, and technically feasible.

POLICY WM3.26 Broward County will continue public education, coordination, and program support for the expansion of beneficial use of reclaimed water, while encouraging regional reuse projects.

POLICY WM4.7 Broward County will coordinate regionally to advance the use of the IWRP and Regional Reuse Master Plan tools to increase flood protection, water quality treatment, water supply sources, storm water storage, wetland sustainability, ground water recharge, use of reclaimed water for irrigation, aquifer recharge, and environmental enhancement, where technically, environmentally, and economically feasible, to protect water resources and develop climate resilience.

POLICY WM4.8 Broward County will coordinate with Broward County entities, FDEP, and EPA in the implementation of Florida's Ocean Outfall Law requirements,¬ per Section 403.086, Florida Statutes, and support and promote collaborative regional and sub-regional water resource and supply strategies, water resource development, conservation, and reclaimed water projects that provide economies of scale and regional benefits, with special emphasis on those areas that currently contribute to the volume of wastewater being discharged through open ocean outfalls, with the goal of achieving 60% reuse of water currently discharged via outfalls by the year 2025.

Issue #5 - Reclaimed water programs

POLICY CC2.17 Broward County should develop, in conjunction with local municipalities and businesses, a sustainable and energy-efficient materials economy through cooperative materials management systems and infrastructure, in order to maximize the recovery and reuse of waste, water, wastewater, and other materials in ways that capture their economic value, conserve embedded energy, and minimize net life-cycle emissions of GHG and other pollutants.

GOAL WATER MANAGEMENT

Broward County will manage its water resources and infrastructure using a collaborative, equitable, and cost-effective integrated approach that optimizes potable water supplies, wastewater, reclaimed water, storm water, existing infrastructure, and natural systems to meet the short- and long-term needs of the County's residents, businesses, visitors, tribal communities, and the environment while addressing water management challenges associated with climate change.

POLICY WM1.6 WWS will continue to use the development review process outlined in the Broward County Land Development Code to require applicants for development permits within the Broward County utility districts to enter into an agreement to connect to existing potable water, sanitary sewer, and reclaimed facilities. When adequate facilities, based on the adopted level of service (LOS) standards, are not available and no fiscally feasible plan to construct or expand facilities is proposed, Broward County may require the developer to construct improvements to the potable water, sanitary sewer, and reclaimed water reuse systems, as necessitated by the proposed development.

POLICY WM1.11 WWS will encourage the coordination and development of North Regional Wastewater Treatment Plant regional reclaimed water projects in accordance with Florida's Ocean Outfall Law requirements, Section 403.086, F.S.

POLICY WM2.2 In order to protect and conserve the Surficial Aquifer System and limit demands on the regional water management system, the Broward County Environmental Protection and Growth Management Department (EPGMD) will continue to investigate and promote the development of alternative water supply strategies such as:

1. Continued promotion of water conservation;
2. Brackish water aquifer development;
3. Storm water capture, storage, and reuse;
4. Aquifer recharge;
5. Aquifer Storage and Recovery (ASR);
6. Reclaimed water use;
7. Improvements to the secondary canal infrastructure;
8. Additional regional surface water storage; and
9. Other technologies and management strategies consistent with the goals of the most recently adopted LECWSP Update and Countywide IWRP.

Issue #6 - Level of service standards

OBJECTIVE CI3 – Implement and Regulate Infrastructure in a Sustainable Manner. Land use decisions and development orders will be issued based on the planned availability of resources to provide sufficient improvements to maintain adopted LOS.

POLICY CI3.1 Future development will bear a proportionate share of the cost of providing infrastructure required to maintain adopted LOS standards contained in other elements of this Comprehensive Plan.

POLICY CI3.2 Recommendations on proposed land use changes will be based on an analysis of infrastructure planned to support the area.

POLICY CI3.3 Development orders will be issued based on the availability of infrastructure required to maintain the adopted LOS discussed in other elements of this Comprehensive Plan.

POLICY CI3.5 Public facilities required to eliminate existing deficiencies for which the County is financially responsible will be included in the County's annually adopted five-year CIP.

POLICY CI3.6 The County will construct infrastructure necessary to maintain the adopted LOS standards as identified in the respective elements of the Broward County Comprehensive Plan.

POLICY WM1.6 WWS will continue to use the development review process outlined in the Broward County Land Development Code to require applicants for development permits within the Broward County utility districts to enter into an agreement to connect to existing potable water, sanitary sewer, and reclaimed facilities. When adequate facilities, based on the adopted LOS standards, are not available and no fiscally feasible plan to construct or expand facilities is proposed, Broward County may require the developer to construct improvements to the potable water, sanitary sewer, and reclaimed water reuse systems, as necessitated by the proposed development.

POLICY WM3.1 LOS standards for potable water and sanitary sewer facilities will be the FDEP permitted capacity of the facilities. The LOS standard for water treatment plants will be expressed as maximum monthly flow and the LOS standard for wastewater treatment plants will be expressed as average daily flow.

POLICY WM3.2 Prior to approval of a building permit, Broward County Environmental Engineering and Permitting Division (EEPD) will require the appropriate water and sanitary sewer supplier(s) to submit a signed form that states whether adequate water supplies and sanitary sewer collection services will exist and be available to serve the new development no later than the anticipated date of issuance of a certificate of occupancy.

<u>Water Management Element Support Document</u>

Table WM-1

BCWWS Retail Potable Water Level of Service Standards

Facility	Level of Service Standard
Raw Water Supply	Maximum Day Plus In-Plant Uses
Treatment Plant	Maximum Day
Finished Water Storage	40% of Maximum Day demand to cover operational (10%) and emergency (30%) storage; plus fire protection storage of 630,000 gallons (3500 GPM for 3 hours)
Transmission/Distribution System	The most stringent of: (1) Peak Hour at 45 psi residual pressure, or (2) Maximum Day Plus Fire Flow at 25 psi residual pressure.

BCWWS Land Development Standards contain the methodology currently used to determine if the level of service standard can be met. BCWWS changes the methodology administratively from time to time as new information becomes available.

Issue # 7 - Population Projections

The following policies exist in the BrowardNEXT2.0 Comprehensive Plan:

Policy WM1.5-Retail Water and Wastewater Master Plan will be updated to establish projected water and wastewater needs. (no mention of population projections)

Also, references are included in WME Support Document by supplier.

Other related policies include:

POLICY IC4.2 Broward County will utilize the Public Schools Staff Working Group and the School Oversight Committee to collaborate with the School Board of Broward County, Florida, and Broward County municipalities to plan and make decisions pertaining to:

1. Population projections
2. [...]

POLICY IC5.1 Broward County shall coordinate its Potable Water Element with the South Florida Water Management District's Lower East Coast Water Supply Plan.

The 1989 Broward County Comprehensive Plan originally included policies that were located in Administration Element (Policies 1.2.1, 1.2.2.) were inadvertently deleted with the repeal of the Administration Element as part of BrowardNEXT2.0 adoption. This included the following policies:

> Policy 1.2.1. The Planning Services Division (PSD) shall continue to use the Broward County Population Forecasting Model as the methodology for generating population estimates and projections and assigning the population.
>
> Policy 1.2.2. The PSD shall, on at least an annual basis, provide population estimates and projections for Broward County, including the Unincorporated Area.

Broward County is in the process of adding a new Objective and related policies in the Intergovernmental Element that is anticipated to be adopted prior to the adoption of the WSFWP and states as follows:

<u>OBJECTIVE IC10 – Coordinate Broward County's Population Forecasts and Municipal Allocations with County Municipalities and Relevant Agencies.</u>

<u>Broward County shall continue to coordinate the allocation of population and demographic data and forecasts with County municipalities and relevant state and regional agencies.</u>

<u>POLICY IC10.1 Broward County's Planning and Development Management Division (PDMD) shall continue to use the Broward County Population Forecast and Allocation Model to distribute County forecasts published by University of Florida's Bureau of Economic and Business Research (BEBR) to develop local municipal and Transportation Analysis Zones (TAZs) population estimates and projections.</u>

<u>POLICY IC10.2 PDMD shall continue to regularly coordinate the allocation of population and demographic data and forecasts with County municipalities and relevant state and regional agencies and publish on the County's demographic data website.</u>

<u>POLICY IC10.3 PDMD shall, on at least an annual basis, provide population estimates for Broward County and its municipalities, including the Broward Municipal Services District, from official sources such as the US Census and BEBR.</u>

Issue #8 - Water Supply/Source Needs and Demands

POLICY CC2.19 Broward County shall encourage local municipalities to develop policies to improve resilience to coastal and inland flooding, salt water intrusion, and other related impacts of climate change and sea level rise in their Comprehensive Plans, Sustainability Action Plans, Vision Plans, Storm Water Master Plans, Adaptation Action Areas Plans, Climate Change Plans, and other city-wide plans.

POLICY CC3.7 Broward County shall continue to support local environmental restoration, mitigation, and adaptive management initiatives, including those related to Everglades restoration, and coordinate with other State, regional, and national strategic planning efforts to improve the resiliency of natural lands and systems to climate variability and change.

POLICY CC4.8 Broward County shall create and maintain the Broward County Green Infrastructure Map Series to illustrate elements of green infrastructure identified as critical for meeting the County's goals for GHG reduction, renewable energy production, aquifer protection and surface water management, coastal habitat protection, enhanced green spaces, healthy food access, and other resource protection and health and safety goals shared by the greater Broward community.

POLICY CM1.1 Broward County shall limit the specific and cumulative impacts of development or redevelopment upon wetlands, water quality, water quantity, wildlife habitat, living marine resources, and the beach dune system through the review of development applications.

OBJECTIVE C3 – Protect and Maintain Water Quality. To improve the water quality and supply throughout Broward County by protecting the County's Water Conservation Areas.

POLICY C3.5 Broward County will support projects within the Water Conservation Areas that reduce seepage losses from the Water Conservation Areas, improve water supply and quality, and establish a buffer between the Everglades and developed areas.

POLICY C6.12 Broward County shall appropriate adequate funds to provide for the enhancement, maintenance, and conservation of publicly-owned natural lands, wetland mitigation areas, and water recharge areas.

POLICY C6.13 Broward County shall pursue opportunities for the restoration and/or enhancement of degraded natural areas, including but not limited to, reforestation, restoration of shorelines or dunes, restoration of natural hydrology, or removal of non-native vegetation and prescribed burning.

POLICY C8.2 Broward County shall integrate wetlands into regional stormwater drainage/water management practices to provide necessary hydrology.

POLICY WM1.5 WWS will update the Retail Water and Wastewater Master Plan by 2026 to establish projected potable water and sanitary sewer infrastructure and facility needs through 2040 and, if required, update approximately every ten (10) years to meet state and local requirements.

OBJECTIVE WM2 – Planning for Water Resources and Infrastructure. Broward County's water resources planning will be guided by the goals, objectives, and recommendations provided in Broward County's Countywide Integrated Water Resources Plan (IWRP), along with related plans that provide support for climate resilience and the long-term water resource needs of the Broward community and which further support the Comprehensive Everglades Restoration Plan (CERP), SFWMD Lower East Coast Water Supply Plan (LECWSP), and South East Florida Climate Compact's Regional Action Plan (RCAP), as updated.

POLICY WM2.5 Broward County will continuously update the future conditions map series, including wet season groundwater elevation and future condition flood elevation maps, to reflect impacts of projected sea level rise and climate change for planning and regulatory purposes.

POLICY WM2.7 Broward County will support ongoing and enhanced development of regional hydrologic models, the integration of downscaled climate data, and continuous data collection to help predict and track the impacts of sea level rise and changing rainfall patterns on groundwater levels, saltwater intrusion, and drainage infrastructure to support local planning and projects.

POLICY WM3.3 Potable water facilities will be designed, constructed, maintained, and operated with consideration given to sea level rise and in such a manner as to protect the functions of natural groundwater recharge areas, natural drainage features, and groundwater levels, without inducing the inland movement or upwelling of saline water into Underground Sources of Drinking Water (USDW), as defined in Chapter 62-528, F.A.C., and SFWMD Basis of Review for Water Use, as referenced in Chapter 40E-2, F.A.C.

POLICY WM3.4 Broward County will work to protect existing wellfields, water supplies, surface or subsurface storage facilities, control structures, water and wastewater treatment plants, and transmission infrastructure from increased coastal flooding, sea level rise, saltwater intrusion, and other potential future climate change impacts, and support utility efforts to plan infrastructure replacement and relocation, as needed.

POLICY WM3.5 Broward County will continue to coordinate with municipalities and other agencies on source-water (wellfield) monitoring and protection programs, and proactively address potential impacts on the coastal aquifer from increased chlorides due to flooding of

coastal and tidally influenced bodies of water that may occur with more intense storms, rising sea levels, increased drought, and other impacts of climate change.

POLICY WM3.6 Broward County will continue to maintain, implement, and enforce the County Wellfield Protection Ordinance (Wellfield Protection, Article XIII, Chapter 27, Broward County Code of Ordinances), will conduct wellfield inspections to locate possible contamination sources, and ensure abatement of identified sources. The County will also revise, as necessary, its Wellfield Protection Ordinance to reflect results from modeling studies and revisions to delineation criteria.

POLICY WM3.7 Broward County will continue to implement regulations governing storm water management in conjunction with the Wellfield Protection Regulations and prohibit direct storm water discharges to surface and ground water within Zone 1 and Zone 2 of wellfield zones of influence, as designated on the Wellfield Protection maps.

Issue # 9 - Intergovernmental coordination with the District, water suppliers, and other local governments. Identify any joint planning areas and joint infrastructure service areas related to water supply.

POLICY IC1.1 Broward County will coordinate with the Broward League of Cities and the Broward Legislative Delegation, as appropriate, for the following purposes: 1. Develop and implement joint infrastructure service or planning areas, especially to address issues associated with climate change and sea level rise; 2. Establish a permanent funding mechanism to support affordable housing; and 3. Support the implementation of the Low Tax Opportunity Zones, as established in the federal Tax Cut and Jobs Act of 2017, to encourage long-term investment and job creation in targeted communities by reducing taxes for many job creators. Low Tax Opportunity Zones enhance local communities' ability to attract businesses, developers and financial institutions to invest in targeted areas by allowing investors to defer capital gains taxes through investments in federally established Opportunity Funds.

OBJECTIVE IC5 – Ensure Adequate Water Supply and Maintain Nature Systems Broward County shall continue to coordinate its Comprehensive Plan with the plans of other local and regional agencies to ensure adequate water supply and maintenance of natural systems.

POLICY IC5.1 Broward County shall coordinate its Potable Water Element with the South Florida Water Management District's Lower East Coast Water Supply Plan.

POLICY IC7.8 Broward County shall continue to collaborate with and support local and regional planning entities to ensure that local municipal comprehensive plans, regional strategic plans, disaster mitigation plans, water management plans, and transportation plans are updated to

provide for a sustainable environment and reflect the best available data and strategies for adapting to future climate change impacts.

OBJECTIVE IC8 – Coordinate the Establishment, Maintenance, and Implementation of Capacity and Quality Level of Service Standards, Broward County shall continue to coordinate the establishment, maintenance, and implementation of capacity and quality level of service standards.

POLICY IC8.4 Broward County will participate in the Water Advisory Board, including its Technical Advisory Committee and Surface Water Coordinating Committee, to coordinate potable water, wastewater, and water management level of service standards.

POLICY WM1.3 WWS will work to provide potable water and sanitary sewer service to incorporated areas contiguous to the WWS service area when service is not anticipated to be provided by others and in the absence of legal constraints on the use of revenues.

POLICY WM2.3 Broward County will work with the SFWMD, municipalities, independent drainage districts, and neighboring counties to plan and support the development of additional regional surface water storage, including the C-51 Storage Reservoir in Palm Beach County and the water preserve areas in western Broward County under the CERP.

POLICY WM2.6 To guide and support local water resources planning, management, and investments for climate resilience, Broward County will work with local, State, and federal water management agencies and others to create, develop, and implement a suite of water resources and infrastructure planning tools, including the IWRP, the Countywide Reuse Master Plan, and regional and local hydrologic models of surface water and groundwater.

Issue # 10 - Incorporate Work Plan into Comprehensive Plan

Broward County staff proposes to amend Policy WM2.1 to meet the requirements of Chapters 163 and 373, F.S., and in this manner incorporate the Water Supply Plan by reference into the Comprehensive Plan. Proposed text changes appear underlined; proposed deletions appear as strikethroughs.

POLICY WM2.1 ~~Within eighteen (18) months of the adoption of an update to the SFWMD LECWSP, utilities located within Broward County will update and adopt their 10-Year Water Supply Facilities Work Plans, pursuant to Chapters 163 and 373 of the Florida Statutes, to incorporate the Regional Alternative Supply Plan and to evaluate water resource needs, identify water supply deficiencies, and plan for alternative water supply sources and projects to serve existing and new development within the County~~. Broward County hereby adopts by reference the Water Supply Facilities Work Plan (2020 Work Plan), dated xxxx, 2020 (see

Attachment A of the Water Management Element), for a planning period of not less than 10 years. The 2020 Work Plan addresses issues that pertain to water supply facilities and requirements needed to serve current and future development within the County's water service area. The County shall review and update the work plan at least every 5 years, within eighteen (18) months after the adoption of an update to the SFWMD LECRWSP. Any changes to occur within the first 5 years of the work plan shall be included in the annual Capital Improvements Plan update to ensure consistency between the Water Management Element and the Capital Improvements Element.

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Appendix I CITY OF FORT LAUDERDALE WATER SUPPLY FACILITIES WORK PLAN UPDATE

Water Supply Facilities Work Plan 2019 Update

Draft: June 26, 2019

Hazen

CITY OF FORT LAUDERDALE

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Executive Summary

Introduction

This executive summary provides a brief summary of the key findings in the City of Fort Lauderdale Water Supply Facilities Work Plan 2019 Update.

Background

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 South Florida Water Management District (SFWMD) approves a regional water supply plan or its update. The 2018 Lower East Coast Water Supply Plan Update (2018 LECWSP Update) was adopted 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 10-year Water Supply Facilities Work Plan and related planning elements by May 8, 2020.

The State of Florida requires that the 10-year Water Supply Facilities Work Plan 2019 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 2018 LECWSP Update. The data presented herein are for the planning period through the year 2040.

Water Service Area

The City of Fort Lauderdale is the single largest purveyor of potable water in Broward County. This includes retail customers residing in the Roosevelt Gardens, Franklin Park, Washington Park, and Boulevard Gardens communities of unincorporated Broward County. These communities are expected to become incorporated by the end of the planning period. The utility's service area encompasses a total area of 43 square miles, approximately one-tenth the total area of urban Broward County. Other retail customers include residential, commercial, and industrial properties within the City of Fort Lauderdale, Lazy Lake, and a portion of Lauderdale-by-the-Sea. The utility also maintains wholesale agreements for potable water supply with Broward County Water and Wastewater Services; Cities of Oakland Park, Wilton Manors, and Tamarac; Town of Davie and Port Everglades. Figure ES-1 depicts the water service area (inclusive of all retail and wholesale customers).

Figure ES-1 also depicts the location of key City water supply assets including the following: 1) Dixie Wellfield; 2) Prospect Wellfield; 3) Peele-Dixie Water Treatment Plant; 4) Fiveash Water Treatment Plant; 5) 2nd Avenue Water Tank and Pump Station; 6) Poinciana Park Water Tank and Pump Station; and 7) George T. Lohmeyer Wastewater Treatment Plant.

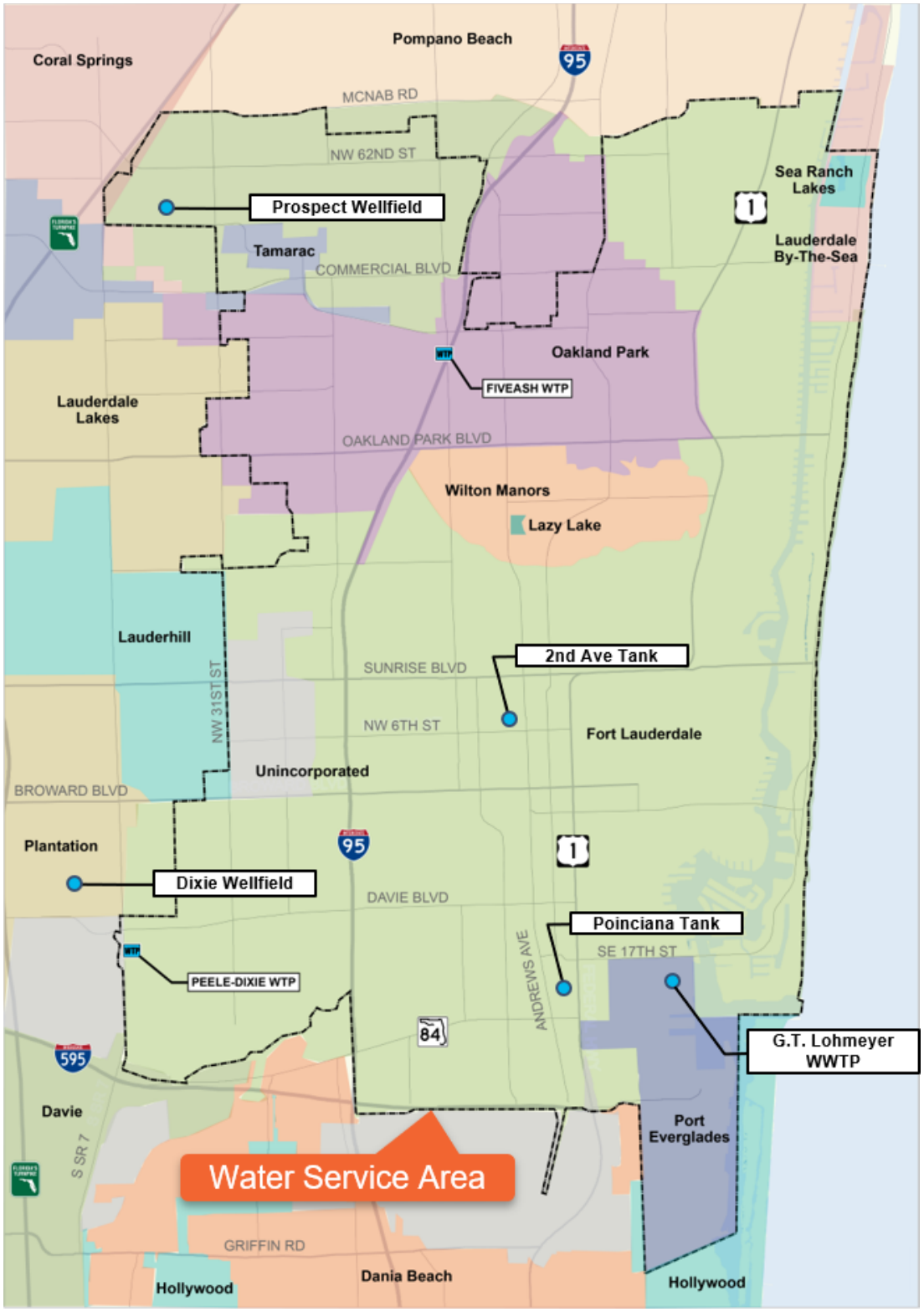

Figure ES-1: Water Service Area

Population Forecast

The population forecast was prepared by the City's planning consultant (i.e., The Corradino Group) based on University of Florida's Bureau of Economic and Business Research (BEBR) data. Figure ES-1 presents the population forecast for the City of Fort Lauderdale's water service area through the year 2040. It is noted that the year 2040 population data presented herein is 1.3 percent higher than the year 2040 population presented in the SFWMD's 2018 LECWSP Update.

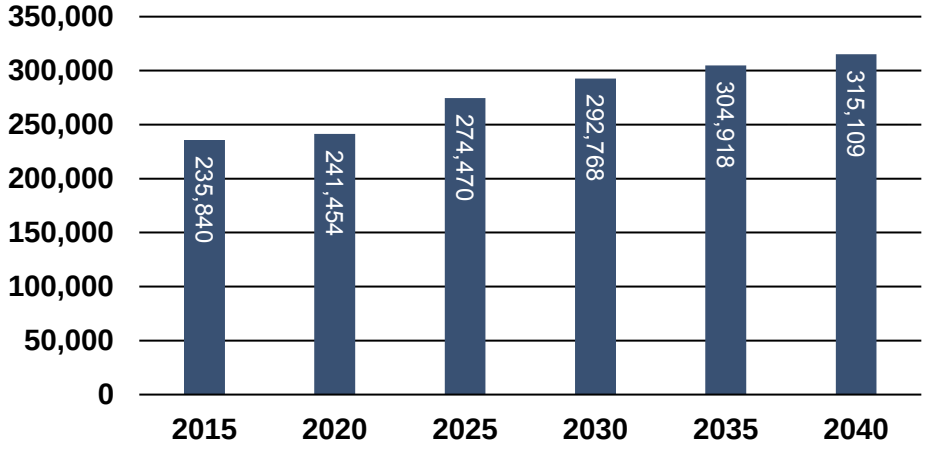

Figure ES-2: Population Forecast

Water Supply

The City's traditional source of water has been the Biscayne Aquifer. The Biscayne Aquifer is a shallow, surficial aquifer that is highly porous, and transmissive. It is the traditional supply in Southeast Florida. The City's existing Fiveash and Peele-Dixie water treatment plants are designed to treat the Biscayne Aquifer. Peele-Dixie has space and power supply for the installation of additional infrastructure to treat water from the Floridan Aquifer System (FAS).

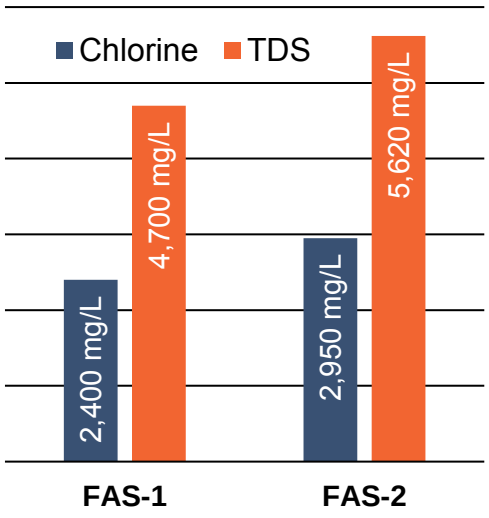

Figure ES-3: Florida Aquifer Well Data

The City has also drilled two full-size FAS wells to collect data needed for planning purposes. Chloride and total dissolved solids (TDS) data from these wells are presented in Figure ES-3 (Hazen and Sawyer, 2008a). Based on modeling presented in the 2018 LECWSP Update, the TDS is estimated to increase to more than 7,000 mg/L by the year 2040 (South Florida Water Management District, 2018). The Peele-Dixie WTP was designed with space available to add reverse osmosis (RO) treatment with a finished water capacity of 6-mgd and electrical capacity to treat water with a TDS up to approximately 8,000-mg/L and chloride concentration of 4,300 mg/L (Hazen and Sawyer, 2008b).

The SFWMD issued the City's Water Use Permit (No. 06-00123-W) on September 11, 2008; the permit expires on September 11, 2028. The permit limits withdrawal from the Biscayne Aquifer and the FAS as follows, on Annual Average Day basis:

- Biscayne Aquifer Withdrawal Limit: 52.55 mgd
- FAS Withdrawal Limit: 8.64 mgd

Raw Water Demand Forecast

Figure ES-4 graphically illustrates the raw water demand forecast on an annual average day basis for the City's water service area. A water supply deficit is forecasted begin in the year 2035.

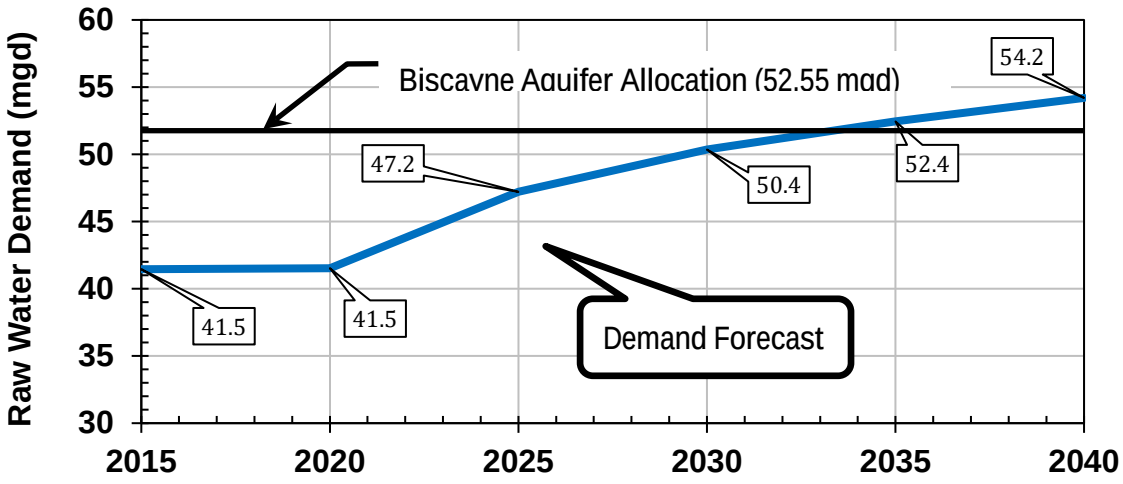

Figure ES-4: Biscayne Aquifer Raw Water Demand Forecast Annual Average Day (mgd)

Finished Water Demand Forecast

Figure ES-5 graphically illustrates the finished water demand forecast on an annual average day basis for the City's water service area.

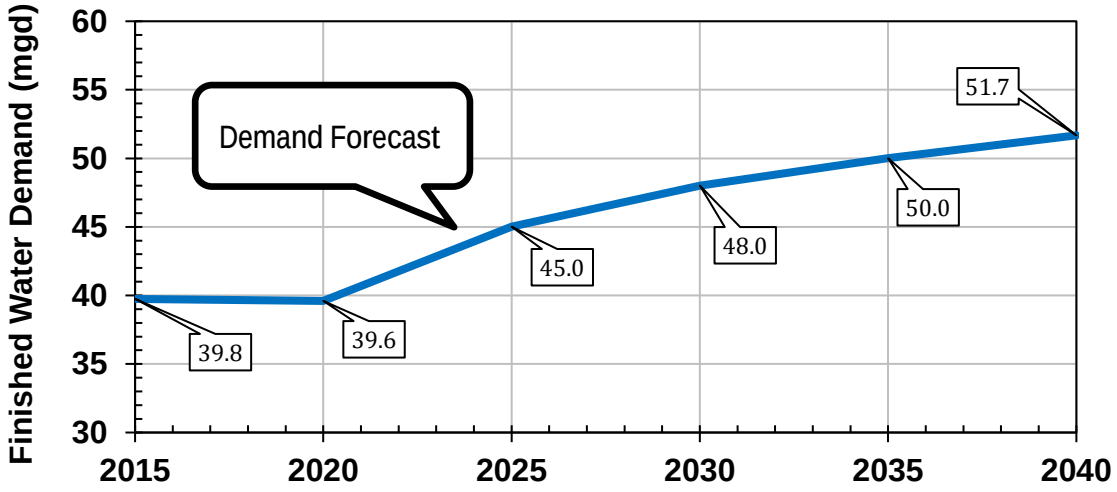

Figure ES-5: Finished Water Demand Forecast Annual Average Day (mgd)

Comprehensive Utility Strategic Master Plan (CUSMP)

The City's Comprehensive Utility Strategic Master Plan (CUSMP), completed by Reiss Engineering, Inc., in 2017 is a planning document that evaluated the City's water and wastewater systems and recommends improvements to maintain or improve levels of service over a 20-year period ending in 2036. The CUSMP aligned its recommendations with the City's long-term goals identified in the City's Fast Forward Fort Lauderdale 2035 Strategic Plan and the Southeast Florida Regional Climate Action Plan.

As indicated in the CUSMP, the City's existing water supply, treatment and distribution infrastructure is aging. The City recognizes that significant investment is necessary to sustain the reliability of its infrastructure. The City is actively planning the necessary investment decisions to ensure maintaining its level-of-service. For example, the City is currently evaluating improvements for the Fiveash Water Treatment Plant (WTP) to achieve its color goal of 5-10 on the Platinum-Cobalt scale. Additionally, the City is implementing the Fiveash WTP Reliability Upgrades and Disinfection project. This project will implement certain improvements to replace equipment that is near the end of its useful life and improve the automation of the treatment process. This project will begin construction in late 2019 and likely be completed in 2023.

Alternative Water Supply Plan

The data in Figure ES-4 indicate that demand is projected to exceed the Biscayne Aquifer supply in the year 2035. The City plans that this supply deficit will be addressed via RO treatment of the FAS. The City reserves the right to alter this plan based on the findings of ongoing City studies and future CUSMP updates. Additionally, the

Undesirable Changes

additional data becomes available regarding the risks presented by unexpected changes to water quality in the FAS.

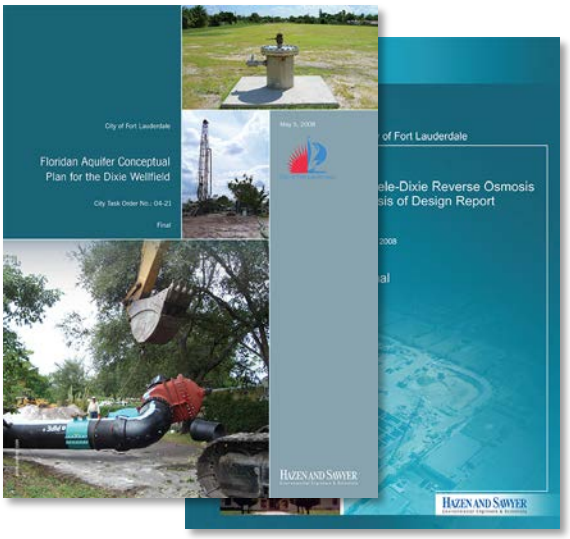

Figure ES-6: Alternative Water Supply Planning Documents

In 2008, the City completed conceptual plans for implementing 6-mgd of finished water capacity RO at the Peele-Dixie WTP. Five FAS wells were also conceptually planned. The planning documents (illustrated in Figure ES-6) are titled “Floridan Aquifer Conceptual Plan for the Dixie Wellfield” and “Peele-Dixie Reverse Osmosis Basis of Design Report”.

These plans provide the City with a roadmap to quickly implement this alternative water supply in advance of demand exceeding its traditional Biscayne Aquifer supply. It is estimated that it would require approximately five years to implement FAS wells and RO treatment at the Peele-Dixie WTP.

The cost for implementing this alternative water supply are presented in the City’s planning documents. Escalating the cost to 2019 dollars amounts to $49.1 million. This cost includes construction cost plus contingency along with engineering services. This is a Class 5 estimate as defined by Association for the Advancement of Cost Engineering (AACE) International.

1. Introduction

1.1 Scope of This Report

The City of Fort Lauderdale's Water Supply Facilities Work Plan 2019 Update identifies water supply sources, availability and facilities needed to serve existing and new development within the local government's jurisdiction. 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 South Florida Water Management District (District) approves a regional water supply plan or its update.

The 2018 Lower East Coast Water Supply Plan Update (2018 LECWSP Update) was adopted 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 10-year Water Supply Facilities Work Plan and related planning elements by May 8, 2020.

The State of Florida requires that the 10-year Water Supply Facilities Work Plan 2019 Update address the development of traditional and alternative water supplies and management strategies, including conservation and reuse. The data and analyses, including population projections, water demands and service areas must cover at least a 10-year planning period and be consistent to the LECWSP and the updated comprehensive plan amendment.

The City of Fort Lauderdale's 10-year Water Supply Facilities Work Plan 2019 Update is divided into five sections:

1.0 – Introduction

2.0 – Background Information

3.0 – Data and Analysis

4.0 – Capital Improvements

5.0 – Goals, Objectives, and Policies.

1.2 Location Map

The City of Fort Lauderdale is located on the southeastern coast of Florida within Broward County. Figure 1-1 illustrates a location map of the City.

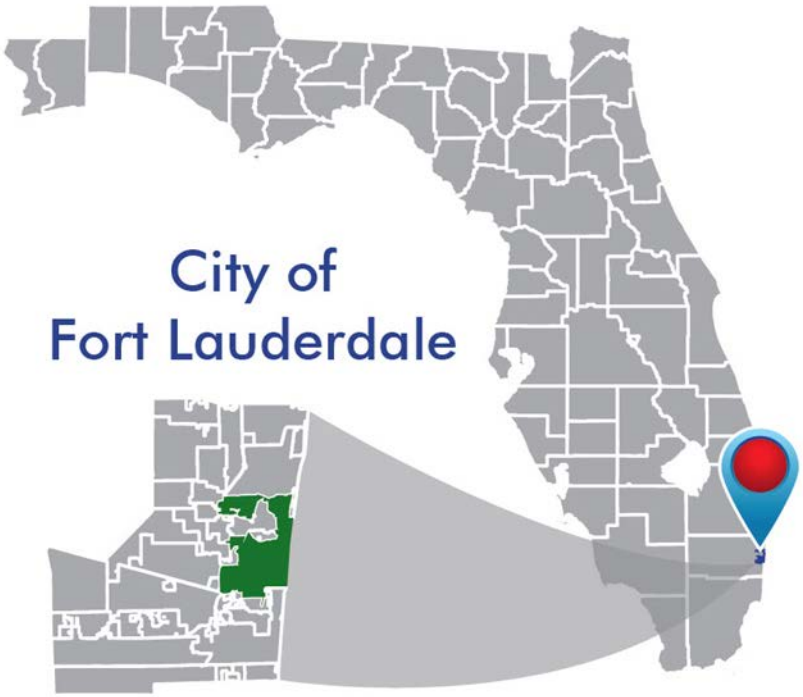

Figure 1-1: Fort Lauderdale Location Map

1.3 Statutory History

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 enacted during the 2005 legislative session, strengthened the statutory links between the regional water supply plans (RWSPs) prepared by water management districts and the Comprehensive Plans prepared by local governments through changes to Chapters 163 and 373, F.S. These changes improved coordination between local land use planning and regional water supply planning.

1.4 Statutory Requirements

The City of Fort Lauderdale has considered the following statutory provisions in updates to this Water Supply Facilities Work Plan.

1. Coordinate appropriate aspects of its comprehensive plan with the 2018 LECWSP [163.3177(4) (a), F.S.].

2. Ensure the future land use plan is based upon availability of adequate water supplies and public facilities and services [s.163.3177 (6) (a), F.S.]. 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 for review.

3. Ensure that adequate water supplies and potable water facilities are available to serve new development no later than the issuance by the local government of a certificate of occupancy or its functional equivalent and consult with the applicable water supplier to determine whether adequate water supplies will be available to serve the development by the anticipated issuance date of the certificate of occupancy [s.163.3180 (2), F.S.].

4. Revision of the related comprehensive planning elements 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 2013 LECWSP, or alternative project(s) proposed by the local government under s. 373.709(8)(b), F.S. [s. 163.3177(6)(c), F.S.];

    b. Identify the traditional and alternative water supply projects and the conservation and reuse programs necessary to meet water needs identified in the 2013 LECWSP [s. 163.3177(6)(c)3, F.S.]; and

    c. Update the 10-year Water Supply Facilities Work Plan for at least a 10-year planning period for constructing the public, private, and regional water supply facilities identified in the element as necessary to serve existing and new development [s. 163.3177(6)(c)3, F.S.].

5. Revise the Five-Year Schedule of Capital Improvements to include water supply, reuse, and conservation projects and programs to be implemented during the five-year period [s. 163.3177(3)(a)4, F.S.].

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 10-year planning period, considering the 2018 LECWSP, as well as applicable consumptive use permit(s) [s.163.3177 (6) (d), F.S.]. The plan must address the water supply sources necessary to meet and achieve the existing and projected water use demand for the established planning period, considering the applicable regional water supply plan [s.163.3167(9), F.S.].

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 the 2018 LECWSP [s.163.3177 (6) (h) 1., F.S.].

8. Evaluation and Appraisal Report are required once every 7 years. Local governments are encouraged to comprehensively evaluate, and as necessary, update comprehensive plans to reflect changes in local conditions. The evaluation could address the extent to which the local government has implemented the need to update their 10-year Water Supply Facilities Work Plan, including the development of alternative water supplies, and determine whether the identified alternative water supply projects, traditional water supply projects, and conservation and reuse programs are meeting local water use demands [s.163.3191 (3), F.S.].

2. Background Information

2.1 Introduction

This section includes the following:

- An overview of the City of Fort Lauderdale's water service area; and
- A description of regional water supply planning issues that impact the City of Fort Lauderdale, including the following:
    - Climate Change
    - Regional Water Availability Rule
    - Participation in the C-51 Reservoir Project
    - Regional Climate Action Plan
    - Lake Okeechobee Surface Water Allocation Limitations
    - Lowering Lake Okeechobee Level
    - Infrastructure Planned to Attenuate Damaging Peak Flow Events from Lake Okeechobee
    - Expanded Use of Reclaimed Water to Meet Future Water Supply Demands
    - Wellfield Management to Prevent Undesirable Changes in Floridan Aquifer Water Quality

2.2 Service Area

The City of Fort Lauderdale is the single largest purveyor of potable water in Broward County. This includes retail customers residing in the Roosevelt Gardens, Franklin Park, Washington Park, and Boulevard Gardens communities of unincorporated Broward County. These communities are expected to become incorporated by the end of the planning period. The utility's service area encompasses a total area of 43 square miles, approximately one-tenth the total area of urban Broward County. Other retail customers include residential, commercial, and industrial properties within the City of Fort Lauderdale, Lazy Lake, and a portion of Lauderdale-by-the-Sea. The utility also maintains wholesale agreements for potable water supply with Broward County Water and Wastewater Services; Cities of Oakland Park, Wilton Manors, and Tamarac; Town of Davie and Port Everglades. Figure 2-1 depicts the water service area (inclusive of all retail and wholesale customers).

Figure 2-1 also depicts the location of key City assets including the following: 1) Dixie Wellfield; 2) Prospect Wellfield; 3) Peele-Dixie Water Treatment Plant; 4) Fiveash Water Treatment Plant; 5) 2nd

Avenue Water Tank and Pump Station; 6) Poinciana Park Water Tank and Pump Station; and 7) George T. Lohmeyer Wastewater Treatment Plant.

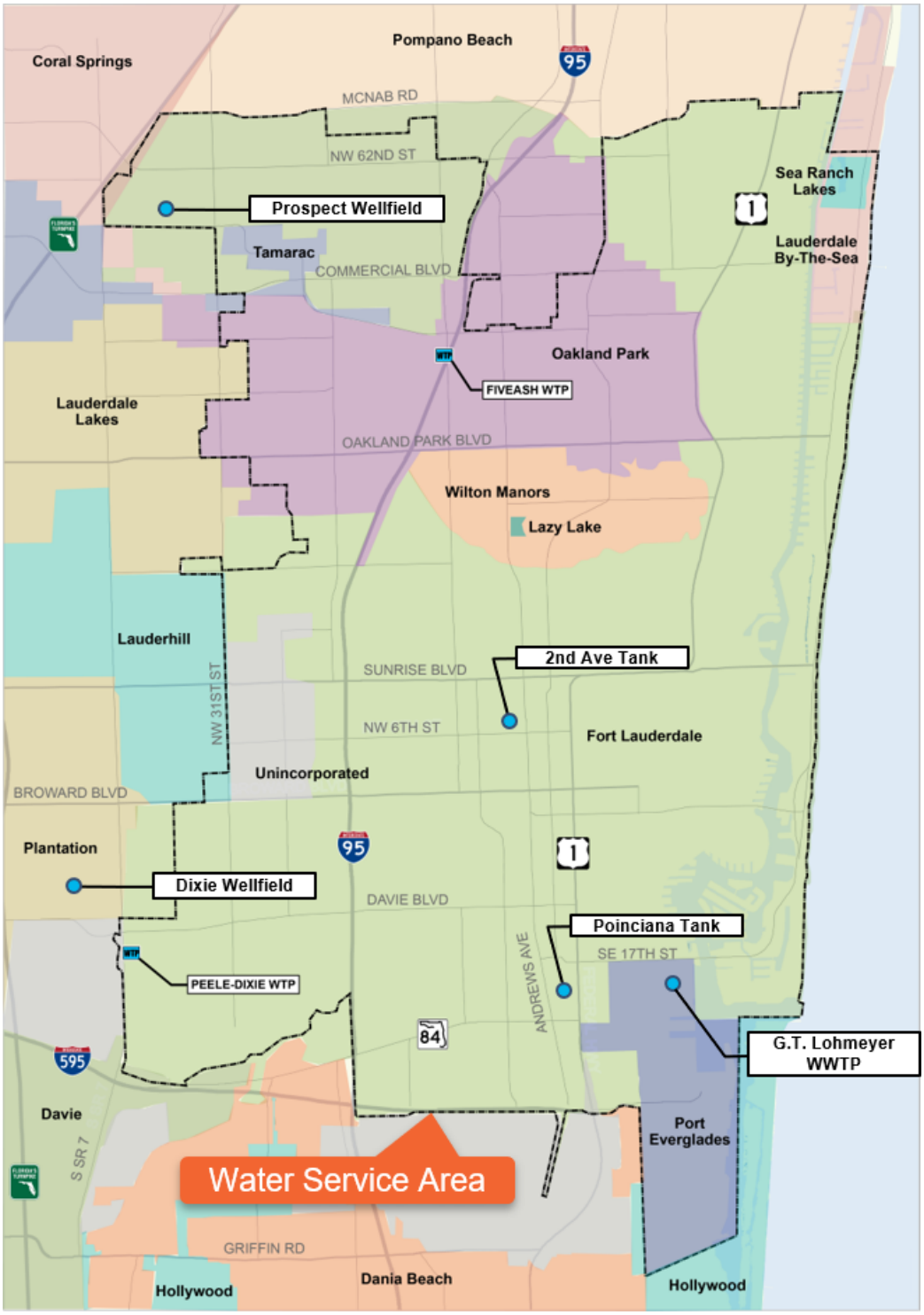

Figure 2-1: Water Service Area

2.3 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, increases in tidal and storm-related flooding, and ensuring that future planning efforts are flexible to adapt to changes to ensure a sustainable water supply infrastructure.

The City of Fort Lauderdale, together with its municipal and regional partners, understands that it is imperative that local governments and water utilities begin to formalize the integration of water supply and climate change considerations as part of coordinated planning efforts and work to provide relevant updates to the 10-year Water Supply Facilities Work Plan and enhance Goals, Objectives and Policies (GOPs) of its comprehensive plan.

The City is a leader in developing planning tools and identifying achievable and cost-effective goals that meet the needs of its community. The City has recently signed a resolution endorsing the Mayor's Climate Action Pledge; affirming support for the Southeast Florida Regional Climate Change Compact; and agreeing to consider implementation of the Regional Climate Action Plan (2012) in whole or in part as appropriate for the City.

Key considerations relative to climate change include: 1) Sea level rise and 2) saltwater intrusion. These topics are presented in the following subsections.

2.3.1 Sea Level Rise

The City of Fort Lauderdale is a participant in the Southeast Florida Regional Climate Change Compact. The Compact is an ongoing collaborative effort among the participants (local communities, regulatory agencies, along with Broward, Miami-Dade, Monroe and Palm Beach Counties) to foster sustainability and climate resilience on a regional scale.

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. To facilitate planning, the Southeast Florida Regional Climate Change Compact developed the sea level rise graphic illustrated in Figure 2-2. This sea level rise projection is now being used as the basis for planning throughout the region.

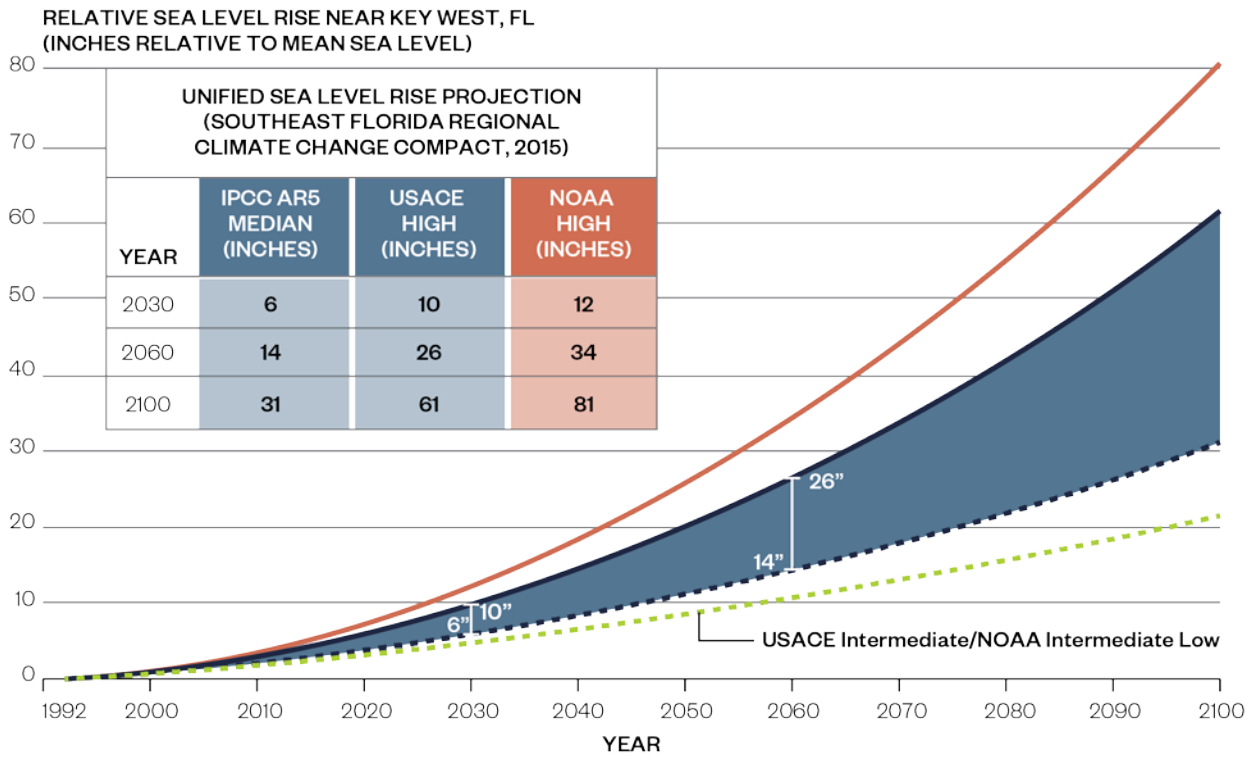

Figure 2-2: Sea Level Rise

The City contributed funding for Broward County and the United States Geological Survey (USGS) to develop a SEAWAT Saltwater Intrusion Model to evaluate various sea level rise scenarios. According to USGS Report titled "*Potential Effects of Alterations to the Hydrologic System on the Distribution of Salinity in the Biscayne Aquifer in Broward County*" under the high sea level rise scenario, the Dixie Wellfield will experience a slight increase in salinity to 50 milligrams per liter (mg/L) in 2060; no impact to the Prospect Wellfield is expected (Hughes, 2016).

The City is cautioned that model accuracy and use are limited by uncertainty in the physical properties and boundary conditions of the system, uncertainty in historical and future conditions, and generalizations made in the mathematical relationships used to describe the physical processes of groundwater flow and transport. Because of these limitations, model results should be considered in relative rather than absolute terms. Nonetheless, model results do provide useful information on the relative scale of response of the system to changes in pumping distribution, sea-level rise, and mitigation activities (Hughes, 2016).

2.3.2 Saltwater Intrusion

The Biscayne Aquifer which serves as the City's primary water supply is a shallow, surficial aquifer characterized by limestone karst geology which is highly porous and transmissive. Coastal saltwater intrusion of the aquifer has occurred in eastern parts of Broward County. The mapping of the saltwater intrusion front (i.e., the depth and location of the 250 mg/L chloride concentration toe) is supported by local governments throughout the region, USGS, and the South Florida Water Management District (SFWMD). The current Saltwater Intrusion Line for Broward County is illustrated in Figure 2-3.

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 City has been proactively managing saltwater intrusion risk through a combination of managing wellfield pumpage and the collection of data from 10 saltwater monitoring wells constructed in 2002.

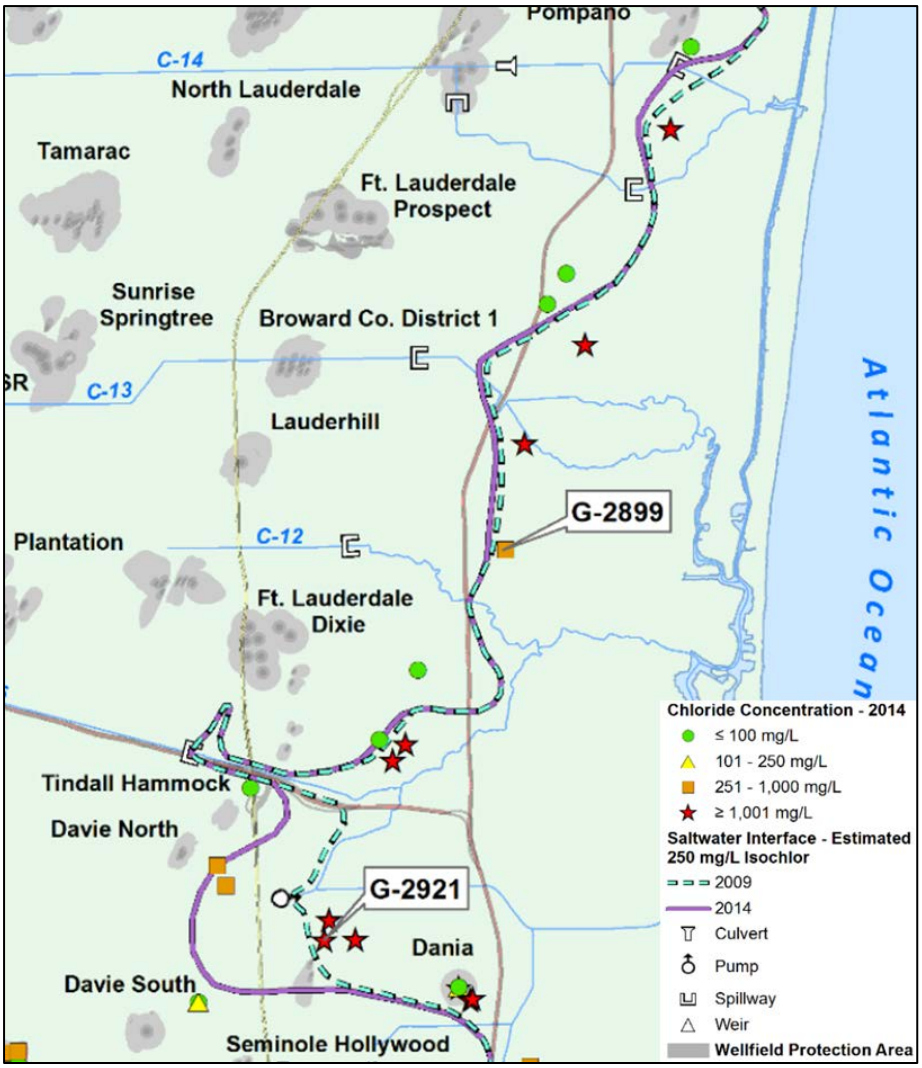

Figure 2-3: 250 mg/L Isochlor

The City operates a Saline Intrusion Monitoring Program (the "SALT Program"). The goal of the SALT Program is to locate and monitor the saltwater interface in and around the City's wellfields. The purpose of the Program is to provide an early warning monitoring system to assist wellfield managers in tracking the location and to manage withdrawals to limit the inland movement of the salt front. The City currently has 10 saltwater monitoring wells. To date, these wells have shown no indication of saltwater intrusion.

The Comprehensive Utility Strategic Master Plan (CUSMP) (Reiss Engineering, 2017) recommended continued monitoring of salinity along with development of variable density model in the short term. Long-term recommendation included installation of additional saline monitoring wells by 2026. The City continues to monitor its wells for saltwater intrusion.

2.4 Regional Water Availability Rule

The Regional Water Availability (RWA) rule was passed by the SFWMD on February 16, 2007. The RWA limits water withdrawals from the Biscayne Aquifer to the maximum quantity during any consecutive five years preceding April 2006. Water utilities 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 (which requires high energy consumption treatment methods). The RWA and the approval of the City's Water Use permit limited the City's Biscayne Aquifer withdrawal to 52.55 million gallons per day (mgd) on an annual average day basis. Demands in excess of this amount would be met via conservation and alternative water supplies.

2.5 C-51 Reservoir Project

The capture of excess stormwater is considered an alternative water supply project as defined in Section 373.707, F.S. One such project, the proposed C-51 reservoir, was evaluated in 2009 by a group of seven utilities located in Broward and Palm Beach Counties (including the City of Fort Lauderdale). The location of this proposed reservoir is adjacent to the SFWMD's existing L-8 Reservoir in Palm Beach County and is expected to share the same impermeable geologic formation that facilitates storage.

The C-51 reservoir would capture stormwater in the wet season and release it during the dry season to recharge the Biscayne Aquifer. To benefit from this recharge, a utility must execute an agreement with the owner of the C-51 reservoir to pay for the capital cost and operations and maintenance costs of the reservoir and conveyance infrastructure. Upon execution of a C-51 capacity allocation agreement, the utility's Biscayne Aquifer allocation could be increased through issuance of a water use permit by the SFWMD (with allocation dependent upon groundwater modeling results).

The C-51 reservoir, owned and operated by Palm Beach Aggregates (PBA), is planned for development in two phases. Phase 1 would consist of 14,000 acre-feet of storage capacity; equivalent to approximately 35-mgd. Phase 2, if developed, would consist of an additional 46,000 acre-feet of storage capacity. Media reports indicate environmental group opposition to utilizing Phase 2 for water supply benefit.

Phase 1 been designed and permitted. PBA has executed agreements with the following utilities:

- Broward County: 6-mgd
- Sunrise: 5-mgd
- Dania Beach: 1-mgd
- Hallandale Beach: 1-mgd

Construction of Phase 1 is currently on hold. PBA indicates construction of Phase 1 will not begin until it executes agreements for 31.5-mgd of the available capacity. Construction is estimated to take two years.

PBA has reportedly expressed a desire to begin construction in 2019. PBA is currently in negotiation with Miami-Dade to purchase the remaining Phase 1 capacity. The ongoing negotiation between PBA and Miami-Dade does not preclude the City from purchasing C-51 reservoir allocation.

Based on the groundwater modeling prepared for the City, the C-51 reservoir project is a viable alternative water supply to increase its Biscayne Aquifer withdrawal allocation (Hazen and Sawyer in association with MacVicar, Federico & Lamb, Inc, 2009). The City of Fort Lauderdale continues to monitor this innovative regional stormwater capture project partnered with the Broward County Water Resources Task Force Technical Team. As of the preparation of this document, the City has not committed to purchasing water from the C-51 reservoir. The City will evaluate the efficacy of purchasing C-51 reservoir allocation as part of its ongoing Granular Activated Carbon Pilot Study & Plant Evaluation project.

2.6 Regional Climate Action Plan

Southeast Florida is widely considered one of the most vulnerable regions with respect to the impacts of 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 110 recommendations in seven primary focal areas, with 18 specific to the focal area of “Water Supply, Management, and Infrastructure”. Table 2-1 presents the water supply related recommendations from the Regional Climate Action Plan (Southeast Florida Climate Compact, 2019).

Table 2-1: Water Supply Recommendations from the Regional Climate Action Plan

Item	Recommendations
WS-1	Develop local and, where appropriate, regional inventories of existing potable water supply delivery and collection systems, vulnerable wellfields, wastewater collection and/or treatment infrastructure, septic tanks/drainfields, and stormwater drainage and treatment facilities; assess the potential impact from climate change of each component; and develop different climate change scenarios and adaptation strategies for high-risk utilities and/or infrastructure which may require replacement, reinforcement, or relocation to ensure the long-term viability of the system (e.g., modified site, depth, elevation, materials, or connection requirements).
WS-2	Develop a regional saltwater intrusion baseline and utilize saltwater intrusion models to identify wellfields and underground infrastructure at risk of contamination/ infiltration by saltwater with increases in sea level.
WS-3	Utilize existing and refined inundation maps and stormwater management models to identify areas and infrastructure at increased risk of flooding and tidal inundation with increases in sea level, to be used as a basis for identifying and prioritizing adaptation needs and strategies.

Table 2-1: Water Supply Recommendations from the Regional Climate Action Plan

Item	Recommendations
WS-4	Evaluate the impacts of rising sea and groundwater levels on soil storage, infiltration rates and inflow to stormwater and wastewater collection and conveyance systems; consider longer-term influences on water quality; and develop strategies for implementing reclaimed water and stormwater reuse projects that account for current and future conditions.
WS-5	Develop and apply appropriate hydrologic and hydraulic models to further evaluate the efficacy of existing water management systems and flood control/ drainage infrastructure under variable climate conditions. Quantify the capacity and interconnectivity of the surface water control network and develop feasible adaptation strategies.
WS-6	Coordinate with the South Florida Water Management District, Drainage/Water Control Districts, and utilities/public works officials to identify flood control and stormwater management infrastructure already operating below the design capacity. Further examine water control structures to ensure that they can provide for inland or upstream migration of riparian species as freshwater habitats become more saline.
WS-7	Develop Integrated Water Management Plans that present a joint assessment and planning strategy involving local water utilities, wastewater service providers, water managers, and partners to the Southeast Florida Regional Climate Change Compact, for coordinated consideration of stormwater use and disposal, traditional and alternative water supplies, wastewater disposal and reuse, and water conservation measures for use by local leadership to guide planning decisions as well as amendments to applicable codes and regulations.
WS-8	Develop and test water management and drainage system adaptation improvements needed to maintain existing levels of service relating to drainage, flood control, and water supply, and use cost-benefit analyses to prioritize potential improvements.
WS-9	Incorporate and prioritize preferred climate adaptation improvement projects in capital improvement plans and pursue funding.
WS-10	Encourage, foster, and support investigative work and scientific research that improves the understanding of local and regional climate change impacts specific to Southeast Florida, including: • Improved down-scaling of global climate models for representation of precipitation at the regional/local scales, • Identification and targeting of gaps in monitoring to improve quantification of the hydrologic system and its response to climate change, such as evapotranspiration, groundwater levels, and precipitation, and local sea level, and • Development of risk-based decision support tools and processes for application in analysis of infrastructure design, water resource management, natural systems management, and hazard mitigation alternatives. Tools should provide for consideration of potential economic costs of comparative planning scenarios, management decisions, and infrastructure investments and the evaluation of potential tradeoffs.
WS-11	Undertake efforts to fill identified data gaps through local program efforts, agency collaborations, and advocacy for additional state/federal resources, as needed.

Table 2-1: Water Supply Recommendations from the Regional Climate Action Plan

Item	Recommendations
WS-12	Foster the development and exchange of new information, methods and technical capabilities to address key questions of concern related to climate variability and sea level rise to support management decisions: • Assess impacts of observed and predicted climate variability and sea level rise on the frequency, duration, and intensity of flooding as a result of extreme tidal excursions, storm surge, and 100-year storm events, and where impacts are likely to be greatest, • Examine the effects of climate change on water availability and groundwater vulnerability due to sea level rise, and predicted changes in precipitation and evapotranspiration patterns and rates,and • Establish a venue for a periodic exchange of ideas between resource managers, policy makers, and researchers.
WS-13	Develop agency capabilities to provide rapid deployment of resources in immediate response to intense precipitation and storm events through use of Next RAD technology.
WS-14	Cultivate partnerships with federal and state agencies and professional associations with expertise in integrated water resource planning (such as the U.S. Army Corps of Engineers Institute for Water Resources, the United States Geological Survey, and Water Foundations) as sources of important research, reports, and information regarding climate change, and efforts being undertaken in other communities.
WS-15	Monitor changes in rainfall patterns, temperature means and extremes and sea level rise through coordination with NOAA and other key organizations/partners to better predict future wet-season and dry-season rainfall. Monitor emerging science in order to assess the adequacy of regional climate models. Choose an annual conference or other venue at which such trends can be reviewed at regular intervals.
WS-16	Manage water storage in the region's publicly-owned uplands and wetlands and in other land uses compatible with water storage, including wetland restoration, certain agricultural operations and certain renewable energy production facilities. This will further serve to protect high quality drinking water supply, increase aquifer recharge, and as a means for managing saltwater intrusion.
WS-17	Support complete implementation and funding for the Comprehensive Everglades Restoration Plan (CERP) and its updated versions as fundamental to Everglades restoration, to include increased freshwater flows to the Everglades system, thereby improving water quality, maximizing regional freshwater storage and aquifer recharge, and providing potential to abate saltwater intrusion, which will become increasingly important under variable climate conditions and in the face of sea level rise.
WS-18	Combine existing and develop new land acquisition priorities in a regional setting to protect high quality drinking water supply.

These recommendations are intended to meet the goals of advancing water management strategies and infrastructure improvements needed to mitigate adverse impacts of climate change and sea level rise on water supplies, water and wastewater infrastructure, and water management systems. It is the City's policy to implement these recommendations.

2.7 Lake Okeechobe 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 Minimum Flow and Minimum Water Level (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 (South Florida Water Management District, 2018).

In 2007, the SFWMD adopted the LEC Regional Water Availability 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 (South Florida Water Management District, 2018).

While the City is not directly impacted by the Lake Okeechobee surface water allocation limitations, the City is directly impacted by the LEC Regional Water Availability 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. The City's Biscayne Aquifer water consumption was limited to 52.55-mgd on an annual average day basis by this rule.

2.8 Lowering Lake Okeechobee Level

In January 2019, Florida's Governor announced his promotion of a plan to lower the minimum level of the Lake Okeechobee Regulation Schedule to 10.5 feet. The current Lake Okeechobee Regulation Schedule (LORS) ranges from a minimum level of 12.5 feet to a maximum of 15.5 feet. (Elsken, 2019).

While lowering Lake levels could provide environmental benefits to the Lake and the coastal estuaries, dropping the minimum level to 10.5 feet would reduce the amount of water stored in Lake Okeechobee, potentially reducing the amount of water available to recharge the Biscayne Aquifer. Should this happen, the risk of water shortages in the LEC, including the City of Fort Lauderdale, would increase. The City continues to monitor this issue and, when appropriate, will develop a policy to address any potential impacts to its water utility.

2.9 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 be needed to increase water availability during dry conditions and attenuate damaging peak flow events from Lake Okeechobee. The C-51 Reservoir project located in southwestern Palm Beach County is one such project and was described in Section 2.5.

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 US Army Corps of Engineers under the Comprehensive Everglades Restoration Project (CERP) (South Florida Water Management District, 2018).

The CERP Broward County Water Preserve Areas project was designed to perform three primary functions:

1. Reduce seepage loss from WCA-3A/3B to developed areas (i.e., the C-11 and C-9 basins).
2. Capture, store, and distribute surface water runoff from the western C-11 Basin.
3. Restore wetlands, recharge groundwater, improve hydroperiods in WCA-3A/3B, and maintain flood protection.

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

- C-11 Impoundment – A 1,168-acre impoundment to capture and store runoff from the C-11 Basin, reduce pumping of surface water into the WCAs, and provide releases for other regional uses.
- WCA-3A/3B Seepage Management Area – A 4,353-acre seepage management area that would establish a buffer to reduce seepage from WCA-3A/3B, connect the C-11 and C-9 impoundments via conveyance canal, and maintain flood protection.
- C-9 Impoundment – A 1,641-acre impoundment to capture and store surface runoff from the C-9 Basin, store C-11 Impoundment overflow, manage seepage, and 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 2014. Design efforts are under way for the C-11 Impoundment, and construction began in October 2017 on a portion of the mitigation area. Construction of the C-11 Impoundment is expected to be completed in 2027. The WCA-3A/3B Seepage Management Area is anticipated to begin construction in 2027. Construction of the C-9 Impoundment is expected to begin in 2030.

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

2.10 Expanded Use of Reclaimed Water to Meet Future Water Supply Demands

The City's Sewer System service area is in a critical water supply area, as designated by the SFWMD. As such, FAC Section 62-40.416 requires a reasonable amount of reuse of reclaimed water unless it is not economically, environmentally, or technically feasible. Section 403.064 of the Florida Statutes also requires domestic wastewater treatment plant permit applicants in a critical water supply problem area to submit a reuse feasibility study as part of their permit applications. Reuse feasibility studies were

completed in 1994, 2008, 2012 for the City. Reclaimed water projects have been deemed non-economical. The City plans to continue to assess reclaimed water opportunities that are beneficial to community.

2.11 Wellfield Management to Prevent Undesirable Changes in Floridan Aquifer Water Quality

The City is planning to install 6.0-mgd of finished water RO capacity at the Peele-Dixie WTP to treat water from the Floridan Aquifer System (FAS). This alternative water supply is projected to be needed by the year 2035, when water demand is forecasted to reach the City's permitted Biscayne Aquifer withdrawal limit. Using the FAS requires careful design and wellfield management to prevent undesirable changes in water quality.

Several FAS wellfields in the LEC Planning Area have experienced some water quality degradation. The SFWMD asserts that water quality degradation risks can be managed by utilities through appropriate wellfield design and operating protocols. The SFWMD recommended the following risk reduction strategies (South Florida Water Management District, 2018):

1. Increasing well spacing between wells to more than 1,000 feet to minimize interference effects and to reduce stress on the FAS
2. Rotating the operation of individual wells, thereby reducing overall pumping stress on the well's production zone
3. Plugging and abandoning individual wells experiencing increases in chloride concentration and replacing them with new wells elsewhere within the wellfield area
4. Reducing pumping rates at individual wells to minimize water level declines, which increase the potential for poor-quality water to enter the well's production zone from below (i.e., upconing)
5. Installing monitor wells to provide early warning of the need for changes to wellfield operations to minimize upconing or lateral movement of poor-quality water
6. Utilities should use an incremental approach to install and test production wells due to geologic variability within the FAS. Wellfields should be designed and monitored to prevent over-stressing production zones and to minimize changes in water quality.
7. Public water supply utilities developing FAS sources are encouraged to share water quality, water level, and hydrologic data to increase understanding of the FAS and improve regional groundwater models.
8. The SFWMD should continue to use the East Coast Floridan Model to address regional resource questions. Refinements to and recalibration of the model should be made as new data become available.
9. FAS users and SFWMD staff should evaluate the effects of water quality degradation and coordinate on related permitting, modeling, and planning strategies to maintain the viability of the FAS as a water supply source.

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. However, the 2018 LECWSP Update noted that "water quality should remain adequate for all users with RO treatment…" (South Florida Water Management District, 2018).

The City has long recognized the risks of changes in water quality and quantity in the FAS. The City's planning documents recommended addressing this risk through the following design features (Hazen and Sawyer, 2008b):

1. Design the RO system to treat water with a TDS up to approximately 8,000-mg/L and chloride concentration of 4,300-mg/L
2. Size the skids to allow for installation of future pressure vessels to decrease flux rate
3. Size variable frequency drives and main electrical feed for higher feed pump pressure, but only install the motor HP initially required
4. Size feed pump can for additional pump stage, but only add it if required later
5. Install piping and valves at higher pressure rating
6. Design the energy recovery turbine for a compromise that optimizes boost over most of the operating range at the expense of performance at the extremes of feed water salinity
7. Select wellfield pumps and size wellfield power facilities to suit the horsepower requirements of the future estimated salinity and total dissolved solids

The City will monitor the issue of FAS water quality degradation and factor this risk into its investment decision making process relative to alternative water supply opportunities.

3. Data and Analyses

3.1 Introduction

This section provides the following data and analyses.

- Summary of Existing Water Treatment Facilities
- Summary of Existing Wastewater Treatment Facilities
- Population Forecast
- Historical Raw and Finished Water Demand Data
- Forecast of Raw and Finished Water Demand through the Year 2040

3.2 Summary of Existing Water Treatment Facilities

3.2.1 Water Use Permit

The City of Fort Lauderdale obtains all its raw water supply from the surficial Biscayne Aquifer system via two active wellfields. These wellfields, which are commonly known as the Dixie Wellfield and the Prospect Wellfield, operate independently of each other, the former serving the Peele-Dixie WTP and the latter serving the Fiveash WTP. Both wellfields are permitted by the South Florida Water Management District under Water Use Permit (WUP) No. 06-00123-W. The permit was issued September 11, 2008 with an expiration date of September 11, 2028.

3.2.2 Raw Water Allocation

The WUP allows withdrawal from the Biscayne Aquifer within the limitations presented in Table 3-1.

Table 3-1: Biscayne Aquifer Withdrawal Limits from WUP 06-00123-W

Category	Limitation		
	Million Gallons per Year	Million Gallons per Month	Million Gallons per Day
Biscayne Aquifer Annual Withdrawal	19,181	--	52.55
Biscayne Aquifer Maximum Month Withdrawal	--	1,857	59.90
Dixie Wellfield Biscayne Withdrawal	5,475	465.0	15.00
Prospect Wellfield Biscayne Withdrawal	15,853	1,534.5	43.43

WUP Limiting Condition No. 4 indicates that the City's ground water sources are the Biscayne Aquifer and the Floridan Aquifer System. Additionally, WUP Limiting Condition No. 5 indicates an annual allocation of no more than 22,334 million gallons with a Biscayne Aquifer limitation of 19,181 million gallons per year (mgy). A reasonable interpretation of these limiting conditions is that the difference between the annual allocation and the Biscayne Aquifer Annual Withdrawal limitation would be supplied by the Floridan Aquifer, as follows:

Floridan Aquifer Allocation Limit = Annual Allocation Limit - Biscayne Aquifer Annual Withdrawal Limit

Where:

- Annual Allocation Limit = 22,334 mgy = 61.19 mgd (on an annual average day basis)
- Biscayne Aquifer Annual Withdrawal Limit = 19,181 mgy = 52.55 mgd
- Floridan Aquifer Allocation Limit = 22,334 mgy - 19,181 mgy = 3,153 mgy
- Floridan Aquifer Allocation Limit = 3,153 mgy = 8.64 mgd

In 2007, the City completed the construction of two Floridan Aquifer test wells at the Dixie Wellfield site under SFWMD Water Well Construction Permit #SF030907A issued March 30, 2007. These wells are currently idle and not equipped with pumping facilities. Based upon the permit conditions these wells are approved for testing purposes only. Withdrawals for public water supply from these wells is not currently permitted. The City would apply for a WUP modification prior to utilizing these existing wells for public water supply.

3.2.3 Fiveash Water Treatment Plant

The Fiveash WTP design capacity is permitted at 70 million gallons per day. Plant staff indicated the plant capacity may be limited to 60 million gallons per day. The plant uses conventional lime softening, followed by filtration. Polymer is added for turbidity removal and a polymer blend is added to assist in color removal. Disinfection is achieved by chloramination. The plant produces safe, reliable potable water which complies with current regulations. Figure 3-1 illustrates a simplified schematic of the Fiveash WTP.

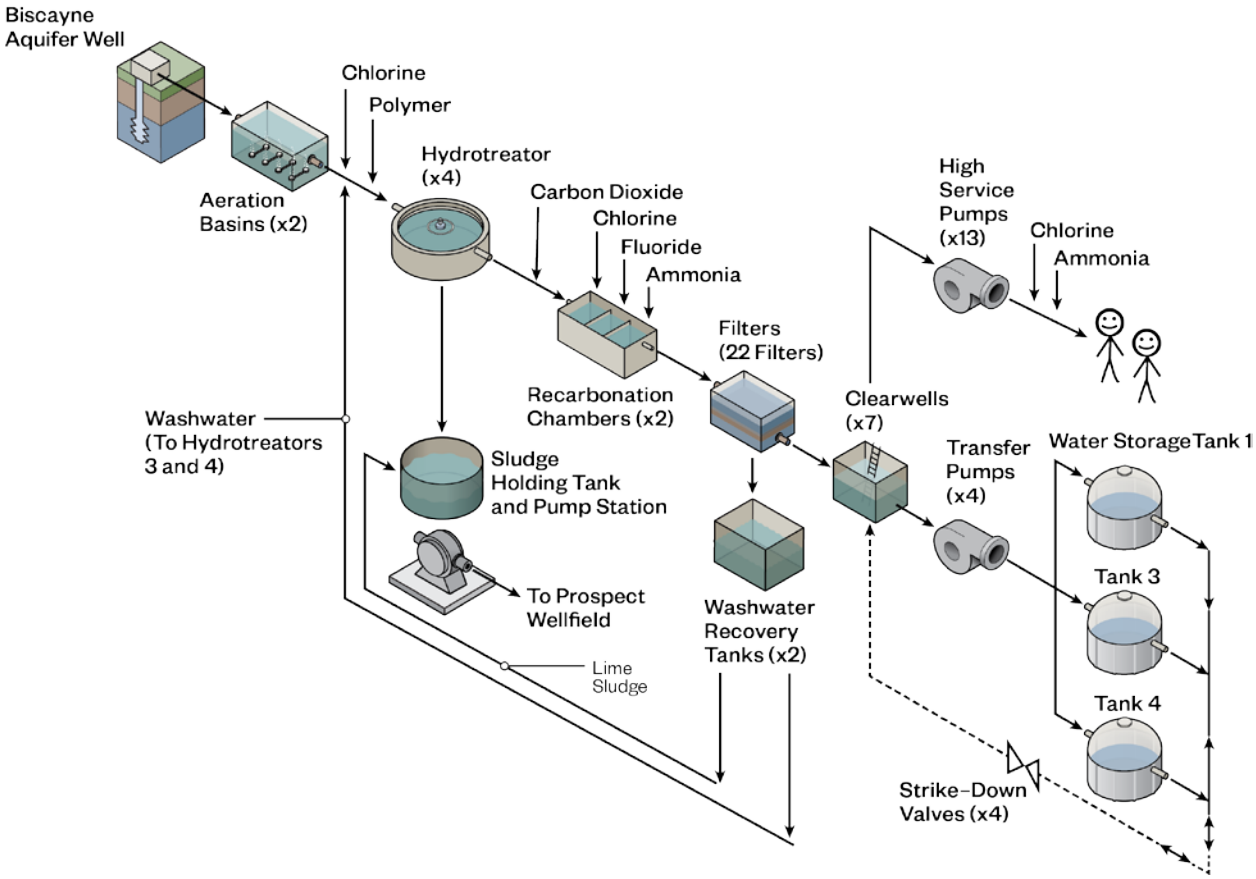

Figure 3-1: Fiveash WTP Schematic

3.2.4 Peele-Dixie Water Treatment Plant

The existing Peele-Dixie WTP is a nanofiltration treatment plant on the same site as the retired lime softening facilities. The nanofiltration treatment plant was placed into service the second quarter of 2008. The nanofiltration treatment plant has a maximum installed finished water treatment capacity of 12 million gallons per day with all units in service. The facility was designed to be expanded by the addition of three Reverse Osmosis (RO) trains that would utilize the Floridan Aquifer. If the RO system is constructed, the total installed potable water production capacity at the Peele Dixie WTP site would be 18 million gallons per day. Figure 3-2 illustrates a simplified schematic of the Peele-Dixie WTP.

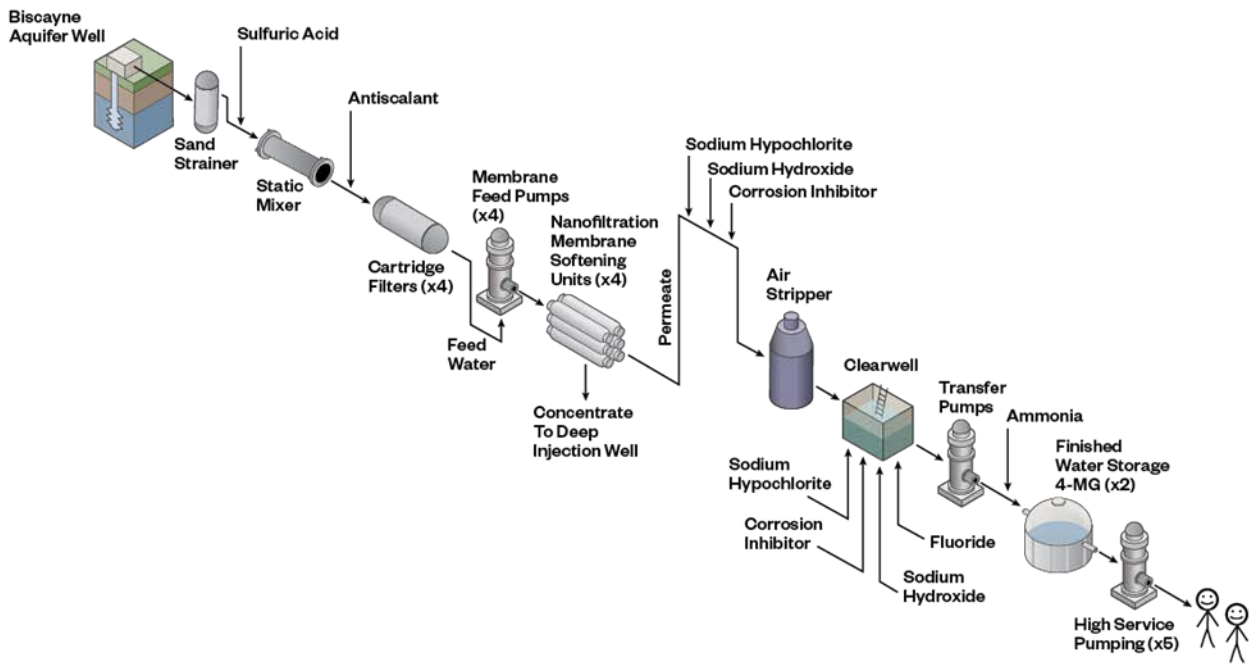

Figure 3-2: Peele-Dixie WTP Schematic

3.2.5 Prospect Wellfield

Raw water to the Fiveash WTP used to be supplied from groundwater wells that surround Prospect Lake plus wells that surround the Fort Lauderdale Executive Airport. The wells at the executive airport are not in use. As a result, all the raw water supplied to the Fiveash WTP is pumped from wells around Prospect Lake. This site is known as the Prospect Wellfield.

The Prospect Wellfield has 29 active production wells (Well Numbers 25 through 28, 30 through 49 and 50 through 54) that were constructed from 1969 through 2006. Production well No. 35 is only utilized on a standby basis. The wells have pumping capacities of approximately 2,100 gallons per minute (gpm) each, which equates to a total wellfield capacity of approximately 87 million gallons per day.

3.2.6 Dixie Wellfield

Raw water to the Peele-Dixie WTP is supplied from groundwater from the Dixie Wellfield. The Dixie Wellfield includes eight wells. The wells and pumping equipment where constructed in 2008. Each well has an approximate capacity of 2.5 million gallons per day. The wells are located within the Fort Lauderdale County Club golf course. The total capacity of all wells is approximately 20 million gallons per day. The wellfield withdrawal permit limits the maximum withdrawal to 15 million gallons per day on a maximum day basis.

In 2007, the City completed the construction of two Floridan Aquifer test wells at the Dixie Wellfield site. The purpose of these wells was to collect water quality and drawdown data for the planning the addition of reverse osmosis treatment at the Peele-Dixie WTP.

3.2.7 Saline Intrusion Monitoring (SALT) Program

The City of Fort Lauderdale operates a SALT program. The goal of the SALT program is to locate and monitor the saltwater interface in and around the City's wellfields. The purpose of the program is to provide an early warning monitoring system to assist wellfield managers in tracking the location and to manage withdrawals to limit the inland movement of the salt front. The City currently has 10 saltwater monitor wells.

3.2.8 Distribution System Water Storage Facilities

The City has two distribution system storage sites. These sites are known as the Poinciana Park Water Tank and Pump Station and the Northwest Second Avenue Water Tank and Pump Station. In 2006, the existing tank and pump station at the Poinciana Park Water Tank and Pump Station site were replaced with a 2.0-million-gallon pre-stressed concrete ground storage tank and pumping station with backup power diesel engine generator. The Poinciana Park pump station also includes remote monitoring and control at the Fiveash WTP.

The existing elevated steel water tank at the Northwest Second Avenue site is 1.0 million gallons. The pump station was refurbished in 2012 with a new pump, electrical supply and automated controls system that included remote monitoring and control at the Fiveash WTP. The interior and exterior of the water tank was rehabilitated and painted in 2019.

3.2.9 Raw Water Aquifer Storage and Recovery

The City's existing Aquifer Storage and Recovery (ASR) well is located at the Fiveash WTP. The ASR well was constructed in 1998. Performance testing to date has shown less than anticipated water recovery rates. The ASR well currently has a "no flow" permit.

3.2.10 Finished Water Distribution System

The City of Fort Lauderdale's water distribution system consists of over 770 miles of 2 to 54-inch diameter water mains that convey the finished water from the treatment facilities to the individual customers. In general, the larger diameter transmission mains radiate from the treatment facilities and decrease in size as they extend throughout the service area. The major transmission mains travel east from the WTPs to the populated portions of the service area and the two systems are interconnected along major north-south avenues.

3.2.11 Interlocal Agreements and Bulk Sales

The City of Fort Lauderdale sells finished water in bulk to the jurisdictions listed below. The water sold is measured via master meters.

- Broward County Water and Wastewater Services
- City of Oakland Park
- City of Tamarac

- City of Wilton Manors
- Port Everglades
- Florida Department of Transportation (FDOT) Cypress Creek Toll Plaza
- Town of Davie

The City neither buys nor sells raw water.

3.2.12 Distribution System Interconnects

The City of Fort Lauderdale maintains distribution system interconnects with other utilities. Table 3-2 identifies the location and size of each interconnect. The isolation valves on all interconnects are closed.

Table 3-2: City of Fort Lauderdale Water System Interconnects

Item	Area Serviced	Location	Size	Meter	Status
1	Broward County	NW 9 AVE / 62 ST	10"	No	Operable
2	Broward County	SW 35 AVE / W Broward BLVD	10"	No	Operable
3	Broward County	SW 34 ST / 9 AVE	8"	No	Operable
4	Broward County	SW 34 ST/ 2 AVE	6"	005014099	Operable
5	Broward County	SW 20 ST / SR 7 (Broadview)	6"	004237769	Operable
6	Broward County	NW 24 AVE / 19 ST	6"	No	Interconnect is capped and will be removed
7	Plantation	Peters RD / SR 7	8"	No	Operable
8	Pompano	5450 N Ocean DR	10"	No	Operable
9	Pompano	NE 68 ST/ 20 TERR	6"	No	Operable
10	Pompano	McNab & Lyons (NW 31 AVE)	12"	No	Operable

3.2.13 Treatment Losses

Treatment losses, for the purpose of this report, is defined as the difference between raw water pumped and finished water pumped. The terminology "treatment loss" may be misleading since the water is not actually "lost" but is repurposed for ground water recharge or other beneficial use.

Treatment losses vary with the efficiency of the treatment technology utilized. The treatment loss for the Fiveash WTP, which uses lime softening technology, is roughly one to three percent of the raw water pumped. The treatment loss for the Peele-Dixie WTP, which uses nanofiltration softening technology, is roughly 15 percent of the raw water pumped. The historic amount of raw water pumped and finished water produced in mgd and the overall treatment loss in mgd and as a percent of raw water pumped from 2010 to 2018 is summarized in Table 3-3. The overall average water treatment loss over the nine-year period was 4.0 percent of raw water pumped.

Table 3-3: Raw Water, Finished Water and Overall Treatment Loss, 2010 to 2018

Water Use Category	Annual Average Day Flow (mgd)								
	2010	2011	2012	2013	2014	2015	2016	2017	2018
(1) Raw Water (Biscayne Wellfields)	41.71	41.39	39.75	39.18	39.25	41.45	40.64	40.24	41.49
(2) Finished Water Pumped from WTPs	40.20	40.17	38.36	37.78	37.45	39.75	38.95	38.44	39.49
(3) Treatment Loss = (1) - (2)	1.51	1.22	1.39	1.40	1.80	1.70	1.68	1.80	2.00
(4) Loss as % of Raw Water Pumped = [(3) / (1)] x 100	3.6%	3.0%	3.5%	3.6%	4.6%	4.1%	4.1%	4.5%	4.8%

3.2.14 Distribution System Losses

Distribution system losses are presented in Table 3-4. The percent distribution system loss is based on a percent of finished water pumped. The distribution system losses have averaged 11.4 percent over the last nine years (2010 to 2018).

Table 3-4: Calculation of Historical Distribution System Water Loss, 2010 to 2018

Water Use Category	Annual Average Day Flow (mgd)								
	2010	2011	2012	2013	2014	2015	2016	2017	2018
(1) Raw Water (Biscayne Wellfields)	41.71	41.39	39.75	39.18	39.25	41.45	40.64	40.24	41.49
(2) Finished Water Pumped from WTPs	40.20	40.17	38.36	37.78	37.45	39.75	38.95	38.44	39.49
(3) Billed Authorized Consumption	39.08	34.71	32.33	33.17	33.04	35.23	32.44	33.53	32.92

Table 3-4: Calculation of Historical Distribution System Water Loss, 2010 to 2018

Water Use Category	Annual Average Day Flow (mgd)								
	2010	2011	2012	2013	2014	2015	2016	2017	2018
(4) Unmetered Authorized Consumption (1.25% estimated for flushing) = 0.0125 x (2)	0.50	0.50	0.48	0.47	0.47	0.50	0.49	0.48	0.49
(5) Total Authorized Consumption = (3) + (4)	39.58	35.21	32.81	33.64	33.51	35.73	32.93	34.01	33.41
(6) Distribution System Loss = (2) – (5)	0.62	4.96	5.55	4.14	3.94	4.03	6.03	4.42	6.07
(7) % Distribution System Loss = [(6) / (2)] x 100	1.5%	12.3%	14.5%	11.0%	10.5%	10.1%	15.5%	11.5%	15.4%

Authorized unmetered water consumption at the WTPs and the distribution system are included in the distribution system loss reported in Table 3-4. City staff believe this consumption is significant. However, no data on unmetered water consumption within the WTPs or in the distribution system are currently available. Hence, the actual distribution system loss is believed to be lower than that indicated in the table. The City is planning to implement improvements to incorporate meters to measure water consumption at the WTPs.

3.2.15 Outstanding Compliance Issues

There are no outstanding regulatory compliance issues related to the City of Fort Lauderdale's water facilities.

3.2.16 Planned Upgrades or Expansions

The City has planned the following major improvements at its water treatment plant:

- Reliability Upgrades and Disinfection System Replacement: This project includes new backup power generators, replacement of chlorine gas with sodium hypochlorite, a carbon dioxide system to control finished water pH and a series of improvements to automate the function of certain equipment. This project will begin construction in late 2019 and likely be completed in 2023.
- Granular Activated Carbon Pilot Study & Plant Evaluation: This project includes evaluation of treatment technologies to achieve the City's color goal at the Fiveash WTP. The project is ongoing. The results of this study will be a report recommending a series of capital improvements. The report is expected to be completed in 2019.

- CUSMP Projects: The City completed its CUSMP in 2017. This document master planned a series of water and sewer improvements. The City continuously evaluates the efficacy of the projects recommended in the CUSMP in planning its investment decisions.

3.3 Summary of Existing Wastewater Treatment Facilities

3.3.1 Introduction

The City owns and operates the George T. Lohmeyer (GTL) Wastewater Treatment Plant (WWTP). The GTL WWTP is located on a 9.6-acre site near Southeast 17th Street and Eisenhower Boulevard. The plant provides secondary treatment followed by deep-well injection via five injection wells located approximately one-quarter mile south of the site. The WWTP treats wastewater generated in a region encompassing the following areas:

- City of Fort Lauderdale
- City of Wilton Manors
- City of Oakland Park
- Port Everglades
- A portion of the City of Tamarac
- A portion of unincorporated Broward County
- A portion of the Town of Davie

3.3.2 Treatment Capacity

The facility has been expanded several times over the years. It was converted from a small trickling filter plant to a 22 million gallon per day facility in 1978, with effluent disposal via an outfall to the Intracoastal Waterway. In 1984, four deep injection wells were constructed for effluent disposal and the plant was converted and expanded to a permitted capacity of 38 million gallon per day. New clarifiers and biosolids dewatering facilities were added to the existing treatment train.

In 1994, the Florida Department of Environmental Protection issued a permit with a capacity of 43 million gallon per day, on a maximum three-month average daily flow (M3MADF) basis. In 2001, Florida Department of Environmental Protection issued a permit modification that increased the design capacity of the plant to 54.0 MGD, pending approval of the increase in disposal capacity of the underground injection well system. The City then re-rated the plant to 56.6 million gallon per day on a M3MADF basis.

3.3.3 Deep Well Injection Wells

The GTL WWTP effluent pump station discharges to five deep injection wells via 3,500 feet of 54-inch-diameter force main. The wells are permitted to operate at up to 10 feet per second (fps) flow velocity on

a sustained basis and 12 fps during emergencies. These velocities yield total injection well capacities of 93.25 and 112 MGD, respectively. The existing deep injection wells do not require high level disinfection (HLD) under the United Stated Environmental Protection Agency Underground Injection Control (UIC) Program. If a new injection well is required it would require HLD under the UIC program. HLD is not required for the existing injection wells under current regulations.

3.3.4 Reclaimed Water

The existing facility does not currently include reclaimed water treatment facilities. However, on average the plant uses about 4 MGD of its own secondary effluent as in-plant re-use instead of potable water.

3.4 Population and Water Demand Forecasts

3.4.1 Population Forecast

The population forecast was prepared by the City's planning consultant (i.e., The Corradino Group) based on University of Florida's Bureau of Economic and Business Research (BEBR) data. Table 3-5 presents the population forecast for the City of Fort Lauderdale's water service area from 2020 through the year 2040. Historical population for the year 2015 is also included.

Table 3-5: Population by Jurisdiction, Actual 2015 and Forecasted 2020 to 2040

Jurisdiction	2015	2020	2025	2030	2035	2040
Fort Lauderdale	175,228	179,997	208,747	222,915	232,419	240,134
Lauderdale-by-the-Sea	4,147	3,689	3,996	3,940	3,890	3,850
Sea Ranch Lakes	700	693	680	715	734	746
Unincorporated Broward County	6,457	7,060	7,854	8,561	8,854	9,486
Davie	529	526	700	821	919	1,016
Lauderdale Lakes	381	383	378	386	386	390
Lauderhill	2,917	2,862	3,085	3,306	3,450	3,571
Lazy Lake	26	25	27	29	30	31
North Lauderdale	358	352	1,145	1,145	1,133	1,123
Oakland Park	31,111	31,952	32,719	34,693	36,114	37,145
Tamarac	2,054	2,037	2,007	2,032	2,054	2,041
Wilton Manors	11,932	11,878	13,132	14,225	14,935	15,576
Port Everglades	Population is included in Unincorporated Broward County					
Total	**235,840**	**241,454**	**274,470**	**292,768**	**304,918**	**315,109**

3.4.2 Comparison With 2018 LECWSP Update Population Forecast

Figure 3-3 compares the population forecast presented above with the population forecast in the 2018 LECWSP Update.

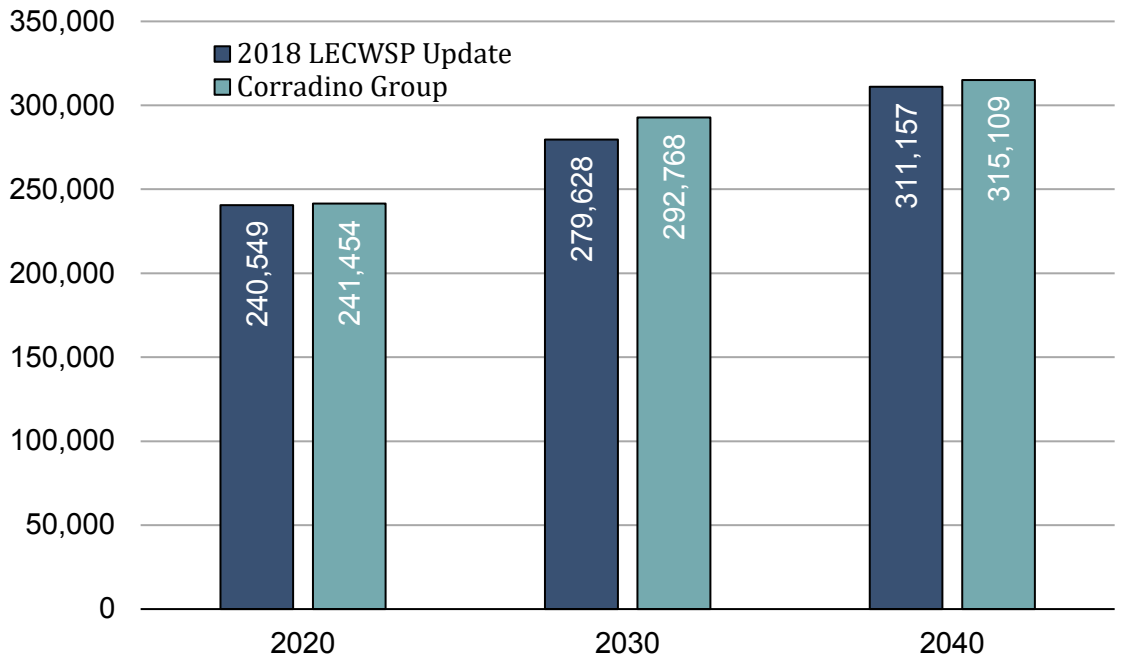

Figure 3-3: Population Forecast Comparison

The population forecast prepared by the Corradino Group is 3,952 persons higher in the year 2040 than that presented in the 2018 LECWSP Update. The Corradino Group population forecast is used to develop the water demand forecast presented in this report.

3.4.3 Maps of Current and Future Served Areas

Figure 3-4 depicts the City of Fort Lauderdale water service area. The City of Fort Lauderdale provides water within the Fort Lauderdale as well as the following jurisdictions:

- Entirety of the City of Lauderdale-by-the Sea
- Entirety of the Village of Sea Ranch Lakes
- Small areas of Unincorporated Broward County (i.e., Roosevelt Gardens, Franklin Park, Washington Park, and Boulevard Gardens communities)
- Small area of the Town of Davie
- Small area of the City of Lauderdale Lakes
- Small area of the City of Lauderhill

- Entirety of the Village of Lazy Lake
- Small area of the City of North Lauderdale
- Entirety of the City of Oakland Park
- Portions of the City of Tamarac
- Entirety of the City of Wilton Manors
- Port Everglades

Certain jurisdictions are fed through master meter accounts of an upstream consecutive user, as follows:

- Lauderdale Lakes is fed through an Oakland Park Master Meter;
- Lazy Lake is a village contained entirely within the borders of the City of Wilton Manors and is fed through a Wilton Manors master meter.

The balance of the City's customers are supplied with water through individual retail customer water meters (multifamily, single family, commercial and irrigation accounts), including the following:

- City of Fort Lauderdale
- City of Lauderdale-by-the Sea
- Village of Sea Ranch Lakes
- Unincorporated Broward County
- City of Lauderhill

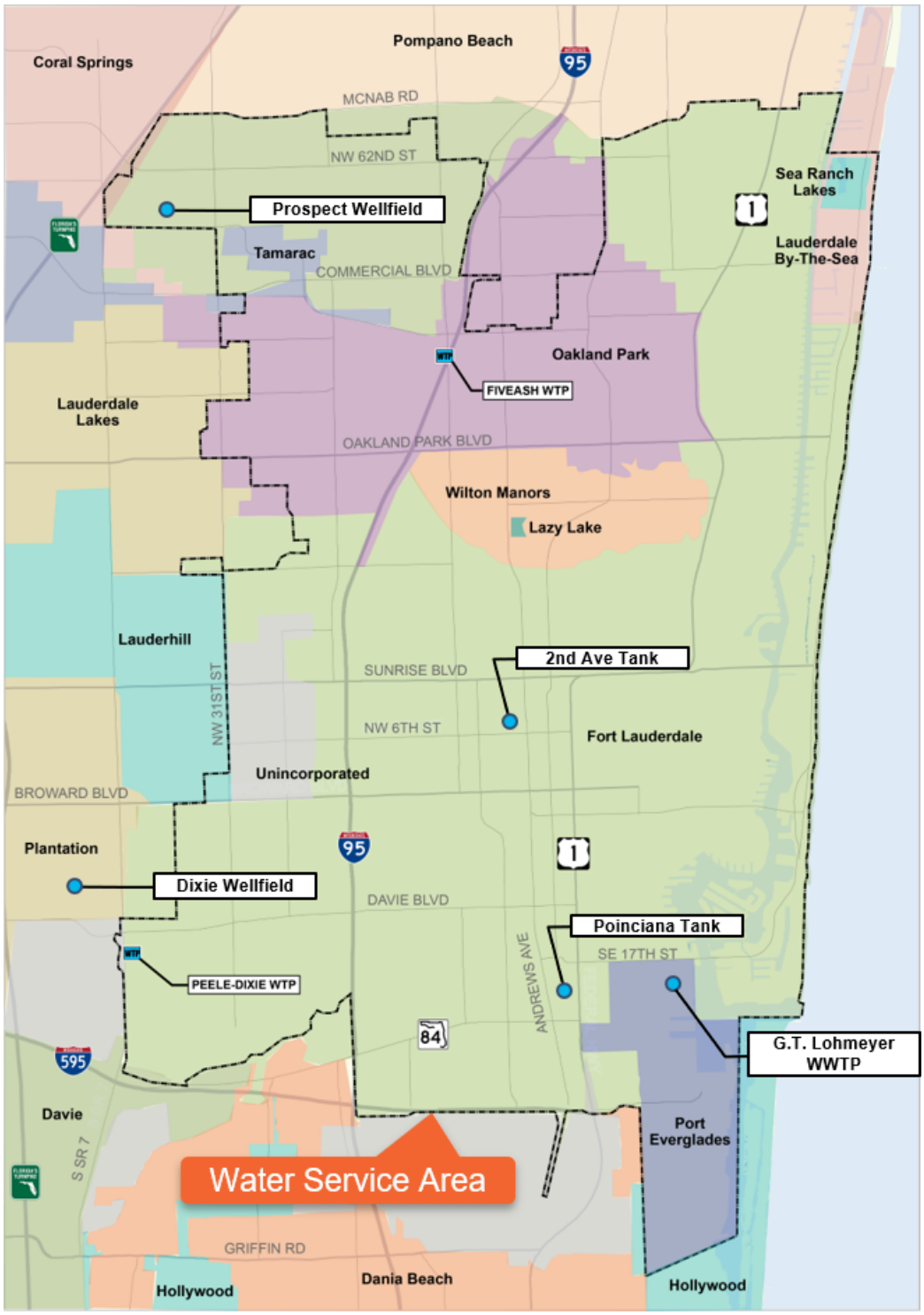

Figure 3-4: Water Service Area

3.4.4 Potable Water Level-of-Service Standard

The City of Fort Lauderdale has set level-of-service standards for its water system as summarized in Table 3-6.

Table 3-6: Water System Level-of-Service Standards

Component	Level-of-Service Standard / Goal	Does the City meet this LOS Goal?
Raw Water Supply	Maximum Day Demand with 20 percent of wells out of service for maintenance	Yes
Treatment Capacity	Maximum Day with all units in service	Yes
Minimum system pressure during peak hour demand with largest pump out of service during non-fire flow conditions	Maintain a minimum of 40 psi in the distribution system	Yes
Minimum system pressure during maximum day demand plus fire flow	Maintain a minimum of 30 psi in the distribution system	Yes
Finished Water Pumped Per Capita – 2008 Comprehensive Plan Volume 1, Infrastructure Element	Policies 1.2.2 and 2.3.1 of the Comprehensive Plan Volume 1, Infrastructure Element indicates that the level of service for finished water pumped shall be 197 gallons per capita per day	
Finished Water Pumped Per Capita – City Goal	It is the City's goal to reduce the finished water pumped level of service to 170 gallons per capita per day through conservation by the year 2028	Yes
Finished Water Storage	Comply with FAC 62-555.320(19): minimum requirement of 25 percent of maximum day demand plus maximum fire flow volume with all tanks in service. Maximum fire flow storage based upon a 5,000 gallons per minute (gpm) fire over a four-hour period.	Yes
Maximum Distribution System Water Loss	10 Percent of Finished Water Pumped	No

3.4.5 Historical Annual Average Raw Water and Finished Water Use

Table 3-7 presents historical Annual Average Daily Flow (AADF) pumping data from the City's WTPs (finished water) and wellfields (raw water) along with the estimated service area population from 2014 to 2018. The historical per capita water use during this time frame are also presented.

Table 3-7: Historical Raw and Finished Water Average Annual Daily Flow (AADF) Data, 2014 to 2018

Year	Water Service Area Population	AADF Raw Water Pumped		AADF Finished Water Produced	
		Raw Water Pumping Rate (mgd)	Per Capita (Gallons per person per day)	Finished Water Pumping Rate (mgd)	Per Capita (Gallons per person per day)
2014	233,289	39.25	168	37.45	161
2015	235,840	41.45	176	39.75	169
2016	236,938	40.64	172	38.95	164
2017	238,048	40.24	169	38.44	161
2018	239,166	41.49	173	39.49	165
2014 to 2018 Average:		40.61	172	38.82	164

The City has established a finished water per capita goal of 170 gallons per person per day by the year 2028 which appears to have been met as of 2018.

3.4.6 Maximum Day Factor

Table 3-8 presents the data used to determine the maximum day factor.

Table 3-8: Maximum Day Factor

Year	Finished Water Pumped (millions of gallons)	Annual Avg Day (mgd)	Maximum Day (mgd)	Maximum Day Factor
2014	13,843	37.9	49.4	1.30
2015	14,507	39.7	50.8	1.28
2016	14,213	38.9	47.2	1.21
2017	14,912	40.9	45.3	1.11
2018	14,414	39.5	50.0	1.27
Maximum Day Factor (averaged from 2014 to 2018)				**1.23**

Based on the above data, a maximum day factor of 1.23 was used to forecast future maximum day flows.

3.4.7 Overall Water Demand Forecast

Table 3-9 presents the overall water demand forecast for the City of Fort Lauderdale's water service area through the year 2040. The table also presents historical data for the year 2015. Forecasts are presented for the Biscayne Aquifer raw water and finished water demands on an AADF basis. Additionally, the maximum day water demand is provided based upon the historical maximum day to annual average day ratio of 1.23 (based upon water pumping data from 2014 to 2018). The data in the table below assumes that the City future finished water per capita water demand will be 164 gallons per person per day which is the average per capita water use from 2014 to 2018. It is below the goal established in 2008 of 170 gallons per person per day by the year 2028.

Table 3-9: Overall Water Demand Forecast

Year	Population	Biscayne Aquifer Raw Water			Finished Water		
		Per Capita (gpcd)	AADF Demand (mgd)	Max Day Demand (mgd)	Per Capita (gpcd)	AADF Demand (mgd)	Max Day Demand (mgd)
2015	235,840	176	41.5	51.0	169	39.8	48.9
2020	241,454	172	41.5	51.1	164	39.6	48.7
2025	274,470	172	47.2	58.1	164	45.0	55.4
2030	292,768	172	50.4	61.9	164	48.0	59.1
2035	304,918	172	52.4	64.5	164	50.0	61.5
2040	315,109	172	54.2	66.7	164	51.7	63.6

3.4.8 Biscayne Aquifer Water Supply Deficit is Predicted by the Year 2035

The Biscayne Aquifer allocation is limited to 52.55 mgd on an annual average day basis. Figure 3-5 and Figure 3-6 illustrate the forecasted Biscayne Aquifer raw water demand and finished water demand, respectively, on an AADF basis. Based on these projections, a Biscayne Aquifer water supply deficit is predicted beginning in the year 2035. By the year 2040, an estimated 1.6 mgd water supply deficit is expected that will need to be addressed through alternative water sources. The City plans and expects that this deficit will be addressed through reverse osmosis of water pumped from the Floridan Aquifer.

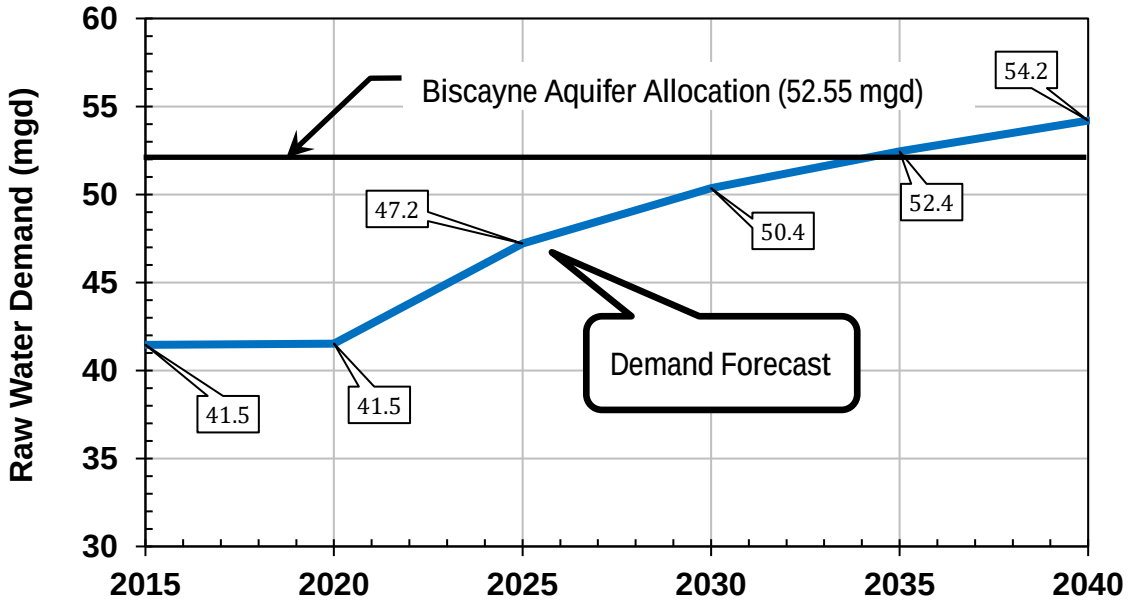

Figure 3-5: Biscayne Aquifer Raw Water Demand Forecast Annual Average Day (mgd)

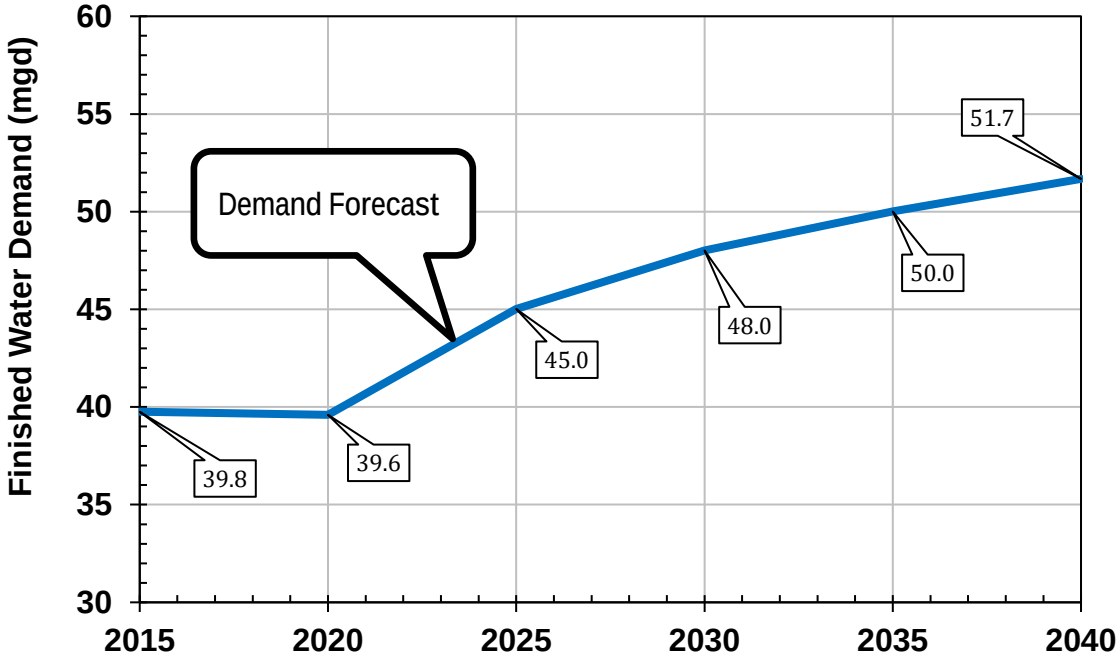

Figure 3-6: Finished Water Demand Forecast Annual Average Day (mgd)

3.4.9 Biscayne Aquifer Treatment Capacity

The Fiveash WTP treats the Biscayne Aquifer via lime softening. The Peele-Dixie WTP treats the Biscayne Aquifer via nanofiltration softening. The treatment capacity of these existing facilities are as follows:

- Peele-Dixie WTP Finished Water Capacity: 12-mgd
- Fiveash WTP Finished Water Capacity: 70-mgd

The above capacities are based on the permits for each WTP. The overall treatment capacity (Fiveash plus Peele-Dixie) is 82-mgd. A prior study indicates that the Fiveash WTP capacity may be limited to 60-mgd due to a hydraulic "bottleneck" (Montgomery Watson, 1996). If this limitation exists, the overall treatment capacity (Fiveash plus Peele-Dixie) would be 72-mgd.

Figure 3-7 illustrates the finished water demand forecast on a maximum day basis. The existing lime softening and nanofiltration treatment technology at the Fiveash WTP and the Peele-Dixie WTP has adequate capacity to meet the maximum day demand with all treatment units in service.

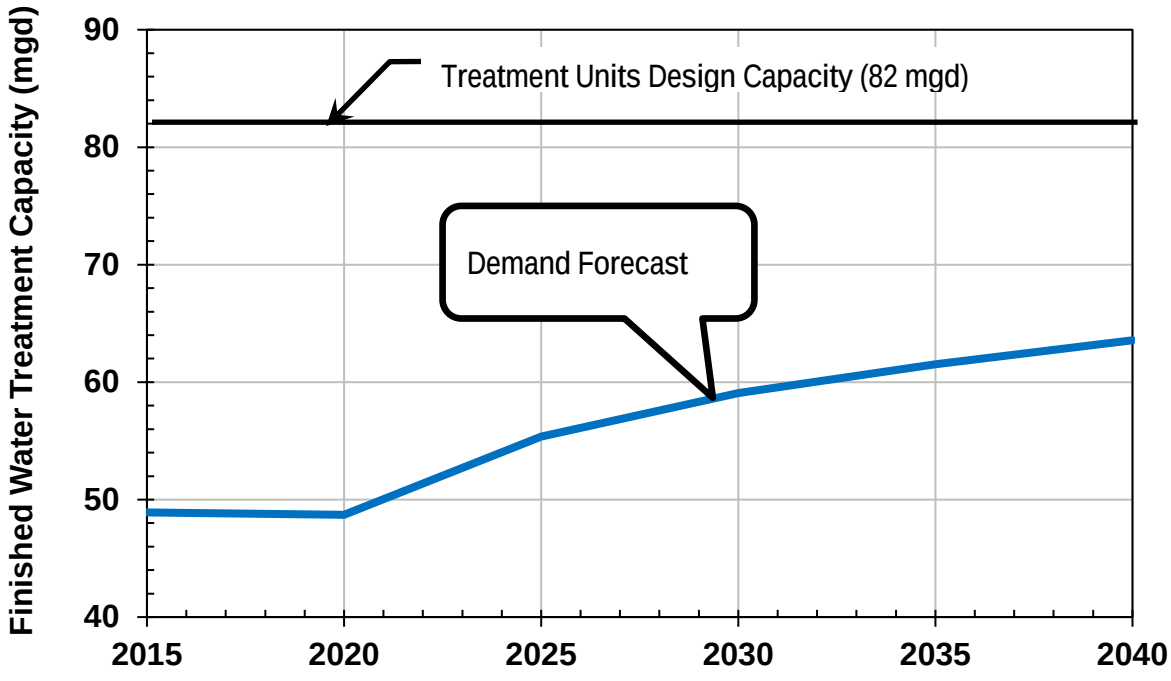

Figure 3-7: Finished Water Treatment Capacity Needed Maximum Day (mgd)

3.4.10 Raw Water Demand by Jurisdiction AADF

Table 3-10 presents the Biscayne Aquifer raw water demands on an AADF basis broken down by municipal jurisdictions within the City of Fort Lauderdale's water service area.

Table 3-10: Biscayne Aquifer Raw Water Demand AADF (mgd) by Jurisdiction

Jurisdiction	2015	2020	2025	2030	2035	2040
Fort Lauderdale	29.4	29.4	34.2	36.4	38.0	39.2
Lauderdale-by-the Sea	0.70	0.60	0.65	0.64	0.64	0.63
Sea Ranch Lakes	0.12	0.11	0.11	0.12	0.12	0.12
Unincorporated Broward plus Port Everglades	2.94	3.21	3.57	3.90	4.03	4.32
Davie	0.09	0.09	0.11	0.13	0.15	0.17
Lauderdale Lakes	0.06	0.06	0.06	0.06	0.06	0.06
Lauderhill	0.49	0.47	0.50	0.54	0.56	0.58
Lazy Lake	0.004	0.004	0.004	0.005	0.005	0.005
North Lauderdale	0.06	0.06	0.19	0.19	0.19	0.18
Oakland Park	5.22	5.22	5.35	5.67	5.91	6.06
Tamarac	0.34	0.33	0.33	0.33	0.34	0.33
Wilton Manors	2.00	1.94	2.15	2.33	2.44	2.54
Total	**41.5**	**41.5**	**47.2**	**50.4**	**52.4**	**54.2**

3.4.11 Finished Water Demand by Jurisdiction

Table 3-11 presents the finished water demands on an AADF basis broken down by municipal jurisdictions within the City of Fort Lauderdale's water service area.

Table 3-11: Finished Water Demand AADF (mgd) by Jurisdiction

Jurisdiction	2015	2020	2025	2030	2035	2040
Fort Lauderdale	28.2	28.1	32.6	34.7	36.2	37.4
Lauderdale-by-the Sea	0.67	0.58	0.62	0.61	0.61	0.60
Sea Ranch Lakes	0.11	0.11	0.11	0.11	0.11	0.12
Unincorporated Broward plus Port Everglades	2.82	3.06	3.41	3.71	3.84	4.12
Davie	0.09	0.08	0.11	0.13	0.14	0.16
Lauderdale Lakes	0.06	0.06	0.06	0.06	0.06	0.06
Lauderhill	0.47	0.45	0.48	0.52	0.54	0.56
Lazy Lake	0.004	0.004	0.004	0.005	0.005	0.005
North Lauderdale	0.06	0.05	0.18	0.18	0.18	0.17
Oakland Park	5.01	4.98	5.11	5.41	5.63	5.78
Tamarac	0.33	0.32	0.31	0.32	0.32	0.32
Wilton Manors	1.92	1.85	2.05	2.22	2.33	2.42
Total	39.8	39.6	45.0	48.0	50.0	51.7

3.5 Alternative Water Supply Plan

The data in Figure 3-4 indicate that demand is projected to exceed the Biscayne Aquifer supply in the year 2035. The City plans that this supply deficit will be addressed via reverse osmosis treatment of the Floridan Aquifer System (FAS).

In 2008, the City completed conceptual plans for implementing 6-mgd of finished water capacity reverse osmosis at the Peele-Dixie WTP. Five FAS wells were also conceptually planned. The planning documents (illustrated in Figure 3-8) are titled "*Floridan Aquifer Conceptual Plan for the Dixie Wellfield*" and "Peele-Dixie Reverse Osmosis Basis of Design Report".

Figure 3-8: Alternative Water Supply Planning Documents

These plans provide the City with a roadmap to quickly implement this alternative water supply in advance of demand exceeding its traditional Biscayne Aquifer supply. It is estimated that it would require approximately five years to implement FAS wells and RO treatment at the Peele-Dixie WTP. The cost for implementing this project is presented in Section 4.

3.6 Conservation

The City of Fort Lauderdale has been promoting water conservation for more than 25 years. Conservation is a proven strategy for delaying implementation of expensive alternative water supply technologies. In 2008, the City established a goal of reducing finished water demand to 170 gallons per person per day by the year 2028. This goal has been met. From 2014 to 2018, the average gallons per person per day has ranged from 161 to 169. The following subsections summarize the City of Fort Lauderdale's ongoing conservation initiatives.

3.6.1 Broward Water Partnerships

The City of Fort Lauderdale is a member of the Broward Water Partnership, which is a government service consisting of 19 municipalities and water utilities that collaborate on water conservation implementation.

3.6.2 ConservationPay$ Program

The City of Fort Lauderdale participates in a water conservation incentive program through an interlocal agreement (ILA) with Broward County marketed under the program name "Conservation Pay$". The City of Fort Lauderdale became partners with Broward County in the program on June 21, 2011.

The program provides rebates and free water-conserving devices to qualifying water customers, and it has a focused outreach and education component. Rebate dollars are used for the replacement of older,

wasteful toilets in addition to the distribution of other water efficient fixtures and devices such as aerators and commercial pre-rinse spray valves. A consistent marketing and media campaign advances water conservation efforts. The program goal is to reach a sustained minimum 10 percent reduction in water use county-wide over 20 years.

3.6.3 NatureScape Irrigation Services

Broward County's NatureScape Irrigation Service (NIS) is a water conservation program offered in partnership with 18 local water utilities. The goal of the NIS is to reduce urban water consumption and improve the quality of surface waters through efficient irrigation and environmentally-friendly landscape practices. The NIS program targets large properties, such as government facilities, parks, schools, and multi-family residential complexes, where water conservation efforts can produce the greatest water savings.

Table 3-12 presents the historical water savings from completed contract years under the NatureScape program.

Table 3-12: Historical NatureScape Program Water Savings

Contract Year	Water Saved (gallons)
FY 2010 - 2011	11,599,796
FY 2011 - 2012	24,378,385
FY 2012 - 2013	7,431,746
FY 2013 - 2014	27,152,112
FY 2014 - 2015	7,662,119
FY 2015 - 2016	8,266,284
FY 2016 - 2017	5,761,938
FY 2017 - 2018	7,019,896
Total	**99,272,276**

3.6.4 Water Matters Day

The City of Fort Lauderdale is a sponsor of Broward County's Water Matters Day program. Water Matters Day is a one-day water conservation event where participants learn about our local and regional water resources, how water is managed and how utilities are planning for future water needs. Participants receive tips and information on water conservation, receive rebates and incentives for upgrading to water-conserving devices, and learn how to create "Florida friendly" and drought tolerant landscapes. The goal of the program is to promote long-term water demand reductions.

3.6.5 Conservation Rate Structure

A conservation rate ordinance was originally enacted by the City in 1996 and has been in continuous use. A conservation rate structure provides progressively higher rates as water usage increases. The current

water and sewer rate structure is provided in Table 3-13. These Fiscal Year 2019 rates reflect a five percent increase from Fiscal Year 2018.

Table 3-13: Fiscal Year 2019 Water and Sewer Rate Structure

Customer Type	Usage Block	Consumption Per Month in Gallons	Water Rate	Sewer Rate
Single-Family Rates in 1,000 gallons per month	Block 1	0 – 3,000	$2.32	$4.10
	Block 2	4,000 – 8,000	$5.12	$9.06
	Block 3	9,000 – 12,000	$6.41	
	Block 4	13,000 – 20,000	$8.64	
	Block 5	> 20,000	$12.54	No charge for usage over
Multi-Family Rates in 1,000 gallons per month times number of dwelling units	Block 1	0 – 1,000	$2.32	$4.10
	Block 2	2,000 – 3,000	$5.12	$9.06
	Block 3	4,000 – 5,000	$6.41	
	Block 4	6,000 – 8,000	$8.64	
	Block 5	> 8,000	$12.54	No charge for usage over

3.6.6 Water Shortage Restrictions

Section 28-1A of the Code of Ordinances (in effect since 2009) requires that in the event the South Florida Water Management District declares a drought and mandates water restrictions in one of the four established drought phases (Phase I, II, II or IV), the City of Fort Lauderdale implements a surcharge on water usage. The amount of the surcharge is based on the level of water restrictions (Phase I, II, II or IV) and the number of gallons used. The surcharge is applied to water, wastewater and sprinkler meter accounts.

3.6.7 Florida-Friendly Landscaping

Per Section 28-1A of the Code of Ordinances (in effect since 2009), it is the City's policy to encourage use of Florida-friendly drought resistant plants and trees within the City. Following Florida-Friendly Landscaping™ principles, conservation of 40 to 60 percent of the water that traditional landscapes require may be feasible. The City's Code of Ordinances requires Florida-Friendly Landscaping for new development and re-development.

3.6.8 Green Infrastructure Development Guidelines

In addition, the City adopted an update to the City's Downtown Master Plan on February 4, 2014 to include transit-oriented development (TOD) guidelines. The adopted TOD guidelines aim to create pedestrian-friendly, vibrant station areas to support the continued growth of the Downtown as a live, work, and play environment.

The TOD guidelines also included green building, green site design and green infrastructure guidelines that apply to new residential development in the Downtown Regional Activity Center (RAC). The TOD guidelines recommend that new residential projects should comply with the County's Comprehensive Plan – Climate Change Element, and recommend that projects incorporate green infrastructure and green landscaping into site design, such as the use of porous pavement, bioswales, raingardens, green roofs, drip irrigation, drought tolerant and native landscaping, and Florida-Friendly Landscaping.

3.6.9 Green Infrastructure Design Details and Specification

The City has developed engineering specifications and engineering details for certain green infrastructure, including: bioswales, sidewalk subsurface storage, precast porous pavement, porous pavers, porous asphalt, and rain gardens. The drawings and specifications facilitate implementation of the City's commitment to stormwater capture and aquifer recharge.

3.6.10 Irrigation System Design Code

Per Section 28-1A of the Code of Ordinances (in effect since 2009), all new irrigation systems permitted after 2009 require rain sensors to automatically shutdown if rain is detected.

3.6.11 Landscape Irrigation Restrictions

The City of Fort Lauderdale has implemented progressive landscape irrigation restrictions that meet the requirements of the SFWMD. These restrictions apply to all individuals who use City of Fort Lauderdale water, as well as water from private wells, lakes, canals, or other sources.

3.6.12 Water for Heating or Process Water

Per Section 28-1A of the Code of Ordinances (in effect since 2009), a water conservation device conforming to such specifications as may be required by the City, shall be installed on heating, processing or other industrial or commercial uses of water whenever the City determines in its discretion that recycling of the water without treatment is practical. A water conservation device is any equipment, process or procedure whereby all water used for heating or processing is either consumed in the intended use, or is recycled for the same purpose until it is unusable.

3.6.13 Water Used for Cooling Including Condensate

Per 28-1B of the City's Code of Ordinances (in effect since 2009), all new construction and replacements of cooling equipment whose function is evaporative or refrigerated cooling uses and air conditioning facilities that deliver water or condensate to a drain or other discharge facility are prohibited. This

includes any equipment, process or procedure which relies upon the temperature of the water supply for cooling purposes.

3.6.14 Commercial Power Washing

Per 28-1B of the City's Code of Ordinances (in effect since 2009), commercial enterprises for which cleaning with water is an essential element of their business shall use only high efficiency equipment that uses 1.6 gallons per minute or less and is certified by the manufacturer.

3.6.15 Water for Decorative Features

Per 28-1B of the City's Code of Ordinances (in effect since 2009), decorative water features or similar water operating devices using potable or recycled water shall recirculate water within the device. Each device connected to the water system must have an approved back-flow prevention assembly.

3.6.16 Lakes and Ponds

Per 28-1B of the City's Code of Ordinances (in effect since 2009), potable water shall not be used to fill or maintain water levels in lakes and ponds.

3.6.17 Leak Detection

The City initiated a leak detection program in 1990 which was completed in 1992. The entire main distribution system was surveyed and the City continues to perform visual checks by field personnel.

3.6.18 Meter Replacement Program

The City implemented an improved compound meter testing program and changes out all water meters 10 years old or older.

3.6.19 Plumbing Code Changes

An essential part of the City of Fort Lauderdale's conservation program is the implementation of high efficiency plumbing requirements. On March 15, 2012, the Broward County Board of Rules and Appeals adopted changes to Chapter 6, Section 604.4, of the Florida Building Code which contains standards for ultra-low volume plumbing fixtures (e.g., 1.28 gallon per flush toilets, 1.5 gallon per minute shower heads and sink faucets, 0.5 gallon per flush urinals, 6.5 gallons per cycle residential dishwashers, etc.) to be used in all new construction. Additionally, Chapter 9, Section 908.5, of the Florida Building Code requires a minimum of 8 cycles of concentration for cooling towers and requirements to reuse concentrate for cooling tower make-up water for air handling systems with a 4-ton British Thermal Unit (BTU) capacity air handling system or greater as a condition for the receipt of Certificate of Occupancy.

3.6.20 Water Conservation Education Program

The City publishes a variety of brochures and literature, promoting water conservation that are available to members of the public upon request. The City also maintains an active public information campaign on water conservation and restrictions on irrigation using Environmental Inspectors, Code Enforcement Officers, and Police Officers. In addition, the City maintains a website (http://www.fortlauderdale.gov) that includes water conservation information.

3.6.21 Sustainability Action Plan 2011 Update

The City's Sustainability Action Plan 2011 Update identified the following actions to reach the 170 gallons per capita per day (gpcd) goal (the action numbers identified in the Sustainability Action Plan 2011 Update are shown for consistency):

- Action 1.1.1 - Expedited, Continuing Escalation of High-User Potable Water Fees in Single-Family Zoning.
- Action 1.1.2 - Implement and enforce landscape ordinance requiring low volume / avoidance watering.
- Action 1.1.3 - Directly engage all large water users in long-range water resource planning and conservation.
- Action 1.1.4 - Consider innovative projects including water reuse and harvesting rainwater.

Table 3-14 provides a summary of the current status of implementing the actions described in the Sustainability Action Plan 2011 Update.

Table 3-14: Water Conservation Action Status

Action	Status
Action 1.1.1 - Expedited, Continuing Escalation of High-User Potable Water Fees in Single-Family Zoning.	The City of Fort Lauderdale continues to establish a conservation rate structure (progressively higher rates as water usage increases) to encourage a water conservation ethic.
Action 1.1.2 - Implement and enforce landscape ordinance requiring low volume / avoidance watering.	Per Section 28-1A of the Code of Ordinances (in effect since 2009), it is the City's policy to encourage use of Florida-friendly drought resistant plants and trees within the City.
Action 1.1.3 - Directly engage all large water users in long-range water resource planning and conservation.	The City of Fort Lauderdale continues to conduct ongoing discussions with its wholesale customers relative to opportunities to reduce water consumption.

Table 3-14: Water Conservation Action Status

Action	Status
Action 1.1.4 - Consider innovative projects including water reuse and harvesting rainwater.	The City of Fort Lauderdale was part of a partnership with Broward County that explored the feasibility of regional wastewater reuse opportunities. Additionally, the City is collaborating with other utilities in exploring the feasibility of harvesting rainwater via the proposed C-51 Reservoir project. The City evaluates water reuse and rainwater harvesting projects as the opportunities are identified.

3.6.22 2035 Fast Forward Vision Plan

The City has developed a planning document titled Fast Forward Fort Lauderdale that envisions the City through the year 2035. The document is also known as the Fast Forward Fort Lauderdale Vision for 2035. The Fast Forward Plan is a compilation of ideas/goals that are used to guide the City's decision making. A key aspect of the 2035 Vision Plan is ensuring that the City enhance water conservation efforts to ensure a sustainable water supply (City of Fort Lauderdale, 2019a).

3.6.23 Press Play Fort Lauderdale Strategic Plan

The "Press Play Fort Lauderdale Strategic Plan", was approved by the City Commission in September 2013. This document complements the Fast Forward Fort Lauderdale Vision for 2035. Fast Forward establishes the overarching goals of the City, while Press Play establishes specific initiatives to be completed over the next 5 years to make progress at reaching the goals. Key initiatives related to water supply included in the 2018 Strategic Plan are as follows (City of Fort Lauderdale, 2019b):

- Work with partners to identify and implement wastewater reuse opportunities
- Participate in regional long-term water supply strategies such as the C-51 reservoir project
- Monitor saltwater intrusion and implement best practices, reuse, and other practices to minimize movement of the saltwater front
- Update the City's Water and Sewer Master Plan; integrate the plan with infrastructure improvement that include modern and efficient energy standards
- Develop a Water Capacity Model and approval process for future development

3.6.24 Identify any Local Financial Responsibilities

The City of Fort Lauderdale participates in a water conservation incentive program through an interlocal agreement (ILA) with Broward County marketed under the program name "Conservation Pay$". The City of Fort Lauderdale became partners with Broward County in the program on June 21, 2011. Under this

program, City residents can receive a $100 rebate when they replace an older toilet with a Water Sense® High Efficiency Model.

3.7 Reuse

3.7.1 Introduction

Florida law supports reuse efforts. Florida's utilities, local governments, and water management districts have led the nation in the quantity of reclaimed water reused and public acceptance of reuse programs. Section 373.250(1) F.S. provides "the encouragement and promotion of water conservation and reuse of reclaimed water, as defined by the department, are state objectives and considered to be in the public interest." In addition, Section 403.064(1), F.S., states "reuse is a critical component of meeting the state's existing and future water supply needs while sustaining natural systems."

3.7.2 Local Government Specific Actions, Programs, Regulations, or Opportunities

This section describes the City of Fort Lauderdale's ongoing assessment of reuse opportunities within the City's service area. The City of Fort Lauderdale's GTL WWTP is a regional facility used to treat wastewater in a region encompassing the following:

- City of Fort Lauderdale
- City of Wilton Manors
- City of Oakland Park
- Port Everglades
- A portion of the City of Tamarac
- A portion of unincorporated Broward County
- A portion of the Town of Davie

The facility does not currently treat effluent to reclaimed water standards for public irrigation or other off-site uses. However, on average the plant uses about 4-mgd of its own secondary effluent as in-plant re-use instead of potable water. Additionally, the City is participating in the County-wide Integrated Water Resources Plan Grants for feasibility studies related to potential beneficial reuse. These have included a 2008 feasibility study for selected reclaimed water projects within the City for a 50% cost share for $125,000. A second feasibility study in 2009 was for the reclaimed water in the area of the Convention Center Broward County provided a 50% cost share for $5,000.

The City of Fort Lauderdale prepared a report assessing reclaimed water opportunities in November 2008 titled "Feasibility Study for the Implementation of Selected Reclaimed Water Projects with the City of Fort Lauderdale". Key conclusions of the report were (CDM, 2008):

- The GTL WWTP is located far from any significant users of reclaimed water, such as golf courses. Therefore, the construction of an irrigation-quality reclaimed water production facility

at or near the plant to provide further treatment of effluent to public reuse standards is not feasible. There is little available space on the plant site or plant vicinity to construct the required treatment facilities. In addition, due to high levels of infiltration into gravity sewer piping located near coastal areas and waterways, the chloride concentration in the treated effluent is high (approximately 600 mg/L), resulting in unaffordable levels of treatment to reuse standards at the GTL WWTP site. Therefore, the only practical alternatives for implementing reuse systems are off-site and near potential beneficial uses of reclaimed water;

- Two options studied (reclaimed water facilities at the E-Repump Station and the Former Composting Facility) are technically feasible but are not be economically viable.

The City of Fort Lauderdale continues to assess water reuse opportunities to identify and assess cost-effective alternative water supply opportunities. Indirect potable reuse systems have been evaluated by the City; none have emerged as economically feasible. However, due to the dual benefits of providing more disposal capacity and augmenting local water supplies, the City continues to contemplate indirect potable reuse opportunities when assessing alternative water supply investment decisions.

3.7.3 Identify any Local Financial Responsibilities

The City of Fort Lauderdale does not have any financial responsibilities relative to reuse. Hence, this section is not applicable to the City of Fort Lauderdale.

3.8 Sector Plans

This section is not applicable to the City of Fort Lauderdale.

4. Capital Improvements

4.1 Introduction

This section provides a brief description of the City of Fort Lauderdale Capital Improvements Program (Fort Lauderdale uses the term "Community Investment Plan") for Water Supply.

4.2 Water Supply, Treatment and Distribution Capital Improvements Schedule for FY2019 through FY2023

The City of Fort Lauderdale's Community Investment Plan (CIP) for fiscal year 2019 – 2023 is illustrated in Figure 4-1. Table 4-1 presents the five-year CIP schedule for traditional water supply, treatment, storage, and distribution system infrastructure projects. The CIP costs include engineering services along with construction costs.

The projects are intended to be implemented over the next five years to maintain the City's existing level of service standards. The Community Investment Plan projects do not expand or diversify water supply capacity over the next five years.

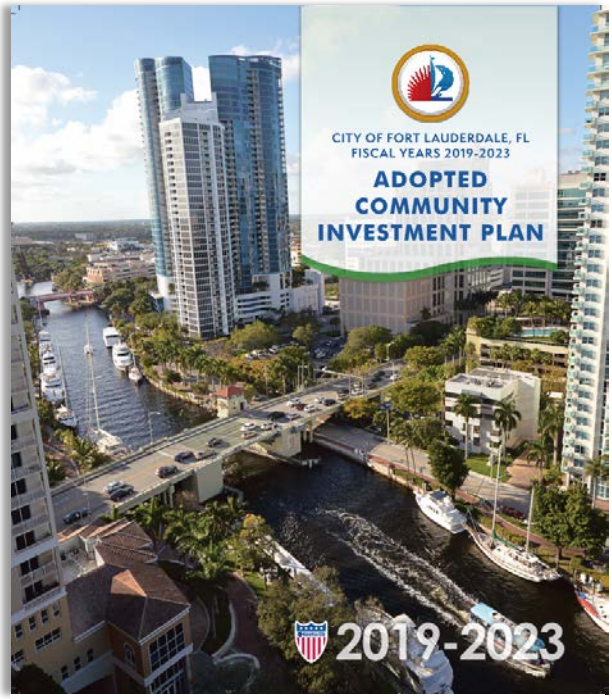

Figure 4-1: Community Investment Plan

4.3 Project Costs in the CIP Under the Column "Beyond 5-Year Horizon" are Not Funded

Projects costs presented in Table 4-1 that are within the fiscal year 2019 to 2023 columns are funded. Project costs in the column labeled "Beyond 5-Year Horizon" are not funded.

4.4 Dixie Floridan Water Supply / Treatment Project

4.4.1 Introduction

In 2008, the City completed conceptual plans for implementing 6-mgd of finished water capacity reverse osmosis at the Peele-Dixie WTP along with five FAS wells. The planning documents are titled "Floridan Aquifer Conceptual Plan for the Dixie Wellfield" and "Peele-Dixie Reverse Osmosis Basis of Design Report". This alternative water supply project was designated the "Dixie Floridan Water Supply / Treatment Project" in Exhibit 9A of the Water Use Permit Staff Report (South Florida Water Management District, 2008).

4.4.2 Schedule

These plans provide the City with a roadmap to quickly implement this alternative water supply in advance of demand exceeding its traditional Biscayne Aquifer supply. It is estimated that it would require approximately five years to implement FAS wells and RO treatment at the Peele-Dixie WTP. It is estimated that pilot testing and design for this project would need to begin in 2029.

4.4.3 Cost

The cost for implementing this alternative water supply are presented in the City's planning documents. Escalating the cost to 2019 dollars amounts to $49.1 million. This cost includes construction cost plus contingency along with engineering services. This is a Class 5 estimate as defined by Association for the Advancement of Cost Engineering (AACE) International.

4.4.4 Coordination With the 2018 LECWSP Update

The City has coordinated with the SFWMD to include this project in the 2018 Lower East Coast Water Supply Plan Update.

4.4.5 Funding

The cost for the Dixie Floridan Water Supply / Treatment Project is not currently included in the City's CIP. The City will incorporate this project into future CIPs in its budgeting process. Furthermore, the City will escalate the cost of the project to future years using standard cost indexing practices. The City will determine the funding source for this project during future CIP budgeting.

4.5 Projects Needed Beyond the Five-Year CIP

The City's Comprehensive Utility Strategic Master Plan (CUSMP), completed by Reiss Engineering, Inc., in 2017 is a planning document that evaluated the City's water and wastewater systems and recommends improvements to maintain or improve levels of service over a twenty-year period ending in 2036. The City continues to evaluate the recommendations of the CUSMP and prioritize the recommended projects for inclusion in its CIP.

The City has begun a project titled "Granular Activated Carbon Pilot Study & Plant Evaluation". This project includes evaluation of treatment technologies to achieve the City's color goal at the Fiveash WTP. The project is ongoing and is expected to be completed in late 2019. This study will recommend to either replace all or part of the Fiveash WTP and includes evaluation of alternative water supply technologies. The City will use this report to inform future CIP scheduling decisions.

Table 4-1: Five Year (FY2019 to FY2023) Water Supply, Treatment and Distribution Community Investment Plan

Project No.	Project Title	FY 2019	FY2020	FY2021	FY2022	FY2023	Total	Beyond 5-Year Horizon
P11887	NW SECOND AVE TANK RESTORATION	$2,152,096	$0	$0	$0	$0	$2,152,096	$0
P12485	FIVEASH WTP FILTERS REHABILIATION	2,000,000	-	-	-	-	2,000,000	-
P12462	CORAL RIDGE SMALL WATERMAIN IMPROVEMENTS	1,904,997	1,935,100	-	-	-	3,840,097	-
P12294	FIVEASH WTP ELECTRICAL VOLTAGE UPGRADE	1,573,473	-	-	-	-	1,573,473	-
P12463	CORAL SHORES SML WATERMAIN IMPROVEMENTS	834,704	834,704	-	-	-	1,669,408	-
P12484	REFURB FIVEASH WTP MG STEEL TANK (NORTH)	750,000	-	-	-	-	750,000	-
P11247	DISTRIBUTION & COLLECTION REPAIR/REPLACE	718,892	-	-	-	-	718,892	-
P12180	CROISSANT PARK SMALL WATER MAINS	693,405	-	-	-	-	693,405	-
P12295	PLE DIXIE AIR STRIPPERS & HYPOCHOLORITE	524,212	-	-	-	-	524,212	-
P12476	FIVEASH WELLFIELD PUMP REPLACEMENT	500,000	500,000	1,000,000	-	-	2,000,000	-
P12431	PEELE DIXIE MEMBRANE REPLACEMENT	421,224	-	-	-	-	421,224	-

Table 4-1: Five Year (FY2019 to FY2023) Water Supply, Treatment and Distribution Community Investment Plan

Project No.	Project Title	FY 2019	FY2020	FY2021	FY2022	FY2023	Total	Beyond 5-Year Horizon
P12222	REHAB 3 SCADA PUMP PANELS AT FIVEASH WTP	370,960	-	-	-	-	370,960	-
P11877	FLCC REMEDIATION ACTION PLAN	299,979	-	-	-	-	299,979	-
P12181	WTP FACILITIES CONCRETE RESTORATION	252,687	-	-	-	-	252,687	-
P12182	LAKE ESTATES SMALL WATER MAINS	227,712	-	-	-	-	227,712	-
P12275	PEELE DIXIE WTP RENEWAL & REPLACEMENT	200,000	-	-	-	-	200,000	-
P11246	WATER TREATMENT PLANT REPAIR/REPLACEMENT	198,050	-	-	-	-	198,050	-
P12372	FIVEASH SKYLIGHTS AND RE-ROOFING	170,000	-	-	-	-	170,000	-
P12179	TANBARK LANE SML WATER MAIN REPLACEMENT	149,291	-	-	-	-	149,291	-
P11901	VICTORIA PK STH SM WATERMAINS IMPROVEMNT	82,380	-	-	-	-	82,380	5,325,425
P10850	VICTORIA PARK A NORTH-SMALL WATERMAINS	73,067	-	-	-	-	73,067	4,886,053
P12132	RICE/NESHAP UPGRADE TO GENERATORS	69,610	-	-	-	-	69,610	-

Table 4-1: Five Year (FY2019 to FY2023) Water Supply, Treatment and Distribution Community Investment Plan

Project No.	Project Title	FY 2019	FY2020	FY2021	FY2022	FY2023	Total	Beyond 5-Year Horizon
P11685	WATER MONITORING SYSTEM (SCADA)	48,088	-	-	-	-	48,088	-
P11589	FIVEASH WTP DISINFECTION IMPROVEMENTS	36,322	-	-	-	-	36,322	-
P12197	FIVEASH HYDROTREATERS 3&4 INFLUENT PIPE	18,624	-	-	-	-	18,624	-
P11080	PORT CONDO SMALL WATER MAIN IMPROVEMENTS	17,330	-	-	-	-	17,330	713,328
P11932	AERATION BASIN REHAB AT FIVEASH WTP	11,653	-	-	-	-	11,653	-
FY 20150187	LAUDERDALE BY THE SEA SMALL WATER MAIN IMPROVEMENTS	-	2,020,575	-	-	-	2,020,575	-
FY 20150185	SEA RANCH LAKES SMALL WATER MAINS	-	1,990,393	1,607,333	-	-	3,597,726	-
FY 20150190	BAY COLONY SMALL WATER MAIN IMPROVEMENTS	-	1,461,628	1,238,832	-	-	2,700,460	-
FY 20150191	LAUDERGATE ISLES SMALL WATER MAIN IMPROVEMENTS	-	565,446	-	-	-	565,446	-
FY 20150189	LAKE AIRE PALM VIEW SMALL WATER MAINS	-	471,000	-	-	-	471,000	-
FY 20150228	ANALYSIS OF CHEMICAL ADDITION SYSTEMS-PEELE DIXIE	-	90,000	-	-	-	90,000	-

Table 4-1: Five Year (FY2019 to FY2023) Water Supply, Treatment and Distribution Community Investment Plan

Project No.	Project Title	FY 2019	FY2020	FY2021	FY2022	FY2023	Total	Beyond 5-Year Horizon
FY 20150227	COMPREHENSIVE EVAL & IMPR AT PEELE DIXIE	-	-	3,470,000	-	-	3,470,000	-
P11594	FIVEASH CHEMICAL SYSTEM IMPROVEMENTS	-	-	1,313,006	3,939,019	-	5,252,025	-
P12391	BERMUDA RIVIERA SML WTRMN IMPROVEMENTS	-	-	638,350	-	-	638,350	-
FY 20150182	POINSETTIA DRIVE SMALL WATER MAIN IMPROVEMENTS	-	-	616,660	-	-	616,660	2,917,137
P12184	DAVIE BLVD 18" WM ABAN I-95 TO SW 9 AVE	-	-	292,750	-	-	292,750	457,750
P11465	17TH STREET CAUSEWAY - LARGE WATER MAIN REPLACEMENT	-	-	-	4,550,455	2,129,280	6,679,735	1,762,000
FY 20150184	CORAL RIDGE COUNTRY CLUB SMALL WATERMAIN	-	-	-	3,660,000	-	3,660,000	-
P12237	ABANDON WELLS AT FTL EXECUTIVE AIRPORT	-	-	-	400,000	-	400,000	-
P12353	UTILITY COORDINATION FL DEPT OF TRANSPOR	-	-	-	-	1,000,000	1,000,000	-
FY 20150219	ADVANCED METERING INFRASTRUCTURE IMPLEMENTATION	-	-	-	-	-	-	22,900,000
FY 20190748	SMALL WATER MAIN REPLACEMENT - NE 51ST STREET	-	-	-	-	-	-	19,775,360

Table 4-1: Five Year (FY2019 to FY2023) Water Supply, Treatment and Distribution Community Investment Plan

Project No.	Project Title	FY 2019	FY2020	FY2021	FY2022	FY2023	Total	Beyond 5-Year Horizon
P12394	FIVEASH UPGRADE/REDESIGN	-	-	-	-	-	-	10,000,000
FY 20190746	SMALL WATER MAIN REPLACEMENT - SEABREEZE BLVD	-	-	-	-	-	-	9,950,000
P12393	FIVEASH ELECTRICAL SYSTEM REPLACEMENTS (2015-2020)	-	-	-	-	-	-	6,800,000
FY 20190754	SMALL WATER MAIN REPLACEMENT - SW 31ST AVENUE	-	-	-	-	-	-	6,771,545
FY 20150175	TWIN LAKES (NW) WATERMAIN	-	-	-	-	-	-	4,132,946
P11571	OAKLAND PARK BEACH AREA WATER MAIN	-	-	-	-	-	-	2,631,665
FY 20150181	LAUDERHILL SMALL WATERMAINS IMPROVEMENTS	-	-	-	-	-	-	2,091,962
FY 20190739	SW 11 STREET & SW 30 AVENUE SMALL WATER MAIN REPLACEMENT	-	-	-	-	-	-	2,069,550
FY 20190750	SMALL WATER MAIN REPLACEMENT - NORTH GORDON ROAD	-	-	-	-	-	-	2,011,350
FY 20190716	FIVEASH WTP FILTERS REHABILITATION	-	-	-	-	-	-	2,000,000
P10814	CENTRAL NEW RIVER WATERMAIN RIVER CROSSINGS	-	-	-	-	-	-	1,632,562

Table 4-1: Five Year (FY2019 to FY2023) Water Supply, Treatment and Distribution Community Investment Plan

Project No.	Project Title	FY 2019	FY2020	FY2021	FY2022	FY2023	Total	Beyond 5-Year Horizon
FY 20150170	LANDINGS OF BAYVIEW DRIVE SMALL WATERMAIN	-	-	-	-	-	-	1,568,742
FY 20190737	MEMBRANE(S) REPLACEMENT	-	-	-	-	-	-	1,500,000
FY 20190755	SMALL WATER MAIN REPLACEMENT - SW 37 TERRACE	-	-	-	-	-	-	1,206,810
FY 20190749	SMALL WATER MAIN REPLACEMENT - HENDRICKS ISLE	-	-	-	-	-	-	1,178,750
FY 20190747	SMALL WATER MAIN REPLACEMENT - SW 10TH COURT	-	-	-	-	-	-	880,000
P12403	PEELE-DIXIE WTP CHEMICAL STORAGE IMPROVEMENTS	-	-	-	-	-	-	850,000
P12398	FIVEASH WTP GST AND CLEARWELL UPGRADES	-	-	-	-	-	-	800,000
FY 20190722	WELLFIELD COMMUNICATIONS	-	-	-	-	-	-	800,000
P12397	WELL REHABILITATION	-	-	-	-	-	-	740,000
FY20180630	NEW UTILITIES CENTRAL LABORATORY - PEELE DIXIE WATER	-	-	-	-	-	-	713,500
FY 20190752	SMALL WATER MAIN ABANDONMENT - SE 25TH AVENUE	-	-	-	-	-	-	679,778

Table 4-1: Five Year (FY2019 to FY2023) Water Supply, Treatment and Distribution Community Investment Plan

Project No.	Project Title	FY 2019	FY2020	FY2021	FY2022	FY2023	Total	Beyond 5-Year Horizon
P12392	FIVEASH WTP ELECTRICAL STUDIES AND TESTING	-	-	-	-	-	-	660,000
FY 20190738	UPGRADE PEELE DIXIE PROCESS CONTROL SYSTEM	-	-	-	-	-	-	610,000
FY 20190720	CONVERSION OF FOUR HIGH SERVICE PUMPS TO VFD	-	-	-	-	-	-	600,000
FY 20190734	WATER TREATMENT FACILITIES ARC FLASH TESTING/SURGE	-	-	-	-	-	-	550,000
FY 20190736	NEW PEELE DIXIE MAINTENANCE BUILDING	-	-	-	-	-	-	500,000
FY 20190751	PEELE DIXIE WATER TREATMENT PLANT DISTRIBUTION	-	-	-	-	-	-	402,270
FY 20190753	SMALL WATER MAIN REPLACEMENT - SW 18 ST & SW 18 CT	-	-	-	-	-	-	402,270
FY 20190756	DEVELOPMENT OF A UNIDIRECTIONAL FLUSHING PROGRAM	-	-	-	-	-	-	400,000
P12416	WATERMAIN IMPROVEMENTS AREA 1	-	-	-	-	-	-	352,000
P12417	MISCELLANEOUSE WATER QUALITY IMPROVEMENTS	-	-	-	-	-	-	338,000

Table 4-1: Five Year (FY2019 to FY2023) Water Supply, Treatment and Distribution Community Investment Plan

Project No.	Project Title	FY 2019	FY2020	FY2021	FY2022	FY2023	Total	Beyond 5-Year Horizon
FY 20190719	TRANSFER PUMPS 1 & 2 PANEL REPLACEMENT	-	-	-	-	-	-	300,000
FY 20190735	MEMBRANE CLEANING SYSTEM UPGRADE	-	-	-	-	-	-	100,000
FY 20190721	CONVERSION OF BACK WASH PUMP	-	-	-	-	-	-	90,000
P12401	PROSPECT WELLFIELD BONDING AND GROUNDING TESTING	-	-	-	-	-	-	60,000
P12100	PEELE-DIXIE WTP INJECTION WELL MIT	-	-	-	-	-	-	50,000
FY 20150176	SW 29 STREET SMALL WATERMAINS	-	-	-	-	-	-	50,000
FY 20150177	2535 NORTH FEDERAL HIGHWAY SMALL WATERMAINS	-	-	-	-	-	-	50,000
FY 20150178	SW 1 STREET (SW 28 AVE THRU SW 29 AVE) WATER MAINS	-	-	-	-	-	-	50,000
Total		**$14,298,756**	**$9,868,846**	**$10,176,931**	**$12,549,474**	**$3,129,280**	**$50,023,287**	**$125,310,753**

5. Goals, Objectives and Policies

The City of Fort Lauderdale Comprehensive Plan addresses the needs and aspirations of the community. This has tremendous implications regarding the importance of community input in the development and implementation of the Comprehensive Plan.

The Comprehensive Plan also plays a significant role within Florida's growth management system. The Comprehensive Plan is required to be consistent with the State Comprehensive Plan (Chapter 187, Florida Statutes), and to be consistent with the Regional and County Comprehensive Plans. In short, the Comprehensive Plan provides a critical link between the City of Fort Lauderdale, State of Florida, Regional, and Broward County plans. The Comprehensive Plan focuses on those issues facing the City of Fort Lauderdale over a twenty-year time horizon. The Comprehensive Plan establishes long-term direction of goals as well as short-term objectives and policies to guide implementation efforts

The following comprehensive plan goals, objectives, and policies (GOPs) have been reviewed for consistency with the 10-year Water Supply Facilities Work Plan 2019 Update. New GOPs to be adopted and existing GOPS to be revised are identified below.

The GOPs listed below were adopted in the original Water Supply Facilities Work Plan (adopted by Ordinance C-09-01 in January 2009). The City's planning consultant (The Corradino Group) has reviewed and updated the GOPs as necessary for coordination with this 10-year Water Supply Facilities Work Plan 2019 Update.

1. Coordination of land uses and future land use changes with the availability of water supplies and water supply facilities;
2. Revision of potable water level of service standards for residential and non-residential users;
3. Provision for the protection of water quality in the traditional and new alternative water supply sources;
4. Revision of priorities for the replacement of facilities, correction of existing water supply and facility deficiencies, and provision for future water supply and facility needs;
5. Provision for conserving potable water resources, including the implementation of reuse programs and potable water conservation strategies and techniques;
6. Provisions for improved or additional coordination between a water supply provider and the recipient local government concerning the sharing and updating of information to meet ongoing water supply needs;
7. Coordination between local governments and the water supply provider in the implementation of alternative water supply projects, establishment of level of service standards and resource allocations, changes in service areas, and potential for annexation;
8. Coordination of land uses with available and projected fiscal resources and a financially feasible schedule of capital improvements for water supply and facility projects;

9. Additional revenue sources to fund water supply and facility projects;
10. Coordination with the respective regional water supply plan;
11. Update the Water Supply Facilities Work Plan within 18 months following the approval of a regional water supply plan; and
12. Concurrency requiring water supplies at the building permit stage.

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Appendix J CITY OF HOLLYWOOD WATER SUPPLY FACILITIES WORK PLAN UPDATE

WATER SUPPLY PLAN

POTABLE WATER SUB-ELEMENT

PREPARED BY

THE CITY OF HOLLYWOOD

DEPARTMENT OF PUBLIC UTILITIES

AND HAZEN AND SAWYER

CITY OF HOLLYWOOD

HOLLYWOOD, FLORIDA

JANUARY 2020

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Appendix A: Broward County Water Supply Facilities Work Plan 2020
Appendix B: City of Fort Lauderdale Water Supply Facilities Work Plan 2020 Update

1. Introduction

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

1.1 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 South Florida Water Management District (SFWMD) approves a regional water supply plan or its update. The 2018 Lower East Coast Water Supply Plan Update (2018 LECWSP Update) was adopted by the SFWMD'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 10-year Water Supply Facilities Work Plan and related planning elements by May 8, 2020.

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 2018 LECWSP Update. The data presented herein are for the planning period through the year 2040.

1.2 Objective

The City of Hollywood's Water Supply Facilities Work Plan is incorporated into the Potable Water Sub-Element of its Comprehensive Plan. Hazen and Sawyer was contracted by the City of Hollywood Department of Public Utilities (HLWD-DPU) to update the City's 2015 Water Supply Facilities Work Plan to represent the year 2020 (WSFWP 2020 Update). The main objective of this update is to ensure that potable water service is available to concurrently support development over the next ten years.

1.3 Project Overview

This WSFWP 2020 Update identifies water utilities that serve the City of Hollywood (City) 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 2040, which is consistent with the SFWMD's LECWSP Update.

This City of Hollywood WSFWP 2020 Update builds upon or utilizes the following documents:

- City's 2015 Water Supply Plan Potable Water Sub-Element;
- SFWMD's 2018 LECWSP Update;
- Broward County's Water Supply Facilities Work Plan 2020; and,
- City of Fort Lauderdale Water Supply Facilities Work Plan 2020 Update.

This WSFWP 2020 Update includes the following items:

- Five-year population and water demand projections through the year 2040 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 of Hollywood 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 2020 Update.

This report is organized into the following sections.

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

Section 2 – *Water Service Area* – introduces the HLWD-DPU geographic service area and

population projections. This section also identifies the water utilities serving portions of the City and describes the City's reuse water system.

Section 3 – *Water Suppliers* – characterizes the water suppliers including consumptive use permit information, raw water sources, existing treatment facilities, and the City's conservation and reuse practices.

Section 4 – *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 2040.

Section 5 – *Regional Issues* – summarizes the regional water supply planning issues that have the potential to impact the City.

Section 6 – *Water Supply Capital Improvements* – identifies the capital improvements required to build public water supply facilities to serve the existing and new development within the City's jurisdiction.

Section 7 – *Water Supply Goals, Objectives, and Policies* – includes an assessment of current GOPs and identifies any new or revised GOPs, relative to the 2015 Water Supply Plan Potable Water Sub-Element, needed to implement the work plan.

2. Water Service Areas

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

2.1 Potable Water Service Area

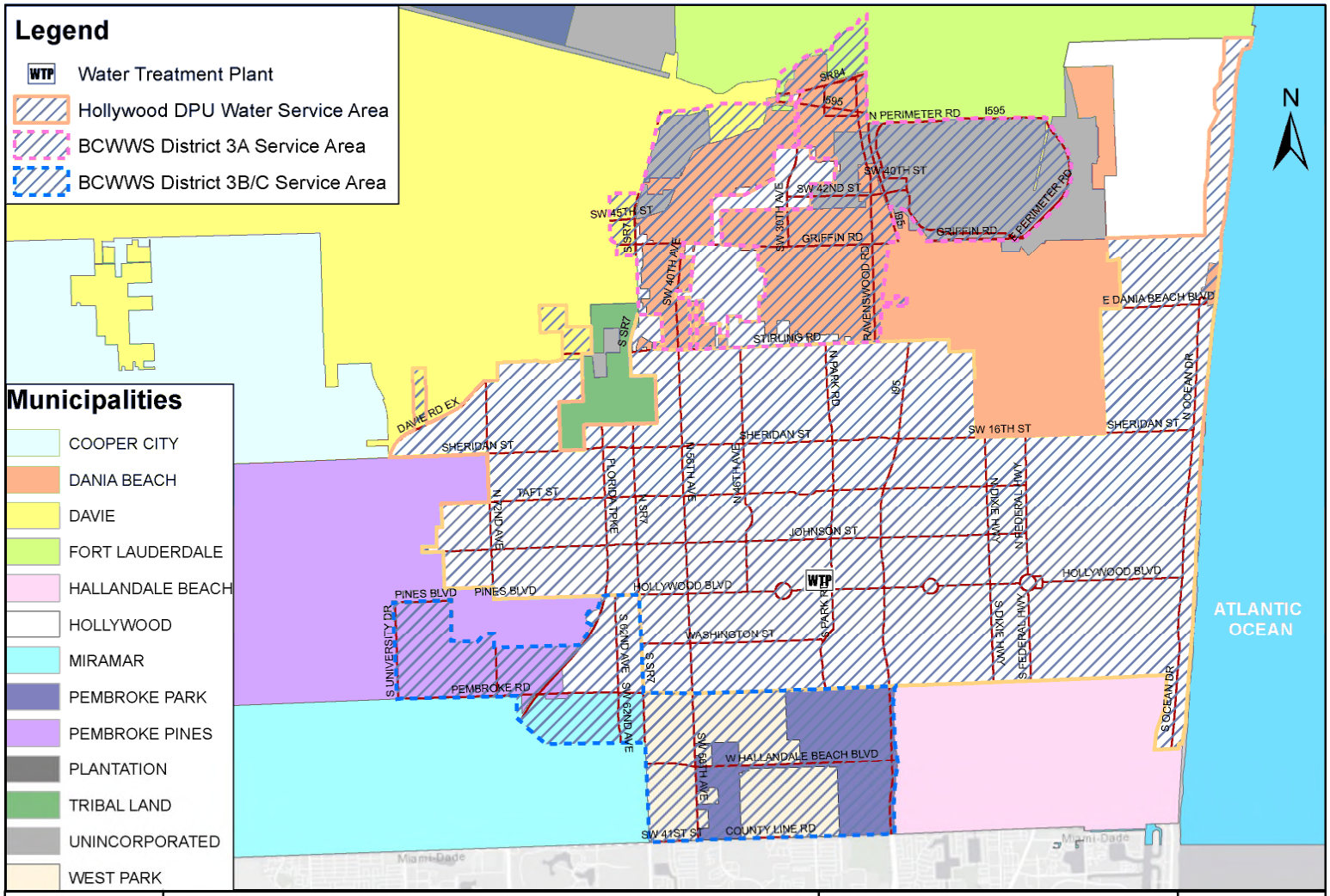
The City of Hollywood (City), located in Broward County Florida, covers approximately 29 square miles bound by the Atlantic Ocean to the east and surrounded by seven cities, one town, a Seminole Tribe of Florida reservation, and unincorporated areas. Figure 2-1 illustrates the City of Hollywood jurisdiction, 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.

2.1.1 City of Hollywood Potable Water System Service Area

The City's WTP is operated by the HLWD-DPU. In 2018, the City's WTP produced approximately 21.9 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, 50 acres in the City of Dania Beach, and 100 acres in the Seminole Tribe of Florida reservation.

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 2018, the City supplied only a nominal amount (less than 1,000 gallons per day) on a regular basis to the City of Dania Beach.



Hazen	City of Hollywood 10-Year Water Supply Facilities Work Plan - 2019 Update City of Hollywood Jurisdiction and Water Service Areas	0 0.5 1 2 3 Miles 1 Inch = 7,000 Feet	Figure 2-1

2.1.2 Broward County Water Districts 3A and 3B/3C

BCWWS District 3A covers approximately eight 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 four-square miles and includes the cities of West Park and Pembroke Park. BCWWS District 3C covers approximately two square miles containing portions of the cities of Hollywood, Miramar, and Pembroke Pines.

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.

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. 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	26.70	0.60	27.30
HLWD-DPU (City WTP) to BCWWS District 3A Customers	0.00	7.70	7.70
HLWD-DPU (City WTP) to BCWWS District 3B Customers	0.00	3.80	3.80
HLWD-DPU (City WTP) to BCWWS District 3C Customers	0.60	1.80	2.40
Fort Lauderdale Public Works Department to Port Everglades	2.00	0.00	0.00
Total	29.30	13.90	41.20

Source: Water Supply Plan Potable Water Sub-Element, City of Hollywood, Florida, January 2015, based on GIS estimates.

2.2 Population Projections

Population in the City is expected to grow modestly throughout the forecast period. Less than one percent of the land area in the City is developable vacant land and most of these parcels are infill lots scattered throughout the City. Overall, the City is close to build-out and redevelopment is expected to accommodate the projected increases in population.

The historic population served by the HLWD-DPU from 2014 to 2018 is provided in Table 2-2. Population forecast for the period 2020 through 2040 is provided in Table 2-3. The historic population is based on population data provided in the City's 2015 Water Supply Plan Potable Water Sub-Element and the Broward County Water Supply Facilities Work Plan 2020. The population forecast was also taken from the Broward County Water Supply Facilities Work Plan 2020. Historic and projected populations were based on the County's allocation of population to Utility Analysis Zones (UAZs).

Table 2-2. City of Hollywood Water Service Area Historical Population

Year	City's Retail Customers	City's Wholesale Customers – BCWWS District		Total – Retail and Wholesale
		3A	3B/C	
(1)	(2)	(3)	(4)	(5) = (2) + (3) + (4)
2014	141,179	16,143	35,623	192,945
2015	141,827	16,321	36,263	194,411
2016	142,698	16,438	36,508	195,644
2017	143,568	16,556	36,752	196,876
2018	144,439	16,673	36,997	198,109

Source: City of Hollywood 2015 Water Supply Plan Potable Water Sub-Element, January 2015, Table 2-3 and Broward County Water Supply Facilities Work Plan 2020, Table WS4 and Table WS7.

Table 2-3. City of Hollywood Water Service Area Forecasted Population

Year	City's Retail Service Area	City's Wholesale Customers – BCWWS District		Total – Retail and Wholesale
		3A	3B/C	
(1)	(2)	(3)	(4)	(5) = (2) + (3) + (4)
2020	146,180	16,908	37,486	200,574
2025	150,380	18,083	38,889	207,352
2030	156,640	19,075	41,146	216,861
2035	161,270	19,686	42,639	223,595
2040	164,432	20,109	43,625	228,166

Source: Broward County Water Supply Facilities Work Plan 2020, Table WS4 and Table WS7.

2.3 Reuse Water System

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 mgd, on an annual average daily flow basis, 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 mgd of high-salinity reuse water is used internally at the City's Southern Regional Wastewater Treatment Plant for non-potable process water and plant washdown. The City is implementing 10 mgd of feasible reuse capacity by 2025 through credit for existing on-site process reuse, additional reuse applications within the City, and contracted reuse with other utilities.

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. Table 2-4 summarizes the capacity and FY 2018 reclaimed water flows of the City's reuse system by type of reuse application.

Table 2-4. City of Hollywood's Reuse System Capacity and FY 2018 Flow

Type of Reuse	Capacity in MGD	FY 2018 Flow in MGD	Acres Irrigated
Use at the Wastewater Treatment Plant	4.00	2.67	Not applicable
Golf Course Irrigation	2.82	2.00	752.8
Other Public Access Areas	0.51	0.20	121.0
Residential Irrigation	0.67	0.04	16.0
Total	**8.00**	**4.91**	**889.8**

Source: Florida Department of Environmental Protection, 2018 Reuse Inventory, August 2019, page 65 of 151.

The existing reuse system could be expanded to incorporate additional contract, residential and commercial customers. Table 2-5 identifies potential additional reuse customers (future committed and future non-committed) and their estimated water reuse demands. Expansion would be subject to the availability of suitable-quality water.

Table 2-5. Potential Expanded Reuse System Customers

Future Committed	mgd
T.Y. Park	0.272
Total – Future Committed	**0.272**
Future Non-Committed	**mgd**
Boggs Field	0.041
West of 441	0.250
Total – Future Non-Committed	**0.291**

Source: City of Hollywood Department of Public Utilities

3. Water Suppliers

This section characterizes the water suppliers including consumptive use permit information, raw water sources, existing treatment facilities, and the City's conservation and reuse practices.

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.

City of Hollywood Reclaimed (Reuse) Water System: Provides irrigation water to customers and non-potable water for in-plant uses at the City's wastewater plant.

Broward County 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.

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 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

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.)
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 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 provides raw water to the City from the SRW under a four-year raw water large user agreement dated 1994 that is automatically renewed every four years unless terminated by either party. An annual average daily quantity not to exceed 5.78 mgd is available to the City under this agreement and the City is required to take or pay for 4.0 mgd. The SRW is comprised of eight wells, each with a capacity of 4.0 mgd, providing a total design capacity of 32 mgd. The firm capacity is about 28 mgd with one well out of service. The SRW is in the western part of the County at Brian Piccolo Park.

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 five 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 3-2. 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	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	2,110	5.78	197.00	6.47
Total – All Sources	**14,330**	**39.26**	**1,278.20**	**42.02**

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

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 3-3. 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

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 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 gpm/ft^2, but the plant prefers to conservatively operate its six larger filters at 1.5 gpm/ft^2.

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.

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 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. Since future capacity expansion is expected to use water from the Floridan Aquifer, the MS system will likely remain at its current capacity 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.

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% 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% solution is stored in nine (seven 10,000 gallons and two 7,000 gallons) 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 (CO_2) levels in both the MS-treated water and RO-treated water and the hydrogen sulfide (H_2S) levels in RO-treated water, via air stripping. Sulfuric acid is added to lower the pH of the Floridan Aquifer water to aid in H_2S 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-cfm fan, a 13.5 feet diameter by 24 feet overall height tower, and 12 feet of packing. Two

degasifiers are designed to remove CO_2 from the MS permeate with discharge of the tower exhaust to the atmosphere. One degasifier is designed to remove H_2S 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 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 St. 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 # 2: 1 MG
- Tank # 3: 1 MG
- Tank # 4: 1 MG
- Tank # 5: 3.5 MG
- Tank # 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 facility houses four split-case horizontal pumps with their respective motor control centers. The pumps and motors located in this facility are paired up and are arranged in series. These pumps draw water from a 1.0 MG storage tank and pump into a common 20-inch discharge header.

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 1,700 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 3-4: 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 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 one 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.

3.3 City of Fort Lauderdale Water System

According to its Water Supply Facilities Work Plan 2020 Update, the City of Fort Lauderdale provides potable water service to a population of approximately 239,000 residents and six wholesale customers in central Broward County. Port Everglades is one of Fort Lauderdale's wholesale water customers. Fort Lauderdale's Water Supply Facilities Work Plan 2020 Update accounts for Port Everglades' water demand as part of its overall aggregate demand projection.

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.

3.4 City of Hollywood Reclaimed Water System

Reclaimed 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. Reclaimed 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 reclaimed (reuse) water system at the City-owned Southern Regional Wastewater Treatment Plant (SRWWTP). The SRWWTP 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 from the Town of Davie and City of Cooper City, which pump their effluent to the SRWWTP.

The City's existing water reuse system has a rated capacity of 8.0 mgd of which 4.0 mgd is available to irrigate landscaping and 4.0 mgd is available for non-potable in-plant uses such as foam control, washdown water, and process make-up water.

3.5 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 has elected to comply with this requirement by shifting outfall flows to its deep injection well system, thereby reducing the mass loading of nitrogen and phosphorus being discharged through the outfall.

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 of Hollywood 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.

Shortly after the OOL was passed, the City assessed effluent disposal alternatives to meet the OOL requirement for the elimination of all effluent disposals through the outfall (Southern Regional Wastewater Treatment Plant Ocean Outfall Compliance Report, December 2009). As the plan was being developed, the City explored reuse options that included implementation of a dual irrigation system at an estimated cost of $1 billion. The City invested $3 million in a pilot study that evaluated the technology requirements to implement recharge of the Floridan Aquifer. These alternatives faced significant challenges that limited their feasibility.

In a status report (mandated by the OOL) to the Governor and State Legislature, the 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 13th, 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 were determined to constitute feasible reuse and meet the OOL legislative requirements including the following items.

- Credit for Existing Onsite Process Reuse – 4 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 mgd of feasible reuse to be accomplished by the December 2025 deadline.

Credit for Existing Onsite Reuse - The existing 4 mgd brackish effluent filtration capacity is being fully utilized based on recent operating history (since 2012). Consequently, no further action or capital investment is required to receive the 4 mgd credit for process water reuse applications.

Use of Reclaimed Water for Irrigation – The City of Hollywood has contracts with 10 customers and commitments with 11 additional customers to use up to 3.4 mgd of reclaimed water from the City. Additional customers have been identified that may be served in the future.

Contracted Reuse – The City of Hollywood is in the process of entering into an interlocal agreement with the City of Miramar by which Miramar will provide a minimum 2.0 mgd AADF of contract reuse water by December 31, 2025 which will be credited to Hollywood for the purpose of satisfying 2.0 mgd of Hollywood's reuse water requirement under the OOL for a 30-year agreement term.

The status of the City of Hollywood's OOL compliance is provided in Table 3-5. The total installed or contracted reclaimed water capacity is 9.4 mgd of the required 10.0 mgd.

Table 3-5. Status of City of Hollywood's FDEP OOL Compliance with respect to Reclaimed Water

Requirement	Installed Reclaimed Water Capacity in mgd
Onsite reuse at Southern Regional Wastewater Treatment Plant	4.0
Irrigation use by customers	3.4
Miramar contract reuse	2.0
Total	**9.4**

3.6 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 five-year average of 127 gpcd in 2008 to 114 gpcd in 2013. The five-year average in 2018 remained steady at 113 gpcd. The historic gpcd from 2004 to 2018 is provided in Table 3-6.

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 3-6. City of Hollywood Historical Annual Average Per Capita Usage

Year	Finished Water (mgd)	Population – Retail and Wholesale	Annual Average Usage (gpcd)	Five-Year Average Usage (gpcd)
(1)	(2)	(3)	(4) = [(2) x 1,000,000] / (3)	(5)
2004	26.1	186,648	140	
2005	24.5	188,287	130	
2006	24.6	190,595	129	
2007	23.0	189,716	121	
2008	22.1	188,837	117	**127**
2009	22.6	187,958	120	
2010	20.8	187,078	111	
2011	21.7	188,108	115	
2012	21.0	189,138	111	
2013	21.0	190,168	110	**114**
2014	21.4	192,944	111	
2015	22.3	194,411	115	
2016	22.8	195,644	116	
2017	22.5	196,876	114	
2018	21.9	198,109	111	**113**

Sources: 2004 to 2013 finished water and population data from are from the City's 2015 Water Supply Plan – Potable Water Sub-Element, Table 4-3.

2014 to 2018 population data are from the City of Hollywood 2015 WSP Update, page 2-5, Table 2-3 and Broward County Water Supply Facilities Work Plan 2020, Table WS7 where values between the 5-year increments provided were interpolated.

Finished water production data from 2013 to 2018 are 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. 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 City has implemented the following water conservation BMPs.

1. Private Irrigation System Audit and Rebate Program

2. City promotion of Florida-friendly landscape practices and use of native plants to reduce irrigation water use. (This BMP 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 BMPs.)

3. Expansion of Reuse Projects

4. Water-Efficient Landscape and Irrigation Evaluations
5. High Efficiency Toilet (HET) Rebates
6. Retrofit Kit Giveaways
7. Water Use Evaluations
8. Restaurant Rinse Valve Replacement
9. City-adopted landscape irrigation limited to twice per week year-round

The City is a committed member of the Broward Water Partnership Conservation Program 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. In 2019, the US Environmental Protection Agency recognized the Broward Water Partnership with a WaterSense® Promotional Partner of the Year Award for "its heroic efforts to defeat water waste and promote WaterSense® in 2018". The Broward Water Partnership was one of 25 recipients.

4. Water Demand Forecast and Supply Adequacy

This section 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 also documents the inclusion of Port Everglades in the City of Fort Lauderdale WSP 2020 Update. This section demonstrates that the existing water supply permitted quantities, coupled with the City's conservation and reuse practices, will meet projected demands through 2040.

The City provides retail water service to residents of the City of Hollywood and small portions of the Town of Davie, the City of Dania Beach, and the Seminole Tribe of Florida reservation. 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. District 3A serves residents and businesses in portions of the Town of Davie, the City of Dania Beach, the City of Hollywood, the City of Fort Lauderdale and unincorporated Broward County. District 3B/C serves residents and businesses in the City of West Park, the Town of Pembroke Park, and portions of the City of Hollywood, the City of Pembroke Pines, and the City of Miramar. The City's WTP is the sole source of treated water to these customers. Port Everglades is in the City of Hollywood but receives water service from the City of Fort Lauderdale. The City of Hollywood has no plans to provide raw or finished water to any retail or wholesale customer outside of its existing water service area.

According to the interlocal resale agreement between the City and Broward County, the County will annually review and project its future needs for potable water demand in terms of annual average daily flow and annual maximum daily flow. In turn, the City will use these annual projections as reasonable estimates for planning, expansion, construction, modification, or alteration of the City's facilities. Therefore, the water demand forecast provided in this Section uses the most recent projections for Districts 3A and 3B/C provided in Table WS13 of the Broward County Water Facilities Work Plan 2020. The County's Districts 3A and 3B/C forecasts of water demand in annual average daily mgd are provided in Table 4-1.

Table 4-1. Broward County Districts 3A and 3B/C Finished Water Demand Forecast

Year	Average Daily Demand (mgd)
2017 (Actual)	6.52
2020	6.91
2025	7.24
2030	7.65
2035	7.92
2040	8.10

Source: Broward County Water Supply Facilities Work Plan 2020, Table WS13

Table 4.2 presents the recent historical data regarding the City's population served by the retail system, the annual average daily flow from the WTP, and the average daily flow from the WTP to BCWWS District's 3A and 3B/C and to the City's retail customers. The table provides the calculation of the average daily amount of water used by the City's retail customers measured as gallons per person (or per capita) per day. Also provided is the maximum day flow during the year at the WTP and the maximum day factor which is the ratio of maximum day flow and annual average daily flow.

Table 4.2 City of Hollywood Historical Retail Population, Finished Water Production and Retail Per Capita Usage

Year	Population - Retail Customers (a)	Finished Water Production					
		Annual Average Daily Flow (mgd)			Retail gpcd	Maximum Day at WTP (mgd) (b)	Max Day Factor at WTP
		WTP (b)	To BCWWS District 3A and B/C (c)	To Retail			
(1)	(2)	(3)	(4)	(5) = (3) – (4)	(6) = (5) x 10^6 / (2)	(7)	(8) = (7) / (3)
2014	141,179	21.4	6.5	14.9	105.4	24.5	1.15
2015	141,827	22.3	6.8	15.5	109.4	26.2	1.17
2016	142,698	22.8	6.8	16.0	111.8	27.6	1.21
2017	143,568	22.5	6.5	15.9	110.9	24.9	1.11
2018	144,439	21.9	6.7	15.3	105.6	26.2	1.20
Average					**108.6**		**1.17**

(a) City of Hollywood 2015 Water Supply Plan Potable Water Sub-Element, page 2-5, Table 2-3 and Broward County Water Supply Facilities Work Plan 2020, Table WS4 and Table WS7.

(b) City of Hollywood WTP Monthly Operating Reports

(c) Broward County Water Supply Facilities Work Plan 2020, Table WS13. The 2018 metered finished water flow to BCWWS Districts 3A and 3B/C was not provided in this document. Therefore, the average metered flow from 2014 to 2017 was used for the 2018 value.

The annual average water use of the City's retail customers measured as gallons per capita per day over the five-year period from 2014 to 2018 is 108.6. This value was used to forecast

annual average daily water demand by the City's retail customers. The average maximum day factor over the same period is 1.17. This value was used to forecast maximum day demand that needs to be supplied by the City's WTP.

The population projection for the City of Hollywood's retail water service area in 2020, 2025, 2030, 2035 and 2040 was obtained from Table WS7 of the Broward County Water Supply Facilities Work Plan 2020. The 108.6 gpcd was multiplied by the City's retail population forecast to obtain the daily water demand in gallons. The resulting retail water demand forecast is provided in Table 4.3.

Table 4.3 City of Hollywood Retail Finished Water Demand Forecast

Year	Population - City Retail Customers (a)	Retail Finished Water Demand	
		GPCD	Annual Average Day (mgd)
(1)	(2)	(3)	(4) = (3) x (2) / 10^6
2018 - Actual	144,439	105.6	15.3
2020	146,180	108.6	15.9
2025	150,380	108.6	16.3
2030	156,640	108.6	17.0
2035	161,270	108.6	17.5
2040	164,432	108.6	17.9

(a) Broward County Water Supply Facilities Work Plan 2020, Table WS4 and Table WS7

To obtain the water demand that needs to be supplied by the City's WTP, the retail water demand forecast in Table 4.3 was added to the wholesale water demand forecast in Table 4-1. The resulting forecast of the City's water demand is provided in Table 4.4.

Table 4.4 Finished Water Demand Forecast in the City of Hollywood Water Service Area

Year	Annual Average Daily Demand in mgd		
	Retail	Districts 3A and 3B/C	Total
(1)	(2)	(3)	(4) = (2) + (3)
2018 – Actual (a)	15.26	6.67	21.93
2020	15.88	6.91	22.79
2025	16.34	7.24	23.57
2030	17.02	7.65	24.67
2035	17.52	7.92	25.44
2040	17.86	8.10	25.96

(a) The 2018 demand value used for Districts 3A and 3B/C is from Table 4.2.

The forecasted maximum day water demand that needs to be supplied by the City's WTP is provided in Table 4.5.

Table 4.5 City of Hollywood Maximum Day Water Demand Forecast

Year	Annual Average Daily Water Demand from WTP, mgd	Max Day Factor	Max Day Demand, mgd
(1)	(2)	(3)	(4) = (2) x (3)
2018 - Actual	21.9	1.20	26.2
2020	22.8	1.17	26.6
2025	23.6	1.17	27.5
2030	24.7	1.17	28.8
2035	25.4	1.17	29.7
2040	26.0	1.17	30.3

The annual average daily water demand forecast was used to estimate the amount of raw water that would be needed from the Biscayne and Floridan aquifers including water lost due to treatment. The average treatment losses of the LS, MS, and RO treatments are 2, 13, and 20 percent, respectively. The weighted average treatment loss over all the water produced was estimated based on historical raw water withdrawals and corresponding finished water production as follows.

The historical annual average withdrawals from the Biscayne and Floridan aquifers are provided in Table 4.6.

Table 4.6 City of Hollywood WTP Historical Raw Water Annual Average Withdrawals

Year	Biscayne Aquifer (mgd)	Floridan Aquifer (mgd)	Total (mgd)
(1)	(2)	(3)	(4) = (2) + (3)
2014	21.42	1.90	23.3
2015	20.76	3.70	24.5
2016	21.03	3.91	24.9
2017	21.37	2.71	24.1
2018	20.34	4.84	25.2

Source: City of Hollywood WTP Monthly Operating Reports

The annual percent treatment loss considering all treatment processes over the period 2014 through 2018 is provided in Table 4.7. The historic average annual treatment loss over the period is approximately nine percent.

Table 4.7 City of Hollywood WTP Annual Percent Treatment Loss Associated With All Treatment Processes

Year	Annual Average (mgd)		Percent Treatment Loss (%)
	Raw Water Withdrawal	Finished Water Production	
(1)	(2)	(3)	(4) = {[(2) – (3)] / (2)} / 100
2014	23.32	21.37	8.4%
2015	24.46	22.34	8.7%
2016	24.95	22.78	8.7%
2017	24.07	22.46	6.7%
2018	25.18	21.93	12.9%
Average			**9.1%**

Table 4.7 shows that the overall treatment loss increased in 2018. This increase is largely a result of increased use of Floridan Aquifer source water in 2018. Floridan Aquifer source water is treated exclusively through RO treatment which has a treatment loss of 20%, significantly higher than LS and MS treatment processes (2% and 13% respectively).

For the purpose of determining the amount of raw water needed to supply the forecasted finished water demand, the weighted average treatment loss when a combined 30 mgd of raw water is pumped from both aquifer sources was calculated. Table 4.8 presents the treatment methods considered.

Table 4.8 City of Hollywood Forecasted Weighted Average Percent Treatment Loss

Treatment Technology	Raw Water Withdrawal, Annual Average mgd	% of Raw Water	% Treatment Loss
(1)	(2)	(3)	(4)
Lime Softening	12	40%	2%
Membrane Softening	12	40%	13%
Reverse Osmosis	6	20%	20%
Total / **Weighted Average**	30	100%	**10%**

If 40 percent of the raw water is treated using LS, 40 percent is treated using MS, and 20 percent is treated using RO, the weighted average percent treatment loss is 10 percent. This value was used to convert the finished water demand forecast to the total annual raw water withdrawal needed from the City's Biscayne and Floridan aquifer wellfields and the County's SRW.

The raw water forecast is calculated in Table 4.9. Total raw water withdrawal will need to be 25.3 mgd in 2020 and will need to increase each year to 28.8 mgd by 2040. If the overall treatment loss is 13 percent, instead of 10 percent, as was the case in 2018, then the total raw water withdrawal will need to be about 1.0 mgd higher each year.

Table 4.9 City of Hollywood Forecasted Raw Water Withdrawals

Year	Finished Water Demand (mgd)	Annual Average Raw Water Withdrawal (mgd)		
		At 10% Treatment Loss	At 13% Treatment Loss	Difference
(1)	(2)	(3) = (2) / [1 – 0.10]	(4) = (2) / [1 - 0.13]	(5) = (4) - (3)
2018 - Actual	21.9	25.2		
2020	22.8	25.3	26.2	0.9
2025	23.6	26.2	27.1	0.9
2030	24.7	27.4	28.4	0.9
2035	25.4	28.3	29.2	1.0
2040	26.0	28.8	29.8	1.0

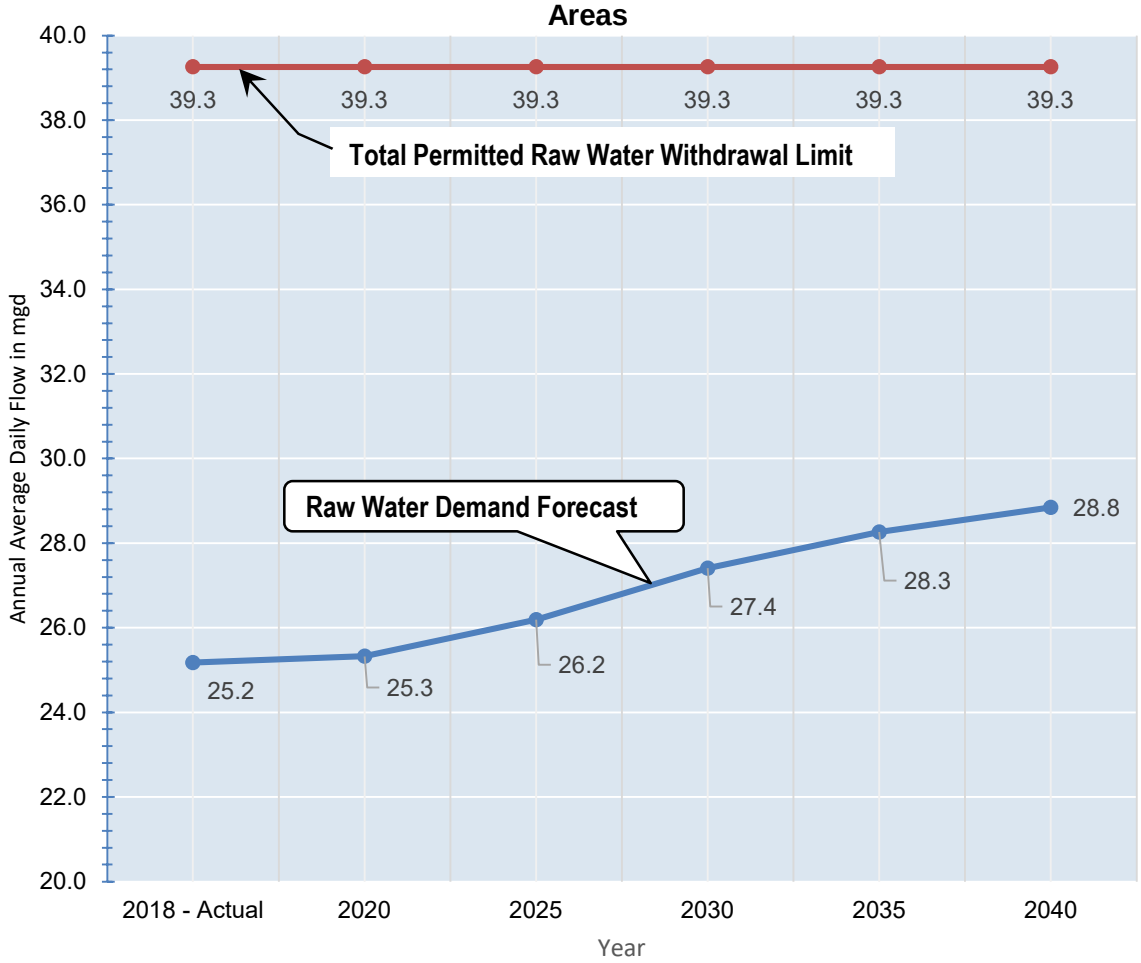
The City's combined permitted raw water withdrawal quantities total 39.3 mgd on an annual average day basis and 42.0 mgd on a maximum month basis as summarized in Table 4.10. The comparison of forecasted raw water withdrawal to the permitted quantity is provided in Figure 4-1.

Table 4.10 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	15.00	16.35
South Wellfield	9.80	10.68
BCWWS - Piccolo Wellfield (contractual)	5.78	6.47
Subtotal - Biscayne Aquifer	30.58	33.50
Floridan Aquifer	8.68	8.52
Total	**39.26**	**42.02**

During the period 2020 through 2040, the forecast of raw water withdrawals from the City's Biscayne and Floridan aquifers are significantly lower than the total permitted raw water quantity, even when the forecasts are increased by one mgd to account for a conservative overall treatment loss of 13% (described previously). Thus, no additional water supply is expected to be needed through 2040.

Figure 4-1
Comparison of Raw Water Demand Forecast to Withdrawal Limit - City of Hollywood Retail and BCWWS 3A and 3B/C Wholesale Areas



The limit on the amount of finished water that can be produced was based on the firm raw water treatment capacity of the City's LS process, the permitted quantities from the Biscayne and Floridan aquifers and the historical percent treatment loss of each treatment process. The calculation of the finished water treatment limit is provided in Table 4.11. The limit is 36.1 mgd.

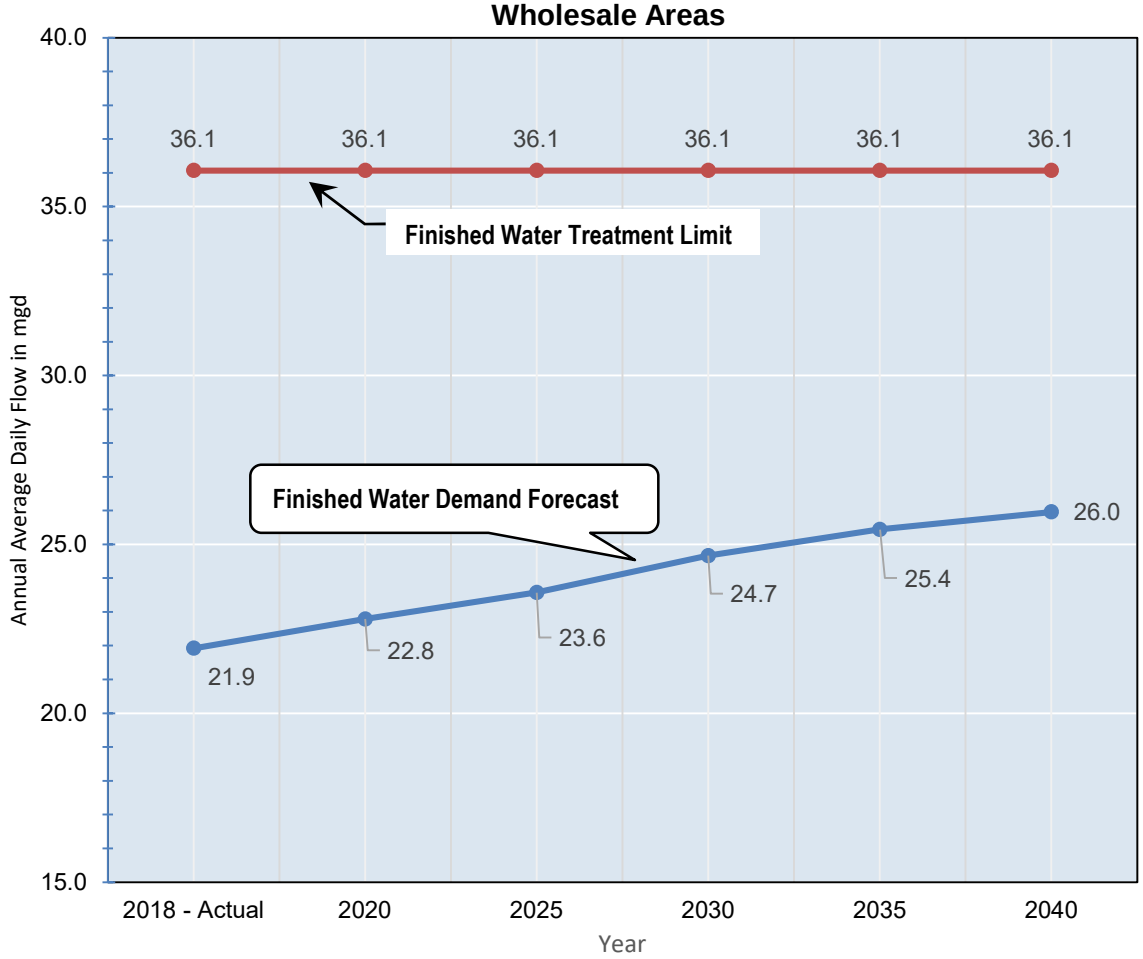
Table 4.11 Calculation of Finished Water Quantity Limit based on Raw Water Permit Limit

Treatment Process	Treatment - Firm Capacity (mgd)	Treatment Loss (%)	Raw Water Treatment Capacity (mgd)	- LIMIT - Raw Water Treatment Allocation (mgd) (a)	- LIMIT - Finished Water Treatment (mgd)
(1)	(2)	(3)	(4) = (2) / [1 - (3)]	(5)	(6) = (5) x [1 - (3)]
Lime Softening - Biscayne Aquifer	22.50	2%	22.96	22.96	22.50
Membrane Softening - Biscayne Aquifer	12.00	13%	13.79	7.62	6.63
Total Permitted Quantity from Biscayne Aquifer	**34.50**		**36.75**	**30.58**	**29.13**
Reverse Osmosis (Floridan Aquifer)	6.00	20%	7.50	8.68	6.94
Total	**40.50**		**44.25**	**39.26**	**36.07**

(a) 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 (30.58 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 (8.68 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 8.68 mgd, when needed.

Comparison of the finished water demand forecast (from Table 4.4) to the finished water treatment limit (from Table 4.11) is provided in Figure 4-2. During the period 2020 through 2040, the forecast of finished water demand is significantly lower than the finished water treatment limit.

Figure 4-2
Comparison of Finished Water Demand Forecast to Treatment Limit - City of Hollywood Service Retail and BCWWS 3A and 3B/C Wholesale Areas



Port Everglades purchases water from the City of Fort Lauderdale. The historical metered water to Port Everglades is provided in Table 4-12. Water flow varied within a narrow range of 1.04 mgd to 1.06 mgd from 2015 to 2017. In 2018, water flow increased to 1.20 mgd. The annual average daily flow over the five-year period from 2014 to 2018 was 1.04 mgd.

Table 4-12. Historical Annual Average Daily Water Supplied To Port Everglades from the City of Fort Lauderdale

Calendar Year	Annual Average Daily Flow (mgd)
2014	0.86
2015	1.04
2016	1.06
2017	1.06
2018	1.20
Annual Average	**1.04**

The adequacy of the City of Fort Lauderdale water system to supply Port Everglades is implicitly ensured in the City of Fort Lauderdale Water Supply Facility Work Plan 2020 Update. Within Fort Lauderdale's Plan, the forecasted water flow to Port Everglades is included within the forecast for "Unincorporated Broward Plus Port Everglades" and this category is projected to increase from 2.94 mgd in 2015 to 4.32 mgd in 2040.

5. Regional Issues

This section summarizes the regional water supply planning issues that have the potential to impact the City.

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.

4.1 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 21 recommendations that address “Water Supply, Management, and Infrastructure”.

Table 5-1 summarizes the water supply-related recommendations from the Regional Climate Action Plan 2.0.[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 5.1 - Water Supply Recommendations of the 2019 Regional Climate Change Action Plan

Item	Recommendations
WS-1	Foster innovation, development, and exchange of ideas for managing water.
WS-2	Ensure consistency in water resource scenarios used for planning.
WS-3	Plan for future water supply conditions.
WS-4	Coordinate saltwater intrusion mapping across Southeast Florida.
WS-5	Maintain regional inventories of water and wastewater infrastructure.
WS-6	Develop a spatial database of resilience projects for water infrastructure.
WS-7	Modernize infrastructure development standards in the region.
WS-8	Address the resilience of the regional flood control system.
WS-9	Update the regional stormwater rule.
WS-10	Integrate combined surface and groundwater impacts into the evaluation of at-risk infrastructure and the prioritization of adaptation improvements.
WS-11	Encourage green infrastructure and alternative strategies.
WS-12	Integrate hydrologic and hydraulic models.
WS-13	Practice integrated water management and planning.
WS-14	Advance comprehensive improvements to regional and local stormwater management practices.
WS-15	Foster scientific research for improved water resource management.
WS-16	Expand partnerships and resources to further innovation in water resource management.
WS-17	Advance capital projects to achieve resilience in water infrastructure.
WS-18	Coordinate innovation and regional funding.
WS-19	Recognize adaptable infrastructure.
WS-20	Support the Comprehensive Everglades Restoration Plan (CERP).
WS-21	Expand regional surface water storage.

[1] http://southeastfloridaclimatecompact.org/regional-climate-action-plan/

4.2 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.

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 Southeast Florida Regional Climate Change Compact and the Regional Climate Action Plan.

The City is a participant in the Southeast Florida Regional Climate Change 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.

The City's Sustainability Action Plan was approved on March 15, 2017. The Plan contains 99 actions to achieve 32 goals within seven 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.

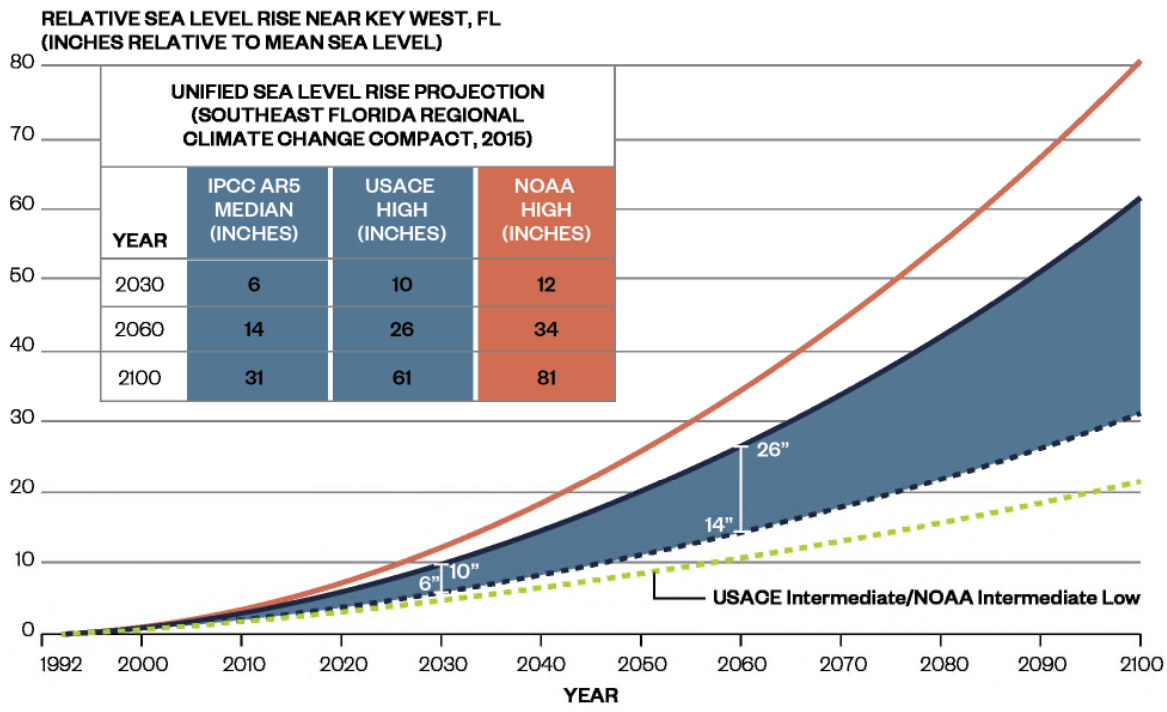
4.3 Sea Level Rise

The sea level is rising as reflected in the City's sunny day flooding events. The flooding frequency has been on average less than eight days per year. With an expected sea level rise above two 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 US 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 is considering new regulations for seawall heights. These regulations would be an integral part of a holistic approach the County is developing to address tidal flooding and surge protection. Broward County is proposing seawalls that are four feet NAVD by 2035 and five feet NAVD by 2050, allowing two years for municipal implementation. Resilience features like this will help prevent large increases in national flood insurance rates.

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 Southeast Florida Regional Climate Change Compact developed in 2015, which the City formally accepted in its 2016 Resolution R-2016-015, is illustrated in Figure 5-1. 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.



UNIFIED SEA LEVEL RISE PROJECTION (SOUTHEAST FLORIDA REGIONAL CLIMATE CHANGE COMPACT, 2015)

YEAR	IPCC AR5 MEDIAN (INCHES)	USACE HIGH (INCHES)	NOAA HIGH (INCHES)
2030	6	10	12
2060	14	26	34
2100	31	61	81

Figure 5-1 – Sea Level Rise Projection (2015)

The sea level rise projection was recently updated by the Compact (in December 2019) that increases the projected magnitude of sea level rise. The revised projection is provided in Figure 5-2. This update is now being used as the basis for planning throughout the region.

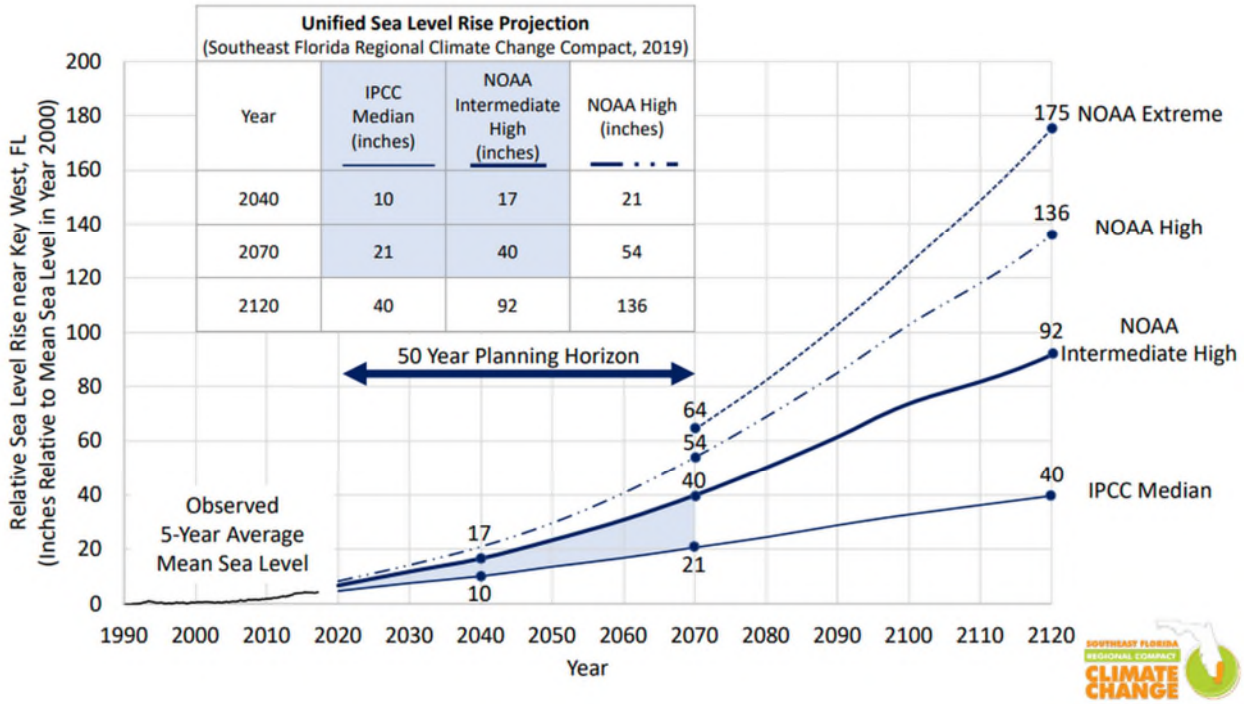


Figure 5-2 – Sea Level Rise Projection (2019)

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.

4.4 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 in Broward County is illustrated in Figure 5-3.

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. 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.

4.5 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 for 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.

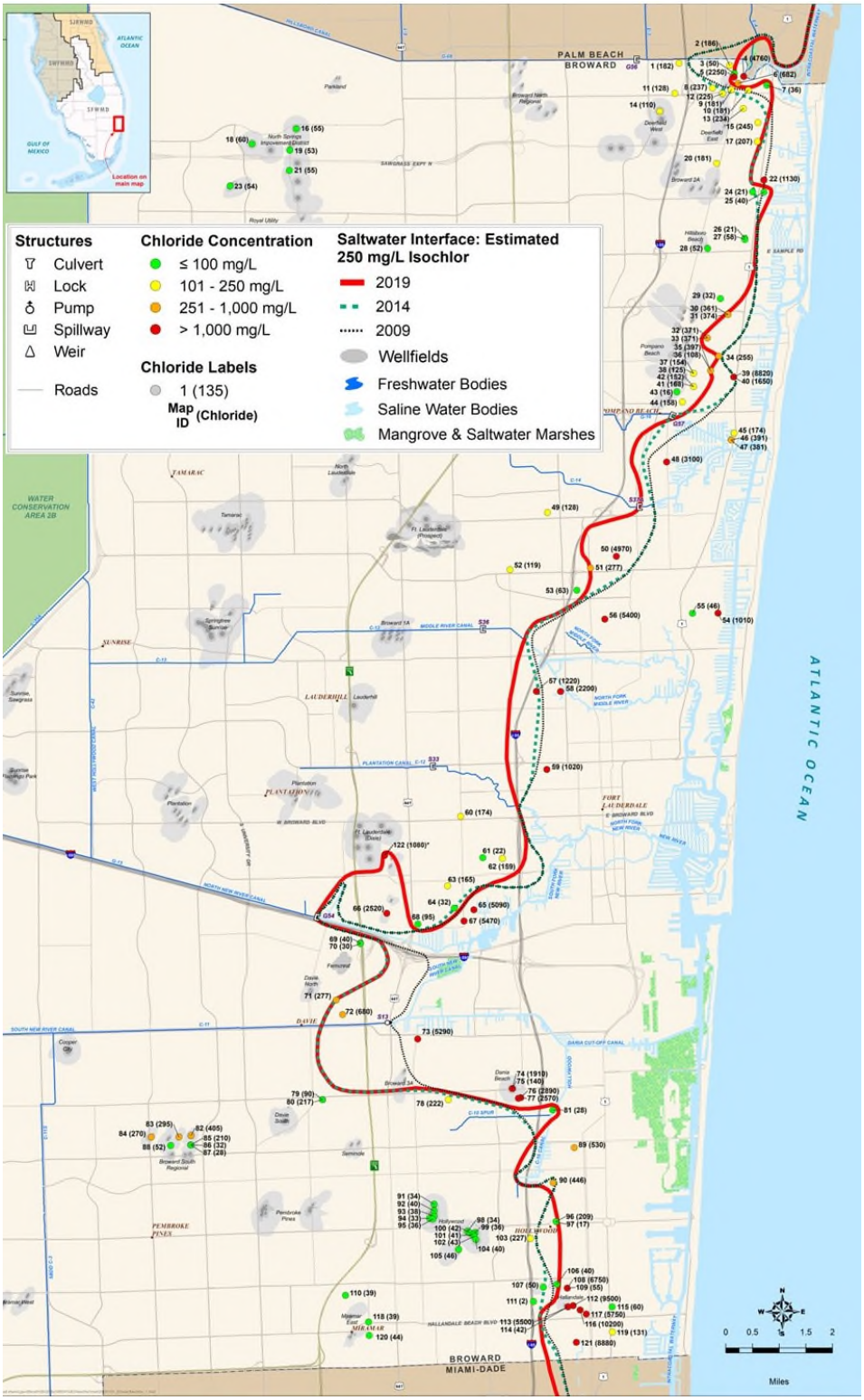


Figure 5-3 – 250 mg/L Isochlor Line in Broward County (SFWMD)

4.6 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 is 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 Regional Climate Change Action Plan.

The Regional Water Availability (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 five years preceding April 2006. 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.

4.7 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 Minimum Flow and Minimum Water Level (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 Regional Water Availability 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 Regional Water Availability 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.

4.8 Lowering Lake Okeechobee Level

In January 2019, Florida's Governor announced his promotion of a plan to lower the minimum level of the Lake Okeechobee Regulation Schedule to 10.5 feet. The current Lake Okeechobee Regulation Schedule (LORS) ranges from a minimum level of 12.5 feet to a maximum of 15.5 feet.

While lowering Lake levels could provide environmental benefits to the Lake and the coastal estuaries, dropping the minimum level to 10.5 feet would reduce the amount of water stored in Lake Okeechobee, potentially reducing the amount of water available to recharge the Biscayne Aquifer. Should this happen, the risk of water shortages in the LEC, including the City of Hollywood, would increase. The City continues to monitor this issue and, when appropriate, will develop a policy to address any potential impacts to its water utility.

4.9 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 be needed to increase water availability during dry conditions and attenuate damaging peak flow events from Lake Okeechobee. The C-51 Reservoir project located in southwestern Palm Beach County is one such project.

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 US Army Corps of Engineers under the Comprehensive Everglades Restoration Project (CERP).

The Broward County Water Preserve Areas project is part of the CERP and was designed to perform three primary functions:

1. Reduce seepage loss from WCA-3A/3B to developed areas (i.e., the C-11 and C-9 basins);
2. Capture, store, and distribute surface water runoff from the western C-11 Basin; and,
3. Restore wetlands, recharge groundwater, improve hydroperiods in WCA-3A/3B, and maintain flood protection.

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

- C-11 Impoundment – A 1,168-acre impoundment to capture and store runoff from the C-11 Basin, reduce pumping of surface water into the WCAs, and provide releases for other regional uses.

- WCA-3A/3B Seepage Management Area – A 4,353-acre seepage management area that would establish a buffer to reduce seepage from WCA-3A/3B, connect the C-11 and C-9 impoundments via conveyance canal, and maintain flood protection.

- C-9 Impoundment – A 1,641-acre impoundment to capture and store surface runoff from the C-9 Basin, store C-11 Impoundment overflow, manage seepage, and 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 2014. Design efforts are under way for the C-11 Impoundment, and construction began in October 2017 on a portion of the mitigation area. Construction of the C-11 Impoundment is expected to be completed in 2027.

The WCA-3A/3B Seepage Management Area is anticipated to begin construction in 2027. Construction of the C-9 Impoundment is expected to begin in 2030.

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

4.10 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 and the ability to expand this capacity as needed.

6. 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 FY 2020 – 2024 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. Because the City has sufficient existing water supply and treatment infrastructure in place, no anticipated capital expenditures are required to meet the City's water supply needs over the planning horizon.

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 five 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.

Table 6-1 presents the public utilities funding priorities for upgrade, repair and replacement projects over the next five years. 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 FY 2019, the City of Hollywood approved the recommended rate study findings to support the Capital Improvement Program for FY 2020 to FY 2024.

Table 6-1. City of Hollywood Water Utility Five-Year Capital Improvement Program

Project Title	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total
Water Main Replacement - Small Scope	$0	$0	$0	$0	$50,000	$50,000
Consulting Services	$100,000	$100,000	$100,000	$100,000	$100,000	$500,000
Permitting Activities	$0	$0	$25,000	$0	$0	$25,000
Water Conservation PIII	$0	$0	$200,000	$0	$0	$200,000
Switchgear Clean, Re-calibrate & Test at Plant	$0	$75,000	$0	$0	$75,000	$150,000
Water Treatment Small Maint. - Emergency, Small Project Repairs	$150,000	$150,000	$225,000	$150,000	$150,000	$825,000
Rehabilitation of Lime Softening Plant	$1,300,000	$0	$0	$0	$0	$1,300,000
Membrane Softening Replace Skids, Upgrade Feed Pumps to VFD	$2,000,000	$0	$2,000,000	$0	$2,000,000	$6,000,000
Elevated West Tank Maintenance	$0	$750,000	$0	$0	$0	$750,000
Elevated East Tank Maintenance	$0	$0	$0	$750,000	$0	$750,000
Treatment Improvements - 4 Log Compliance	$500,000	$0	$0	$0	$0	$500,000
Water Main Replacement Program (WMRP) - Citywide	$851,359	$3,667,125	$0	$5,092,500	$0	$9,610,984
WMRP – Hlwd Blvd to US 1 to Pembroke Rd to S 21 Ave	$10,185,000	$0	$0	$0	$0	$10,185,000
WMRP – Johnson St to FL Turnpike to Hlwd Blvd to N 72 Ave	$0	$11,617,900	$0	$0	$0	$11,617,900
WMRP - Sheridan St to 26 Ave to Taft St to I-95	$0	$0	$7,035,000	$0	$0	$7,035,000
WMRP - Sheridan St. to N. 31 Ave to Hlwd Blvd to N. 35 Ave	$0	$0	$8,268,750	$0	$0	$8,268,750
WMRP – Sheridan St. to N. 31 Ave to Hlwd Blvd to N. 35 Ave	$0	$0	$0	$0	$8,925,000	$8,925,000
Total	**$15,086,359**	**$16,360,025**	**$17,853,750**	**$6,092,500**	**$11,300,000**	**$66,692,634**

7. Water Supply Goals, Objectives, and Policies

This section includes an assessment of current Goals, Objectives, Policies (GOPs) and identifies any new or revised GOPs, relative to the 2015 Water Supply Plan Potable Water Sub-Element, needed to implement the work plan. For ease of identification, edits are provided in track changes.

7.1 Land Use Element

Goal: Promote a distribution of land uses that will enhance and improve the residential, business, resort, and natural communities while allowing landowners to maximize the use of their property.

Objective 7.0: Achieve consistency with the Broward County Land Use Plan by adopting the following goals, objectives, and policies into the City's Land Use Element, by reference, from other elements of the City's Comprehensive Plan. ~~See Exhibit A at the end of the Land Use Element.~~

- Policy 7.14: Continue to provide enough potable water for a year-round water supply including the increased utilization of the Floridan Aquifer in addition to the Biscayne Aquifer, thus discouraging an increase in saltwater intrusion.
- Policy 7.15: Coordinate with the South Florida Water Management District (SFWMD) on any measures they take to decrease the possibility of further salt-water intrusion through their canals.
- Policy 7.16: Cooperate with the SFWMD in enforcing their emergency water conservation measures during droughts.
- Policy 7.20: Continue to address the protection of the functions of natural groundwater recharge areas and natural drainage features.
- Policy 7.21: The City will adopt the minimum design criteria for water management as its level of service per the Drainage sub element of the Utilities element.
- Policy 7.22: The City will continue to adhere to its ongoing annual maintenance program for drainage systems~~,~~ and will establish priorities for correcting existing deficiencies through its drainage complaint system. Priorities for future facility needs will be based on the City's adopted level of service standards and will be enforced through its concurrency management system.

- Policy 7.23: The City will protect the functions of the natural drainage features by regulating land use to ensure that uses permitted are compatible with adjacent drainage features.

- Policy 7.24: To ensure through coordination with the ~~South Florida Water Management District (~~SFWMD~~)~~, the Broward County Water Management Division (BCWMD), and the Broward County Environmental Protection and Growth Management Department (BCEPGMD) in the development review process that new development is required to provide adequate drainage measures to service itself and to neutralize any deficiencies which would be created by such new development.

- Policy 7.25: Maintain the existing land development regulations requiring new development to provide adequate drainage measures to service itself and to neutralize any deficiencies created by proposed projects.

- Policy 7.26: To continue to address the protection of natural groundwater recharge areas and natural drainage features.

- Policy 7.27: The City will prohibit the use of land which conflicts with the functions of the natural drainage and natural groundwater aquifer recharge areas, and will not permit development in conservation areas.

7.2 Conservation Element

Goal: To maintain, and if possible, encourage better natural environmental quality.

Objective 1.0: Continue to provide enough potable water for a year-round water supply including the increased utilization of the Floridan Aquifer in addition to the Biscayne Aquifer thus discouraging an increase in saltwater intrusion.

- Policy 1.1: Coordinate with the SFWMD on any measures they take to decrease the possibility of further saltwater intrusion through their canals.

- Policy 1.2: Cooperate with the SFWMD in enforcing their emergency water conservation measures during droughts.

- Policy 1.3: Require City parks to use reclaimed water instead of potable water for irrigation. Maintain City golf courses using reclaimed water instead of potable water for irrigation.

- Policy 1.4: Investigate the potential for ~~whether or not~~ industrial, office, and commercial property owners ~~uses can also~~ to use reclaimed water for ~~watering~~ landscape~~ing~~ irrigation.

- Policy 1.5: Investigate the potential for ~~whether or not some~~ industries and businesses ~~can~~ to reuse water in their service or manufacturing processes.

- Policy 1.6: Encourage the use of native instead of exotic plants in landscaping.

- Policy 1.7: The City shall participate in the development of the Regional Water Supply Plan in conjunction with the SFWMD and shall adopt the *2018~~3~~ Lower East Coast Water Supply Plan Update*, which was approved by the District's Governing Board on November 8, 2018, ~~September 12, 2013~~ into the Utilities Element of this Plan as required by Florida Statute.

Effectiveness Measures:

Number of meetings with the ~~South Florida Water Management District~~ SFWMD.

(a) Ground-water monitoring for saltwater showing no further intrusion.
(b) Increase in number of water reuse systems.
(c) Decrease in percent of water being used for non-potable uses.
(d) Adoption of Regional Water Supply Plan in the Utilities Element.

Objective 2.0: Continue to encourage the public to participate in the City's Water Conservation Program.

- Policy 2.1: The City shall encourage public participation in the water conservation measures and best management practices presented in the Water Conservation Plan dated January 2008. These are provided in the tables below.

Table 7-1. Water Conservation Measures

Conserve Florida Water Conservation Measure
Source-Water Metering
Service-Connection Metering
Fixed-Interval Meter Maintenance Program
System Audit
Leak Detection and Repair
Landscape/Irrigation Ordinance
Conservation Rate Structures
Customer Leak Notification
Informative Billing
Water Bill Inserts
Retrofit Kit Giveaway
Public Information/Education
Workshops
Advisory Committee(s)
Reuse Feasibility Study
Customer Surveys
Water Waste Prohibition

Table 7-2. Water Conservation Best Management Practices

BMP
Reuse Projects
Water-Efficient Landscape and Irrigation Evaluations
~~Ultra Low Flush (ULF)~~ High Efficiency Toilet (HET) Rebates
Retrofit Kit Giveaways and Rebates
Water Use Evaluations
Restaurant Rinse Valve Replacement

Objective 3.0: Maintain and, if possible, increase the level of ground and surface water quality.

- Policy 3.1: Review ordinances and procedures to ensure that the restrictions dictated by Broward County wellfield protection ordinance are being met and enforced.
- Policy 3.9: Determine the greatest impact on water supply (ground and surface waters) whether point or non-point source pollution, and work to eliminate cause(s). (CWMP Policy CW. 130)

Objective 17: Promote public awareness of natural resources, wildlife habitats, conservation measures, and environmental hazards.

- Policy 17.1: Maintain an information counter in the lobby near the City Commission Chambers and at all Community Centers.
- Policy 17.2: Obtain information on conservation issues such as water conservation, endangered species and West Lake and distribute the information from the Water Department Counter, the Zoning Counter, and the Information Counter.
- Policy 17.9: Disseminate conservation and water quality information through community newsletters, public access Channel 78, social media, and proclamations and presentations during televised City Commission meetings.

7.3 Utilities Element

7.3.1 Drainage Sub Element

Goal: To optimize the utilization of water resources through provision of stormwater management for the City of Hollywood, which reduces damage and inconvenience from flooding, promotes recharge to the Biscayne Aquifer, minimizes degradation of water quality in surface and ground waters, and protects the functions of wetlands in urban areas.

Objective 3.0: Stormwater management facilities shall be designed, constructed and operated in such a manner that conserves potable water resources.

- Policy 3.1: The City shall coordinate with the ~~South Florida Water Management District (~~SFWMD~~)~~ to implement applicable portions of the Lower East Coast Regional Water Supply Plan intended to reduce losses of excess stormwater to tide, recharge the surficial aquifer and Water Preserve Areas, or provide additional storage of surface waters.

- Policy 3.3: The City shall address stormwater issues on a watershed (basin) basis as a means of providing cost-effective water quality and water quantity solutions to specific watershed problems.

- Policy 3.4: The City shall develop a basin-wide water management protocol that optimizes flood protection, water quality, stormwater storage, wetlands sustainability, and ground water recharge functions. By assessing the existing surface water management system, wellfield characteristics, groundwater levels, flows, and canal stages, a model will be developed to better utilize the water resource.

- Policy 3.5: The City shall work with Independent Drainage Districts and the SFWMD~~, and shall~~to investigate application of the basin-wide protocols throughout the City where appropriate.

Objective 4.0: Maintain and protect groundwater recharge of the surficial aquifer system so as to maintain all of the functions of the Biscay~~a~~ne Aquifer, including the reduction of saltwater intrusion.

- Policy 4.1: The City shall encourage the use of BMPs in accordance with its regulations and those of the ~~South Florida Water Management District~~SFWMD.

- Policy 4.2: The City shall develop an integrated geographic information system inventory of public water supply wellfields to facilitate local and regional planning efforts.

- Policy 4.3: The City of Hollywood in cooperation with the United States Geological Survey (USGS) and SFWMD shall install additional monitoring wells and rehabilitate existing wells to continue monitoring the extent of saltwater intrusion into the Biscayne Aquifer.

- Policy 4.4: The City shall work cooperatively with Broward County, the SFWMD, and the independent drainage districts to implement plans for additional surface water storage such as water preserve areas, the Lower East Coast Regional Water Supply Plan and any other plans and operating procedures to increase recharge water to the Biscayne Aquifer.

- Policy 4.5: In order to protect and conserve the Biscayne Aquifer, the City shall continue to utilize the Floridan Aquifer and investigate utilization of other alternate potable water resources to supplement and broaden the future water supplies as

addressed in the Lower East Coast Regional Water Supply Plan of the SFWMD.

- Policy 4.6: To utilize, preserve, restore, and enhance natural water bodies and functions by encouraging non-structural and structural erosion control devices and discourage the channelization, installation of seawalls or other alteration of natural rivers, streams and lakes.

- Policy 4.7: Protect the water storage and water quality enhancement functions of wetlands, floodplains, and aquifer recharge areas through acquisition, enforcement of rules, and the application of land and water management practices, which provide for compatible uses.

- Policy 4.8: The City will coordinate with Broward County and the SFWMD to protect aquifers from depletion through water conservation and preservation of the functions of high recharge areas including, but not limited to, the water conservation areas and water preserve areas.

7.3.2 Potable Water Sub Element

Goal: Provide residents of the City of Hollywood, and large users a cost-effective and equitable potable water supply system, which provides an adequate supply of water meeting all applicable federal, state and local water quality standards and does not compromise the sustainability of the county's water resources to supply water in the future.

Objective 1.0: The City of Hollywood shall identify and, where feasible, correct existing potable water facilities deficiencies as necessary.

- Policy 1.1: In the absence of legal constraints on the use of revenues, the City of Hollywood should maintain funding for system improvements identified in the Capital Improvements Element to alleviate potable water deficiencies.

- Policy 1.2: The City of Hollywood shall develop and maintain an inventory of all its potable water facility serving residents, customers, and large users.

- Policy 1.3: Maintain public facilities and areas utilizing preventive measures to avoid deterioration of the public infrastructure. (CWMP Policy CW.31)

Objective 2.0: Potable water facilities shall be provided to meet the City's short-term and long-term future needs.

- Policy 2.1: The level of service (LOS) standard for potable water facilities shall be the Florida Department of Environmental Protection (FDEP) Permitted Capacity of the facility. The LOS standard for water treatment plants shall be measured by maximum daily flow.

- Policy 2.2: The City of Hollywood shall use the information contained to access adequacy of service and concurrency for potential retail customers. For a bulk purchaser of potable water, the City will use the flow information contained in the FDEP permit application to access adequacy of service and concurrency.

Table 7-3. Potable Water Demand Rates

Facility Type	Water Use in Gallons per Day
Residential Per capita per day (annual avg. gpcd) Per single family unit	 109 ~~114~~[(a)] 350 [(b)]
Retail per square foot	0.1 [(b)]
Office space per square foot	0.2 [(b)]
Other non-residential per capita	20 [(b)]

~~Source:~~ (a) ~~2014~~ City of Hollywood Water Supply Facilities Work Plan 2020 Update

(b) Broward County Comprehensive Plan, Potable Water Element, Volume 4 Support Documents, page 4-32. ~~Health Department, Florida Department of Health~~.

Note: In the case where the facility type is not listed, then the most suitable one is to be used.

- Policy 2.3: The City shall continue to utilize the development review process of the Broward County Land Development Code to require applicants for development permits to utilize existing potable water facilities if lines are "available" as defined by Chapters 62-550, 62-555, and 62-560, Florida Administrative Code (FAC).

- Policy 2.4: Planning for additional capacity and/or a reduction in per capita demand shall be included in the 10-Year Water Supply Facilities Work Plan as required in Chapter 163 of Florida Statutes to increase the coordination of local land use and future water supply planning.

- Policy 2.5: An assessment of the impacts of the construction and operation of water treatment plants and support services on adjacent natural resources shall be prepared during site review when considering the siting of new water treatment plants and the expansion of, or increase in capacity of, water treatment plants.

- Policy 2.6: Within twelve (12) months after the adoption of the Retail Service Water and Wastewater Master Plan Update, the City of Hollywood shall re-examine the feasibility of amending the potable water facilities LOS standard. The LOS standards that may be considered include treatment plant peak demand capacity, water storage capacity, and water pressure for distribution facilities.

- Policy 2.7: In order to protect and conserve the Biscayne Aquifer, the City of Hollywood shall continue to utilize the Floridan Aquifer and investigate the utilization of alternate water sources to supplement and broaden the City's future water supply sources as described in the 10-Year Water Supply Facilities Work Plan. These potential sources could include the increased use of reclaimed water, improved methods of conservation, Aquifer Storage and Recovery (ASR), improved operations to increase stormwater reuse and aquifer recharge by improvements to the secondary canal infrastructure, and other technologies, which may be addressed in the Lower East Coast Regional Water Supply Plan of the South Florida Water Management District (SFWMD).

- Policy 2.8: The City shall encourage maximizing the use of existing potable water facilities and reducing redundant facilities.

- Policy 2.9: The City shall promote the implementation of an integrated geographic information system in order to make available standardized land use and potable water supply facilities information for local and regional planning.

- Policy 2.10: The City shall ensure adequate water supplies are available to serve the new development no later than the anticipated date of issuance of a certificate of occupancy or its functional equivalent.

- Policy 2.11: Prior to approval of a building permit, the City shall consult with the appropriate water supplier(s) to determine whether adequate water supplies to serve the new development will be available no later than the anticipated date of issuance of a certificate of occupancy.

Objective 3.0: Maximize the use of existing potable water facilities and encourage compact urban growth patterns.

- Policy 3.1: The City of Hollywood shall continue to coordinate the provision of potable water through agreements with the municipalities serviced by the City of Hollywood.

- Policy 3.2: The City of Hollywood shall recommend the denial of future land use map amendments where densities or intensities are increased if:

1. Potable water facilities are not available and a consumptive use permit for the FDEP Permitted Capacity from the SFWMD has not been issued; and

Plans to extend potable water facilities so that they become available are not included within a financially feasible capital improvements program and/or there is not a reasonable expectation that the consumptive use permit will be issued.

- Policy 3.3: As an alternative to new potable water facility construction, the City of

Hollywood shall identify opportunities to increase the efficiency and optimize the use of existing facilities.

- Policy 3.4: The City of Hollywood shall encourage the use of coordinated regulatory and programmatic approaches and financial incentives to promote compact, efficient urban growth patterns.

Objective 4.0: Conserve and protect potable water resources with primary focus on the Biscayne Aquifer by optimizing the utilization of water resources through effective water management practices.

- Policy 4.1: The City of Hollywood shall develop a basin-wide water management protocol that optimizes flood protection, water quality, stormwater storage, wetlands sustainability, and groundwater recharge functions while protecting groundwater from saltwater intrusion. By assessing the existing surface water management system, wellfield characteristics, groundwater levels, saltwater intrusion limits, flows and canal stages a model will be developed to better utilize the water resource.

- Policy 4.2: The City of Hollywood shall continue to coordinate with the independent Drainage Districts and the SFWMD to investigate application of the basin-wide protocols throughout the county where appropriate.

- Policy 4.3: The City of Hollywood will cooperate with Broward County to develop a plan to maintain the Centralized Wellfield System to protect and maximize the raw water supply while protecting the Biscayne Aquifer from further saltwater intrusion.

- Policy 4.4: The City of Hollywood and Broward County shall continue to maintain Chapter 36, “Water Resources and Management,” Article II, “Water Emergencies,” Section 35-55, “Restrictions on Landscape Irrigation,” Broward County Code of Ordinances, which imposes year-round, county-wide landscape irrigation restrictions.

- Policy 4.5: The City shall enforce the landscape regulations, which include zoning, functional landscaping, and xeriscaping ordinances. The City will also address the SFWMD’s xeriscaping guidelines.

The Broward County Board of Rules and Appeals has approved the standards for ultra-low plumbing fixtures at 80 psi.

Table 7-4. Plumbing Standards Fixture Flow Rate

Fixture	Flow Rate
Toilet	1.6 gal/flush
Shower Heads	2.5 gal/minute
Faucets	2.0 gal/minute

- Policy 4.6: The City shall continue to implement its conservation-oriented rate structure within its utility systems.

- Policy 4.7: The City shall continue to implement a leak detection program to reduce the amount of non-revenue water within its utility systems.

- Policy 4.8: The City of Hollywood shall continue to implement a year-round public information and education program promoting water conservation.

- Policy 4.9: ~~The City of Hollywood will gather a comprehensive water use profile for service area customers including demographic data, customer class, land use, rate profiles, usage patterns and seasonal variations to increase the effectiveness of conservation efforts by focusing methods on those elements with the greatest water saving potential. Using the data generated, the City of Hollywood will expand and/or implement those programs that promote conservation of water resources. In addition, t~~The City shall expand and continue to implement programs that promote conservation of water resources through efforts such as plumbing retrofit, toilet rebates, water use audits, installation of rain sensors, promotion of xeriscape and landscape Best Management Practices (BMPs), and education as applicable.

- Policy 4.10: The City shall reduce the potential groundwater pollution sources by continuing to implement the Water and Sewer Connection Ordinances.

- Policy 4.11: The City shall continue to eliminate causes of pollution to water supply (CWMP Policy CW.130)

- Policy 4.12: The City of Hollywood shall continue to protect the groundwater supply from potential sources of contamination pursuant "Water and Sewers" along with Water and Septic Tank Ordinance.

- Policy 4.13: The City of Hollywood shall protect groundwater quality by continuing to implement Wellfield Protection Ordinance, which regulates the storage, handling, usage, disposal, or production of hazardous materials and solid waste within designated zones of influence as identified in the Code.

Objective 5.0: Potable water facilities shall be designed, constructed, maintained and operated in such a manner as to protect the functions of natural groundwater recharge areas and natural drainage features and not exacerbate saltwater intrusion.

- Policy 5.1: The design for the construction, operation, and maintenance~~,~~ of new or expanded potable water facilities shall consider the short-term and long-term impacts to natural groundwater recharge areas, wetlands, surface and groundwater levels, and exacerbation of saltwater intrusion. The design shall also consider the potential for ~~whether or not~~ the construction, operation, and maintenance ~~will~~ to significantly harm the aquifer system. Adverse impacts of construction, operation, and

maintenance shall be avoided or at least minimized.

Objective 6: Provide the customers and large users of the City of Hollywood cost effective, equitable and adequate potable water system meeting all applicable federal, state and local standards.

- Policy 6.1: The City of Hollywood shall endeavor to provide service to residents, customers, as well as those municipalities having agreements with the City of Hollywood, when service is not anticipated to be provided by others.

- Policy 6.2: The City of Hollywood shall continue to coordinate the provision of potable water services through agreements with municipalities and other service providers in Broward County.

- Policy 6.3: In order to protect and conserve the Biscayne Aquifer, the City of Hollywood shall continue to utilize the Floridan Aquifer and investigate utilization of other alternate potable water supply sources to supplement and broaden future water supply sources. These other potential sources could include ASR, desalination, capture and storage of excess storm water currently lost to tide and other technologies, which may be addressed in the SFWMD's Lower East Coast Regional Water Supply Plan.

- Policy 6.4: Consistent with bonding requirements, the City of Hollywood will take no action by which the rights and benefits of its customers might be impaired or diminished.

Objective 7: With the treatment capacity serviceable by the Reclaimed Water System, expand the reclaimed water system to replace current systems using potable water for irrigation in the public right-of-way and other public facilities. Investigate possible expansion of treatment capacity of the reclaimed water system.

- Policy 7.1: Design large private projects to include reclaimed water. (CWMP Policy CW.34).

- ~~Policy 7.2: Investigate the feasibility of installing reclaimed water for the irrigation system on US 441/SR7 project. (CWMP Policy 1.19)~~

7.4 Capital Improvements Element

Goal: To undertake actions necessary to adequately provide needed public facilities to all residents within the jurisdiction of the City of Hollywood in a manner which protects investments in existing facilities~~,~~ and promotes orderly compact urban growth.

Objective 1: Create a 5-year schedule of Capital Improvements, which will be coordinated with land use decisions, and which will ensure that the adopted level of service standards

will be maintained through the correction of deficiencies and the provision of capital facilities to meet the needs of future growth.

- Policy 1.6: Proposed capital improvement projects shall be evaluated and ranked in order of priority according to the following guidelines:
  a) Whether the project is needed to protect public health and safety, to fulfill the City's legal commitment to provide facilities and services, or to preserve or achieve full use of existing facilities.
  b) Whether the project increases efficiency of use of existing facilities, prevents or reduces future improvement cost, provides service to developed areas lacking full service, or promotes infill development.
  c) The City Manager shall coordinate the evaluating and ranking in order of priority projections proposed for inclusion in the Schedule of Improvements based on demand anticipated for future growth, facility life expectancy, elimination of blight, correction of deficiencies in service.
  d) Whether the project implements the policies of the Comprehensive Plan.
- Policy 1.7: The Schedule of Capital Improvements shall be updated on an annual basis.

Objective 4: The City will manage its fiscal resources to ensure the provision of needed capital improvements for previously issued development orders and for future development and redevelopment.

- Policy 4.1: Prior to the issuance of Certificates of Occupancy, the City shall require the provision of all needed public facilities.
- Policy 4.2: In providing capital improvements, the City shall limit the maximum ratio of outstanding general obligation indebtedness to no greater than 15% of the property tax base.
- Policy 4.3: The City shall continue to adopt a capital improvements program and annual capital budget as part of its budgeting process.
- Policy 4.4: Efforts shall be made to secure grants or private funds whenever available to finance the provision of capital improvements.

Objective 5: The City will implement a Concurrence Management System so that decisions regarding the issuance of development orders and permits will be based upon coordination of the development requirements included in this plan, the land development regulations, and the availability of necessary public facilities to support such development at the time needed.

- Policy 5.1: Water Service: The level of service (LOS) standard for potable water facilities shall be the Florida Department of Environmental Protection Permitted Capacity of the facility. The LOS standard for water treatment plants shall be measured by maximum daily flow.

The City of Hollywood shall use the information contained to access adequacy of service and concurrency for potential retail customers. For a bulk purchaser of potable water, the City will use the flow information contained in the FDEP permit application to access adequacy of rates and concurrency.

Table 7-5. Potable Water Demand Rates

Facility Type	Water Use in Gallons per Day
Residential Per capita per day (ann. avg. gpcd)	109 ~~114~~[a]
Per single family unit	350 [b]
Retail per square foot	0.1 [b]
Office space per square foot	0.2 [b]
Other non-residential per capita	20 [b]

(a) Developed in the City's Water Supply Facilities Work Plan 2020 Update

(b) Broward County Comprehensive Plan, Potable Water Element, Volume 4 Support Documents, page 4-32. ~~Health Department, Florida Department of Health~~.

Note: In the case where the facility type is not listed, then the most suitable one is to be used.

- Policy 5.2: The City shall require that, at the time a development permit is issued, adequate facility capacity is available or will be available when needed to serve the development.

  The City shall follow the timing requirements to ensure that adequate public facilities are available to meet level of service standards with the impact of development.

  (a) Sanitary sewer, solid waste, drainage, adequate water supplies, and potable water facilities shall be in place and available to serve new development no later than the issuance by the local government of a certificate of occupancy or its functional equivalent. Prior to approval of a building permit or its functional equivalent, the City shall determine whether adequate water supplies to serve the new development will be available no later than the anticipated date of issuance by the City of a certificate of occupancy or its functional equivalent.

- Policy 5.3: Proposed plan amendments and requests for new development or redevelopment shall be evaluated according to the following guidelines to whether the proposed action would:

a) Be consistent with the Sanitary Sewer, Solid Waste, Drainage, Potable Water, and Natural Groundwater Recharge Element; and Coastal Management Element and not contribute to a condition of public hazard.

b) Be consistent with the Transportation Element; Sanitary Sewer, Solid Waste, Drainage, Potable Water, and Natural Groundwater Recharge Element; and Recreation and Open Space Element and not exacerbate any existing condition of public facility capacity deficits.

c) Generate public facility demands that may be accommodated by planned capacity increases.

d) Conform with future land uses as shown on the future land use map of the Future Land Use Element; and service areas as described in the Sanitary Sewer, Solid Waste, Drainage, Potable Water, and Natural Groundwater Recharge Element.

e) Accommodate public facility demands based upon LOS standards by provision of facilities by the developer or by the City consistent with this element.

f) Be consistent with state agencies' and water management districts' facilities plans.

7.5 Intergovernmental Coordination Element

Goal: To enhance existing intergovernmental coordination mechanisms, and to create new opportunities for cooperation among state, regional, and local government entities in the provision of services and the management of future development.

Objective 3: To coordinate level of service standards with state, regional, and local government entities having responsibility for the operation and maintenance of those facilities.

- Policy 3.10: The City will coordinate its Capital Improvements Schedule with the schedules of adjacent municipalities and other providers of public facilities within or adjacent to the City in order to establish a potential coordination of efforts relating to the maintenance and extension of existing and location of new public facilities subject to concurrency.

- Policy 3.11: The City will annually review the five-year Capital Improvements Plan for consistency with the Comprehensive Plan to address potential impacts or conflicts.

- Policy 3.12: The City will pursue joint funding opportunities with the SFWMD, FD~~P~~EP, Broward County, FDOT, and surrounding municipalities to insure utilization of joint processes and collaborative planning efforts, when feasible to complete capital improvements.

- Policy 3.18 The City shall coordinate with the SFWMD ~~South Florida Water Management District~~ and the Lower East Coast Water Supply Plan on alternate water supply planning.

- Policy 3.20 The City in cooperation with the appropriate federal, state, county, and other local governmental agencies, shall encourage the appropriate coordinated level of service facilities and services.

    - Monitoring and Evaluation: The City shall annually review the level of service (LOS) standards utilized by public agencies in their planning activities to ensure consistency.

- Policy 3.21 The City shall ensure and identify the consistency of local level of service standards by annually contacting all local governments in which water service is provided to obtain current information, including populations, level of services, service areas, and water supply facilities, and evaluate if future modification to either the service agreement or level of service standards should be included in subsequent Comprehensive Plan Amendments.

- Policy 3.22 The City shall negotiate or renew interlocal agreements with local governments in which water is supplied, ensuring~~,~~ contractual agreement of the adopted level of service standards, service area, populations and time periods for services provided.

- Policy 3.23 The City shall review the level of service standards adopted or amended by all adjacent local governments that receive water from the City.

Objective 4:

Public Agency Coordination: The City shall coordinate the Comprehensive Plan and its implementation with the State, the South Florida Regional Planning Council, Broward County and adjacent cities, as well as the Broward County School District, the South Florida Water Management District, and the special districts, through the duration of this plan.

Monitoring and Evaluation: The City shall maintain a record of City staff attendance and participation in appropriate intergovernmental and/or multi-jurisdictional coordination efforts (i.e. meetings, workshops, committees, agreements, etc.). This objective shall also be made measurable by its implementing policies.

- Policy 4.1 The City shall provide immediate and ongoing coordination with the SFWMD to ensure that the City's plans, requirements, and related actions contained in the 10-Year Water Supply Facilities Work Plan are consistent with the Lower East Coast Water Supply Plan.

- Policy 4.2 The City shall provide the SFWMD with annual reports on the status of the development of all alternative water supply projects in accordance with limiting

condition #30 of Water Use Permit 06-00038-W and the provisions of Section 373.0361(7)(b) F.S. The annual report shall include work completed to date, expenditures, capacities, and any changes in timelines. Where appropriate and feasible, the annual reports shall include ongoing collaborative approaches with other local governments for long term alternative water supply source use and water treatment technology.

- Policy 4.3 The City shall submit Water Use Compliance reports to the SFWMD for review and approval by the SFWMD ~~District~~ ~~S~~staff every five years from April 10, 2008 (date of permit issuance) in accordance with Limiting condition #23 of Water Use Permit 06-00038-W.

- Policy 4.4 The City shall submit unaccounted-for water loss reports to the SFWMD every year from April 10, 2008 (date of permit issuance) in accordance with Limiting condition #20 of Water Use Permit 06-00038-W.

- Policy 4.5 The City shall notify the SFWMD within 30 days of any change in service area boundary in accordance with Limiting condition #19 of Water Use Permit 06-00038-W.

- Policy 4.6 The City will hold annual meetings with local governments in the City's Water Service Area and the SFWMD to discuss forecasted populations, service area expansions, review land use changes that increase water ~~supply~~ demand, and review the implementation of all alternative water supplies.

- Policy 4.7 The City 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 that affect the standing for such service agreements.

- Policy 4.8: The City shall participate in the development of the Lower East Coast Water Supply Plan Update. The City shall adopt a 10-year water supply facility work plan into their comprehensive plan within 18 months after the South Florida Water Management District approves the Lower East Coast Water Supply Plan Update in accordance with Chapter 163.3177(6)(c), F.S.

- Policy 4.9: Since Broward County supplies water to parts of Hollywood and the City of Fort Lauderdale ~~also~~ supplies water to parts of Hollywood, the Broward County Water Suppl~~ies~~y Facilities Work Plan 2020 ~~dated November 24, 2014,~~ and the City of Fort Lauderdale ~~10-Year~~ Water Supply Facilities Work Plan 2020 Update ~~dated October 6, 2014~~ are hereby included in the City of Hollywood Water Supply Facilities Work Plan 2020~~5~~ Update by reference and as respectively included in Appendix A and Appendix B.

Appendix K CITY OF SUNRISE WATER SUPPLY FACILITIES WORK PLAN UPDATE

10-Year Water Supply Facilities Work Plan – 2020 Update

January 16, 2020

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 10-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 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 2018 Lower East Coast Water Supply Plan Update (2018 LECWSP Update) was adopted 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 10-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 10-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 Management Statute and Rule Requirements Related to Water Supply Planning, provides a summary of regulatory requirements that impact local governments and their water supply planning efforts.

The LEC plan 2018 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 10-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 LEC Plan 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 LEC Plan.

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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.**

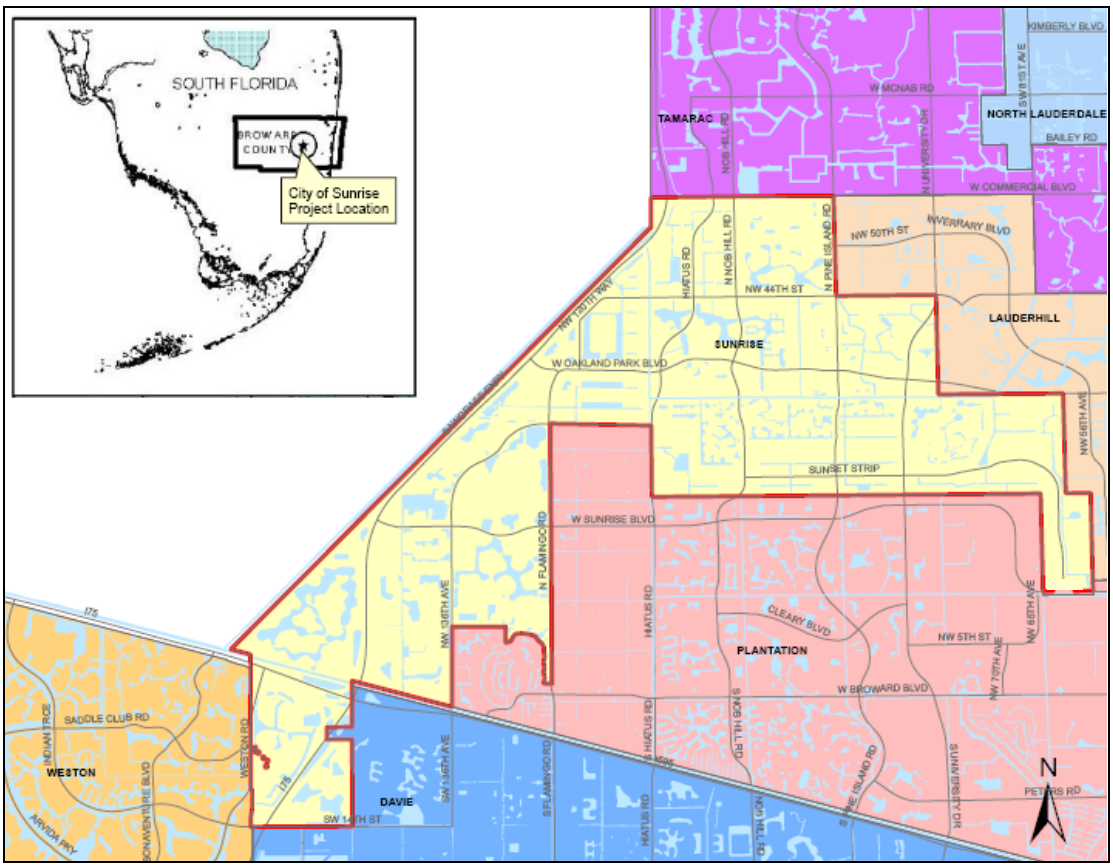

Figure 2-1. City of Sunrise Location Map

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.

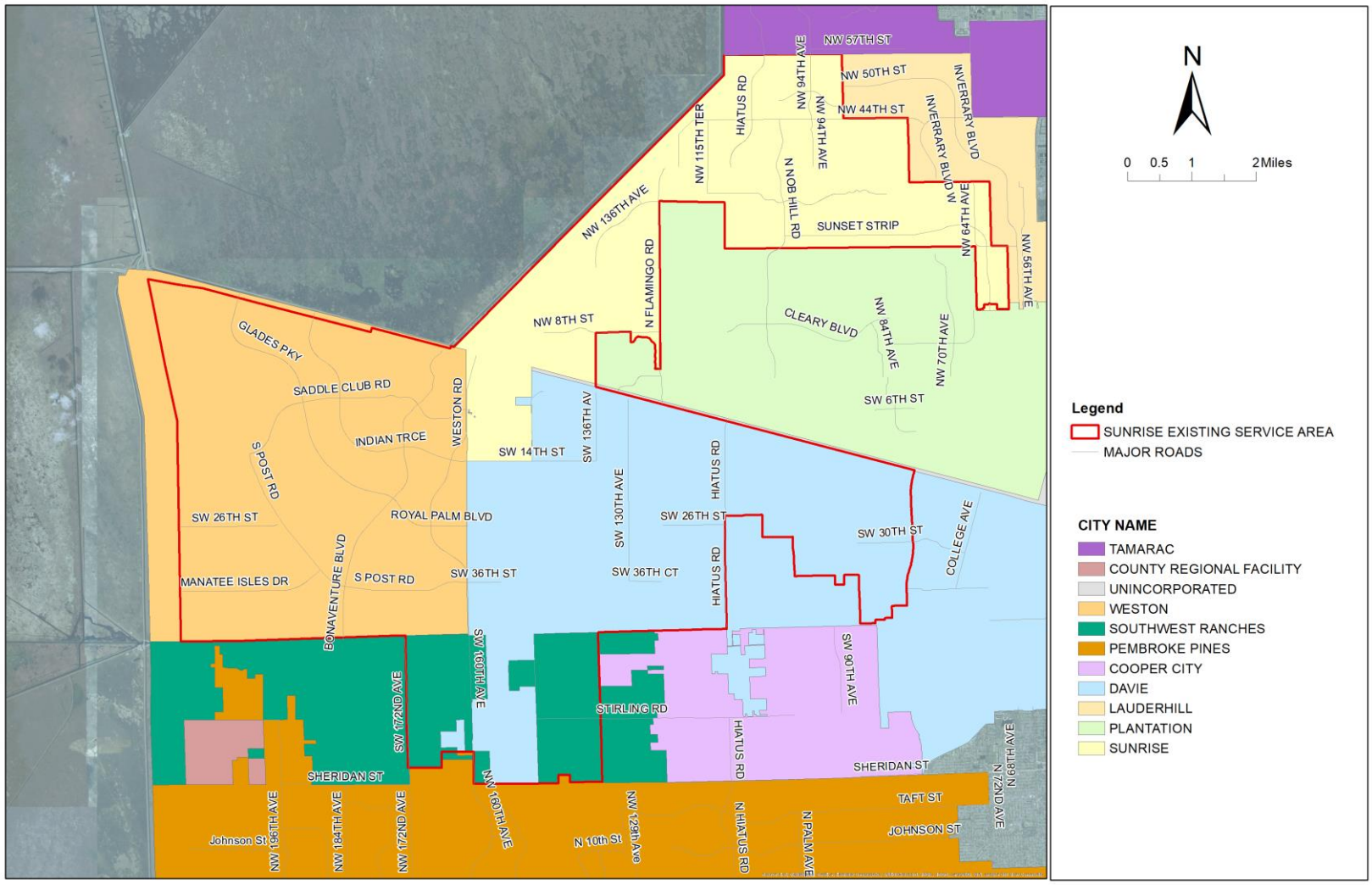

Figure 2-2. City of Sunrise Utilities Existing Service area

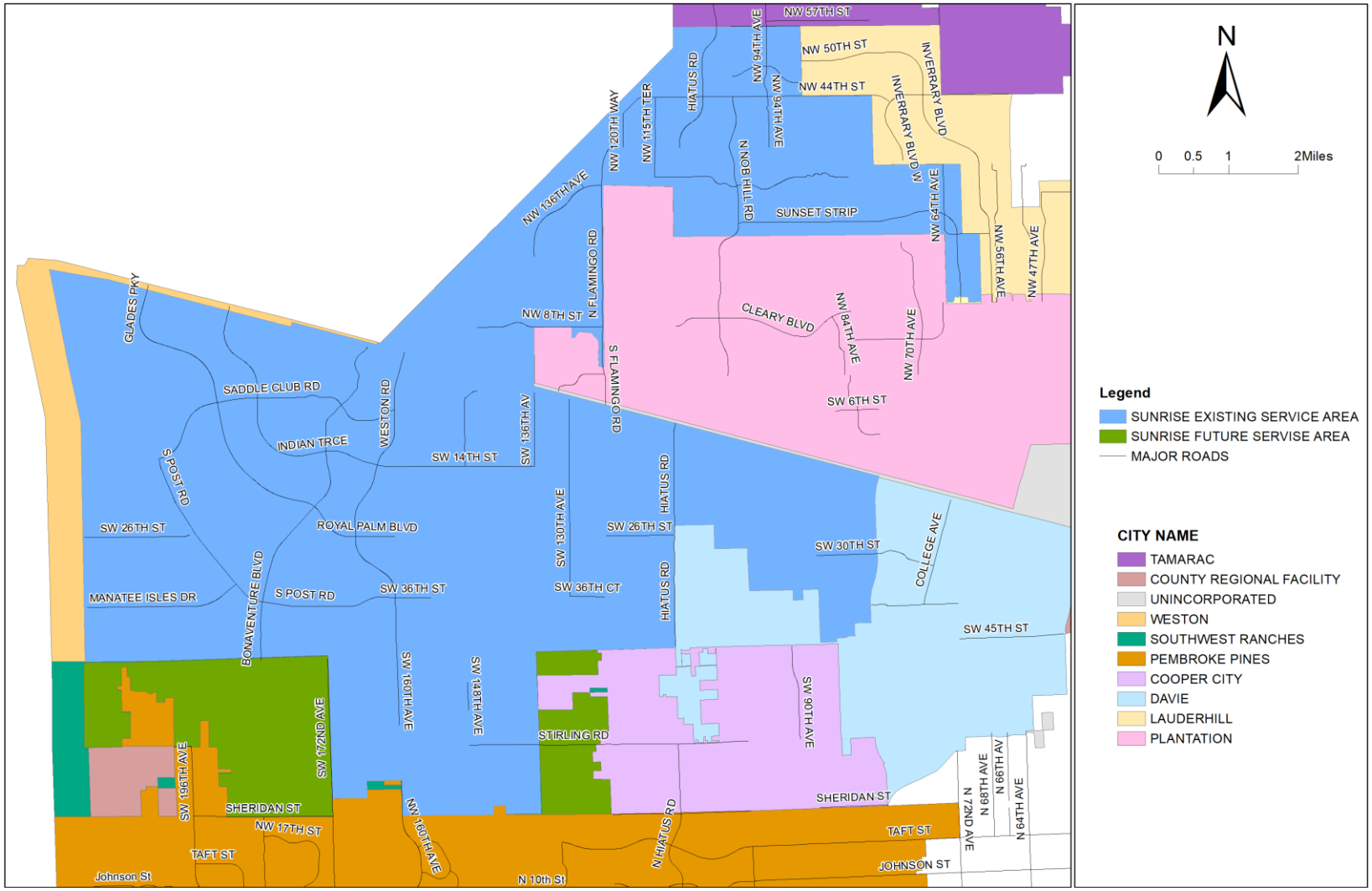

Figure 2-3. Potential Future Service Area

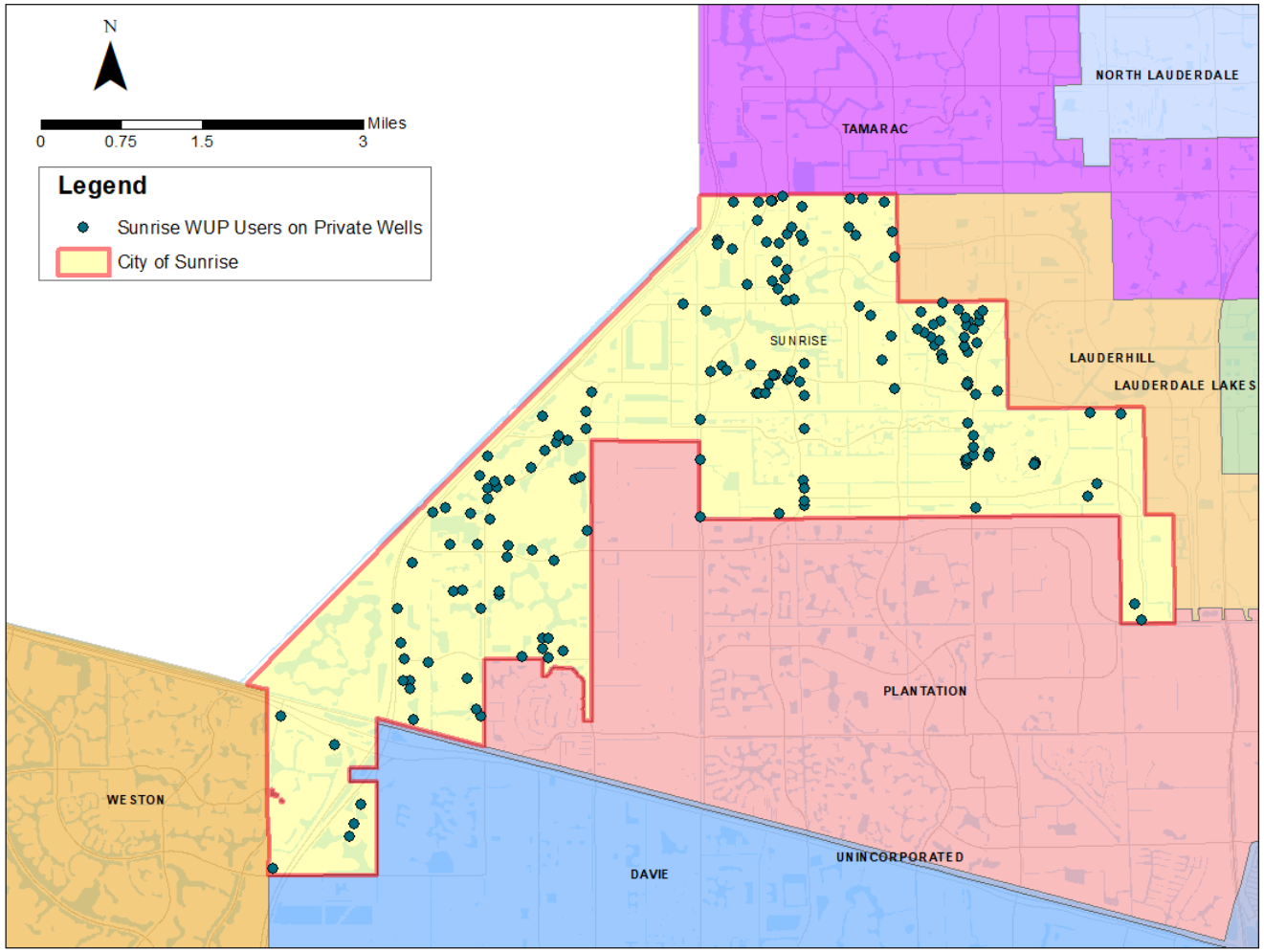

Figure 2-4. Potable and Non-Potable Users within City of Sunrise

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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**.

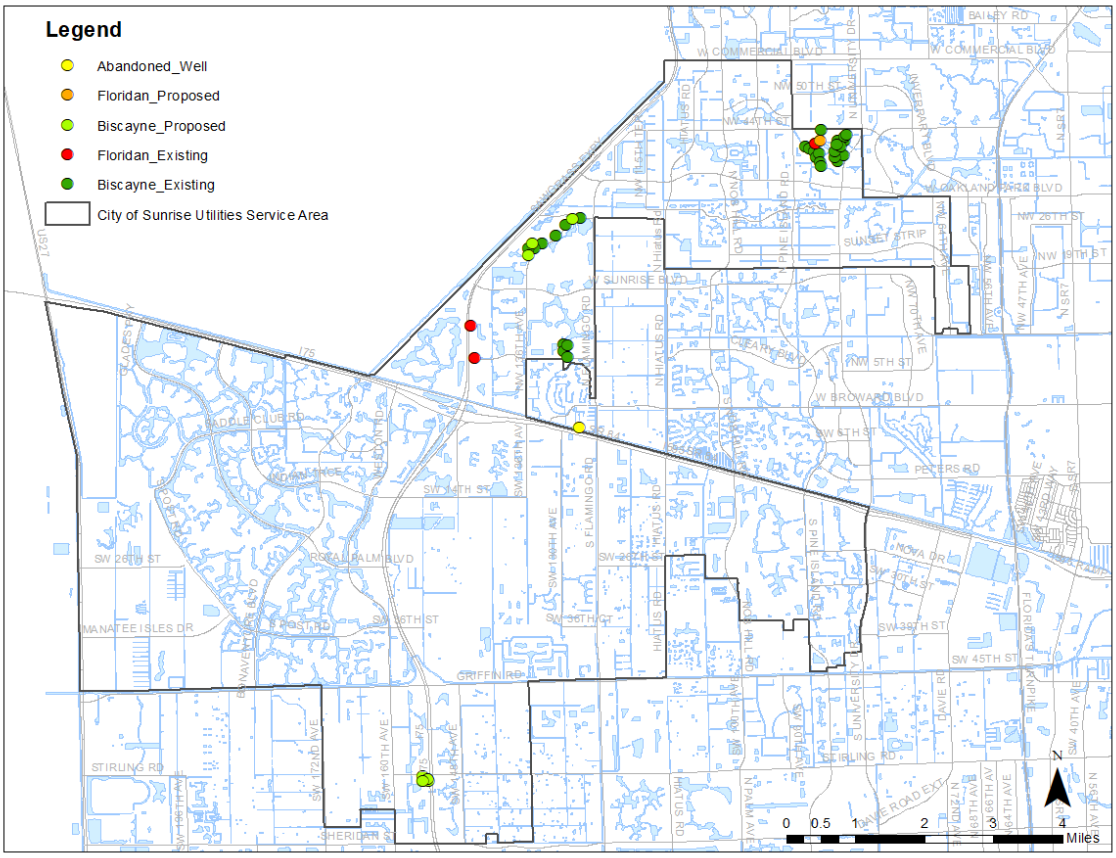

Figure 3-1. Biscayne and Floridan Wellfield Locations

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**

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.

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

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.

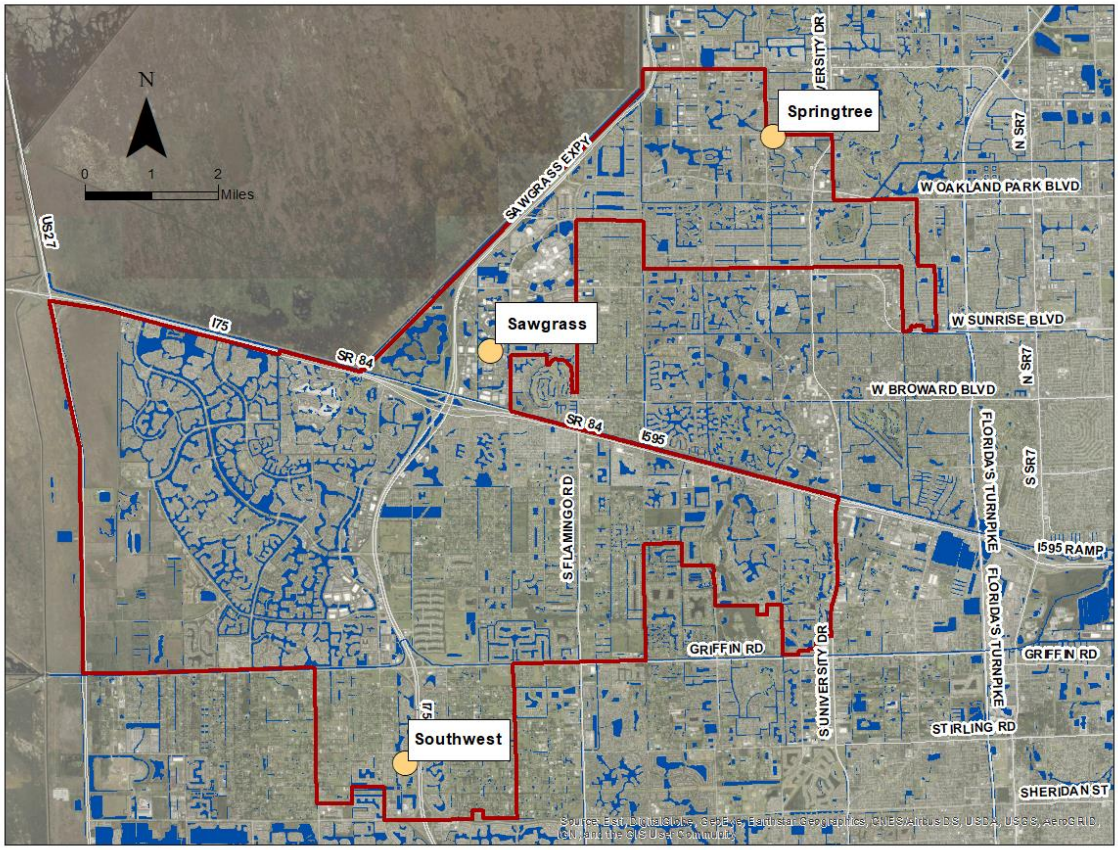

Figure 3-2. Water Treatment Plants Locations

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

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

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 Lauderhill, City of Plantation, Town of Davie, City of Pembroke Pines and Cooper City. **Appendix C** includes the details of the system interconnections.

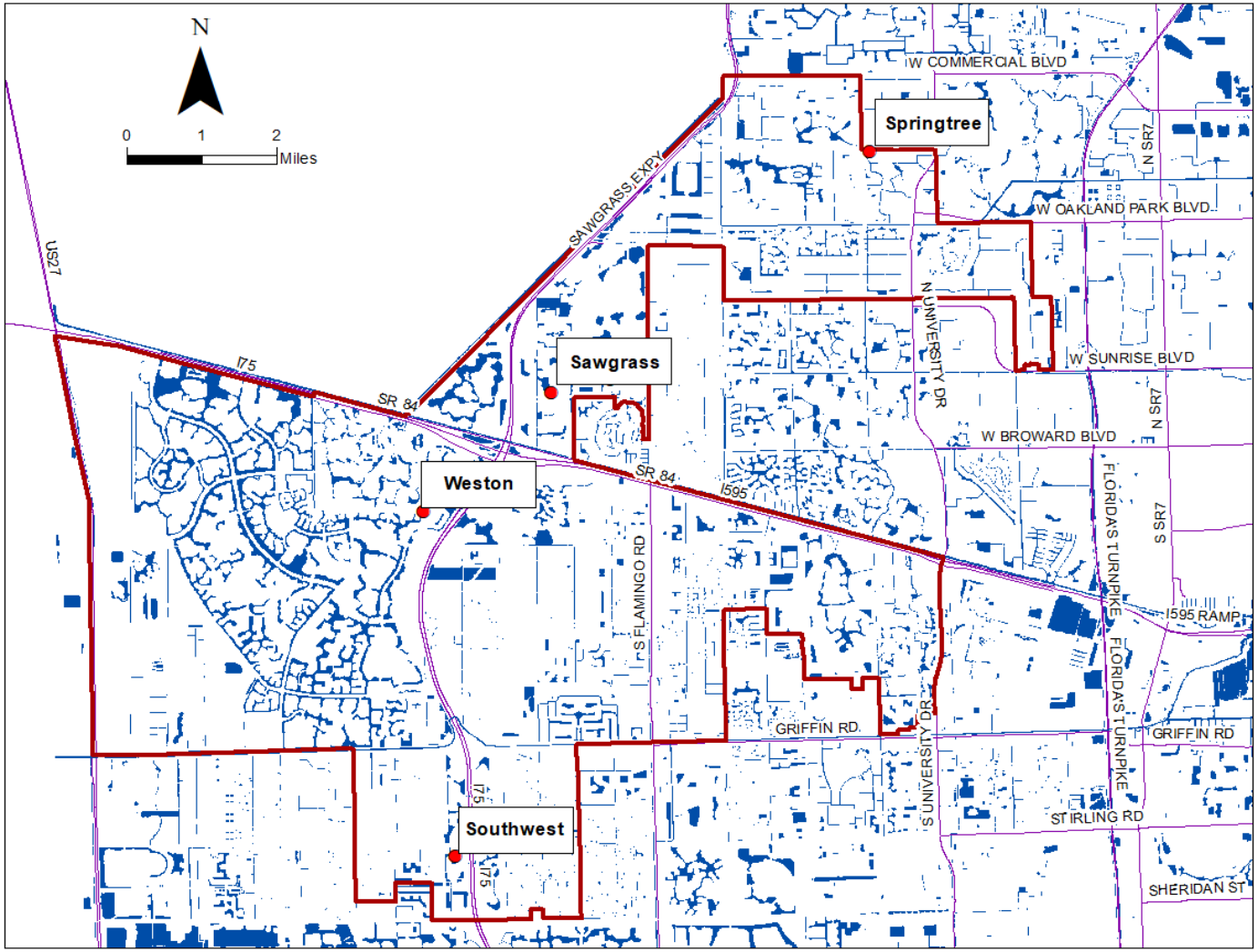

Figure 3-3. Storage Locations

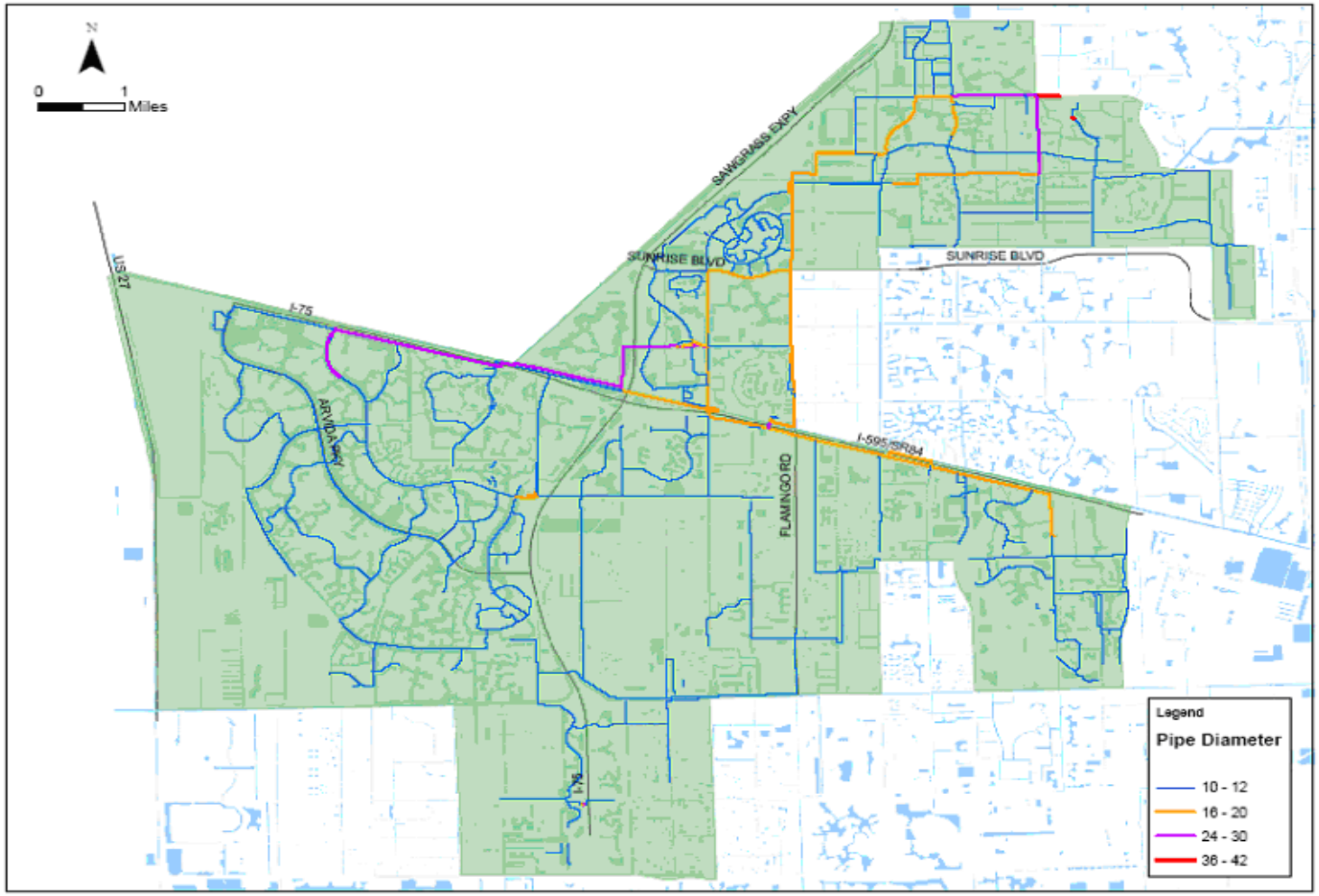

Figure 3-4. Transmission System

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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 LEC 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 LEC Plan service area population data was then distributed to each TAZ to compare the LEC Plan 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 LEC plan data and the City's planned developments by subtracting all of the LEC Plan 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 LEC Plan 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
492	1.Sunset Square Plaza (With O'Reilly Autoparts)	8	City of Sunrise

TAZ	Project Name	Population per TAZ	Municipality
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**	

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/ residents 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 20140.

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 Lower East Coast Water Supply Plan Update (LECWSP) 2018, see Table 4-4. Population estimates included in the LECWSP used2017 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. LEC WSP Population Projections for Sunrise Utility Water Service Area

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

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 Month 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

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%.

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

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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 is within 3.5% of the SFWMD LECWSP 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 was 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.

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**

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.

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.

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)
		C = B x 102gpcd				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

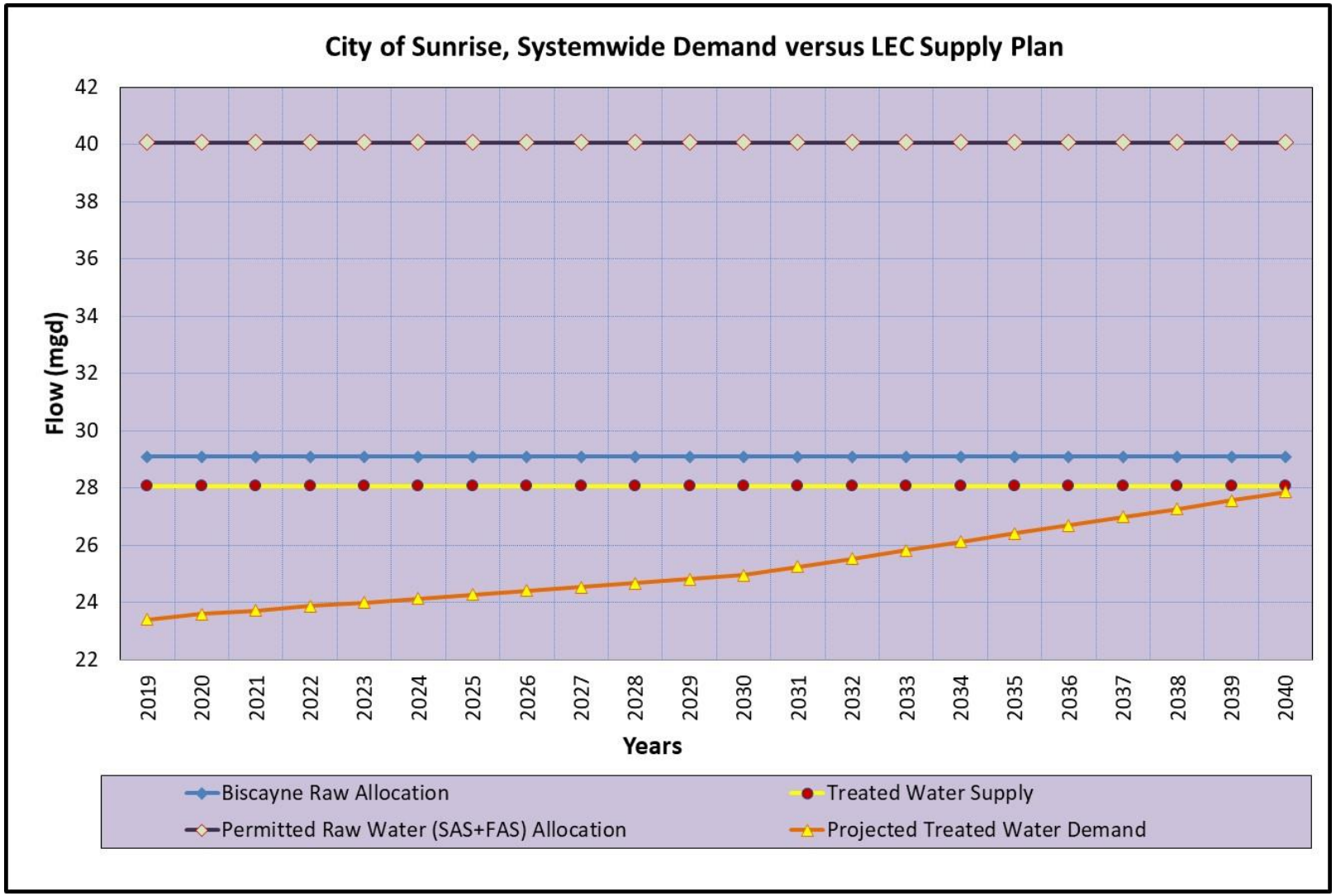

Figure 6-1. City of Sunrise Demand Versus LEC Supply Plan (102 gpcd)

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 nano-filtration 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.

<u>Recovery Blend Pilot Project</u>

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 with the community and:

- Promotes conservation on the City's website under its Good and Green initiative;
- 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;
- Participates in the Annual County-wide Water Matters Day event held in March at Treetops Park;
- Participates in the FSAWWA's Drop Savers Water Conservation Poster Contest by engaging all schools who will participate throughout the entire water service area; and
- Hosts a free annual Sunrise Earth Day Festival that includes educational booths, children's activities and a plant giveaway.

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, 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 (xeriscaping) 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. The

City has also joined with Broward County to fund the County's Mobile Irrigation Lab, which demonstrates and educates urban water users on how to irrigate efficiently.

  - 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.

- 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. The City has partnered with the SFWMD via the Water Savings Incentive Program (SIP) to accomplish this task.

- 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, ConservationPays – 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.

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.

6.8 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

The following existing and proposed goals, objectives and policies of the City's Comprehensive Plan are in support of the City's 10-Year Water Supply Facilities Work Plan:

PLANNING AND INTERGOVERNMENTAL COORDINATION

- ~~Adopt~~ The City of Sunrise shall adopt and implement the 10-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 ~~10~~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 10-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 ~~cities~~ municipalities, as well as the School Board of Broward County ~~School District~~ (SBBC), the South Florida Water Management District (SFWMD), and ~~the~~ all applicable special districts, ~~throughout the duration of this Plan.~~ 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 ~~relevant~~ relative items ~~that affect~~ affecting the standing of such service agreements (Intergovernmental Coordination Element, Objective 1.2; Policy 1.2.~~5~~4).

- Where appropriate and feasible, the ~~work plan~~ 10-Year Water Supply Facilities Work 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 ~~annually~~ contacting all local governments in which water service is provided and obtain current information, including: populations, l~~evel of services~~ LOS, service areas, and water supply facilities, and evaluate if future modification to ~~level of~~ either the service agreement or LOS standards should be included in subsequent Comprehensive Plan ~~Amendments~~ amendments. (Intergovernmental Coordination Element, Policy 1.2.~~6.~~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.~~7.~~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.~~8.~~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 ~~Potable Water Supply~~ Broward County Wellfield Protection Ordinance ~~of Broward County~~). (Future Land Use Element, Policy ~~10.~~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 ~~10.4~~14.5).

- Maintain consistency between the demand calculations in the City of Sunrise's 10-Year Water Supply Facilities Work Plan and the population projections contained in the Future Land Use Element. ~~Implementation will be immediate, with concurrent monitoring of the population projections developed by Broward County with the use of the Broward County Population Forecasting Model (BCPFM) and adjustments to demand calculations based on updated population projections.~~ (Future Land Use Element, Policy ~~10.4~~ 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 10-Year Water Supply Facilities Work Plan. (Future Land Use Element, Policy ~~10.4~~14.5.2).

- The City of Sunrise ~~shall~~ will provide timely amendments ~~to the City of Sunrise land development regulations~~ 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.). (~~Conservation Element, Policy 1.7.5~~ Future Land Use Element, Policy 14.5.3).

- The City of Sunrise will provide the South Florida Water Management District (SFWMD) with ~~periodic~~ all required reports based on the 10-Year Water Supply Facilities Work Plan, including on the status of the development of new alternative water supply facilities. (Intergovernmental Coordination Element, Policy 1.1.20).

- The City of Sunrise will provide 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~~, Policy 1.1.7~~).

- 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 ~~Monitor growth in water demands so that~~ Annual average daily ~~flows~~ flow shall not exceed 90 percent (90%) of design capacity of the combined treatment plants ~~until build out. (Infrastructure Element , Policy 1.1.1). Maintain a~~ The system ~~that can~~ shall maintain the capacity to produce and deliver ~~127~~ 102 gallons per person per day. (Infrastructure Element, Policy 1.1.1)

- 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 ~~relevant~~ relative items ~~that affect~~ affecting the standing of such service agreements (Intergovernmental Coordination Element, Objective 1.2; Policy 1.2.~~5.~~4).

COMPLIANCE

- Monitor water usage for compliance with the City~~'s~~ 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 ~~by the~~ in Chapter 27, Article XIII, Broward County ~~Potable Water Supply~~ 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 ~~10.~~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 10-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 ~~period FY 14-15 through FY 18-19~~ 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 ~~through 2019~~ shall be scheduled in the Capital Improvements Element of this plan in accordance with the requirements of Section 163.3177(3), ~~F.S.~~ ~~(~~Florida Statutes, and in compliance with the 10-year Water Supply Facilities Work Plan.(Infrastructure Element, Policy 2.2.2).

- Potable Water: Average daily flow shall not exceed ~~90~~ ninety percent (90%) of design capacity of the combined treatment plants. The system shall maintain the capacity to produce and deliver ~~127~~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 ~~no later than~~ 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 10-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 in Palm Beach County~~ project (Conservation Element, Policy 1.~~7.~~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 ~~the~~ support ~~and development of the Phase 1 project for~~ the C-51 Reservoir Project, identifying potential demands from ~~30~~ 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 (~~Conservation~~ Intergovernmental Coordination Element, Policy 1.~~7.12~~1.24).

- Conserve potable water by pursuing implementation of the water conservation practices described in the 10-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~~;~~ ~~Conservation Element, Policy 1.7.10~~).

- 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 ~~regional water management district~~ South Florida Water Management District (SFWMD) and the City's 10-Year Water Supply Facilities Work Plan. (Conservation Element, Objective 1.~~7~~.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 ~~District~~ SFWMD. (Conservation Element, Policy 1.~~7.~~6.2).

- The City of Sunrise shall ~~amend land development regulations~~ continue to require through the Land Development Code (LDC) requiring Florida Friendly ~~and Xeriscape~~ 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.~~7.~~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.~~7.~~6.4).

- The City of Sunrise should encourage conservation by the public through ~~and~~ an educational awareness campaign ~~(~~supporting ~~the Wet in the City~~ environmental education program~~) throughout the Utilities' service area.~~ (Conservation Element, Policy 1.~~7.~~6.7).

- The City of Sunrise shall provide timely amendments to ~~the City of Sunrise land development regulations~~ 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.~~7.~~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.~~7.~~6.6).

- In an effort to reduce water usage, the City of Sunrise shall immediately ~~undertake steps to~~ utilize ~~feasible~~ measures outlined in the ~~SFWMD's Model~~ Water ~~Shortage~~ Conservation Ordinance for Landscape Irrigation and Florida Department of Environmental Protection's (FDEP) Florida ~~Water~~ Statewide ~~Conservation~~ Comprehensive Water Conservation ~~Initiative~~ Program for Public Water Supply. (Conservation Element, Policy 1.~~7.~~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 ~~Phased~~ (SFWMD) Comprehensive Water ~~Use Restrictions.~~ Conservation Plan. (Conservation Element, Policy 1.~~7.~~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 ~~in Palm Beach County~~. (Conservation Element, Policy 1.~~7.~~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 6-2. 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

[1]MGD = 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 Decem Permitted Amount

[4]The 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.

Table 6-3. City of Sunrise, Alternative Water Supply Project Capital Costs (No Capital is Currently Required for Alternative Water Supply Projects)

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

10-Year Water Supply Facilities Work Plan Update

Tindall Hammock Irrigation and Soil Conservation District

Davie, Florida

GAI Project Number: A080866.01

October 2019

PREPARED FOR

TINDALL HAMMOCK IRRIGATION AND
SOIL CONSERVATION DISTRICT
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APPENDICES

Appendix A Bulk Water and Sewage User Agreement between Town of Davie and Ferncrest Utilities

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1.0 Introduction

The purpose of the Tindall Hammock Irrigation and Soil Conservation District (THISCD) Water Supply Facilities Work Plan (Work Plan) Update is to identify and plan for the water supply sources and facilities needed to serve existing and new development within its service area. Chapter 163, Part II, Florida Statutes (F.S.), requires local governments to prepare and adopt Work Plans into their comprehensive plans within 18 months after the South Florida Water Management District (District) approves a regional water supply plan or its update. The Lower East Coast Water Supply Plan (LECWSP) Update was approved by the District's Governing Board on January 14th, 2019. Therefore, the deadline for local governments within the Lower East Coast Region to amend their comprehensive plan and update the Work Plan is July 2020. THISCD is a Special District located in the Town of Davie and it needs to provide its Work Plan Update to the Town of Davie to assist their Work Plan and Comprehensive Plan update.

The Work Plan Update will reference the initiatives already identified to ensure adequate water supply for THISCD. According to state guidelines, the Work Plan must address the development of traditional and alternative water supplies, service delivery and conservation and reuse programs necessary to serve existing and new development for at least a 10-year planning period. THISCD's Work Plan Update will have a planning time schedule consistent with the Town of Davie's Comprehensive Plan and the Lower East Coast Water Supply Plan Update.

1.1 Statutory History

The Florida Legislature enacted bills in the 2002, 2004, 2005, and 2011 sessions to address the state's water supply needs. These bills, in particular Senate Bills 360 and 444 (2005 legislative session), significantly changed Chapters 163 and 373, Florida Statues (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 local land use planning and water supply planning.

1.2 Purpose and Objectives

This 2019 10-year Water Supply Facilities Work Plan Updates is the consistent with the water supply planning requirements of Chapter 373, F.S., and presents population and water demand projections through 2040, a review of the water supply issues and evaluations, and a list of water resource options.

The Plan Update is to summarize the THISCD's water supply systems and provide an updated plan for implementing water facilities improvements to meet the future potable water demand.

This Work Plan Update is divided into four sections:

Section 1 – Introduction
Section 2 – Existing Water Supply Facilities
Section 3 – Population and Water Demand Projections
Section 4 – Water Supply Projects Identification

Specifically, the Work Plan Update will update the following information:

- Water Suppliers
- Equivalent Residential Connection Projections
- Water Demand Projections
- Water Supply Sources and Treatment Capacities
- Water Supply Projects

All or portions of this document will be provided to the Town of Davie for their Comprehensive Plan update to ensure consistency.

2.0 Water Supply Facilities

2.1 Service Area Boundaries

THISCD serves approximately 780 acres bounded by Interstate 595 to the north, Oakes Road to the south, Burris Road to the east, and Davie Road to the west. The service area and surrounding land is primarily zoned residential. **Figure 2-1** shows the THISCD's Water Service Area.

2.2 Water Resources and Allocations

The current source of raw water for THISCD is Biscayne Aquifer. Withdrawal allocations are governed by Consumptive Water Use Permit (WUP) 06-00170-W. The permit was issued on November 9, 2006 and expires on November 9, 2026. The annual allocation is 271 million gallons (MG) and the maximum month allocation is 25.1 MG.

2.3 Water Supply Facilities

THISCD owns, operates and maintains a public water system serving its customers. The major components of the water system are water supply well field, water treatment facilities, storage and re-pump facilities, transmission/distribution system, inter-connections with other utilities, and customer service connections. Potable water is supplied primarily by one Water Treatment Plant (WTP) located at 3015 SW 54th Avenue in Davie, Florida. **Figure 2-1** also shows the location of the WTP.

2.3.1 Water Supply Sources and Well Fields

As stated earlier, the main water source for THISCD is Biscayne Aquifer. **Table 2-1** summarizes existing well details. The total wellfield raw water pumping capacity is 2.016 million gallons per day (MGD) with a firm capacity (largest raw water well pump out of service) of 1.008 MGD. It meets the currently required raw water flow. New Well No.3 was developed in 2018 and the well pump will be installed late 2019. Well No.1 will be rehabilitated and work as a back-up well. Total pump capacity and firm pump capacity stay the same when Well No.3 is online.

Table 2-1 Wells

Well ID	Casing Depth (ft)	Casing Diameter (in)	Pump Capacity (mgd/gpm)
1	90	8	1.008/700
2	89	8	1.008/700
3	90	8	1.008/700(1)
Total Pump Capacity (MGD)			**2.016**
Total Firm Pump Capacity (MGD)			**1.008**

Note: (1) Not yet installed.

2.3.2 Water Treatment Plant, Storage and High Service Pumps

Treatment is consisted of lime softening using a spiractor tower, multi-media filtration, disinfection, and fluoridation. The rated capacity of the WTP is 1 MGD.

The raw water from each well pump comes together in a common header and feeds the spiractor. In the spiractor, lime and raw water is introduced at the bottom and the water spirals up and out through the top and the solids drop out the bottom. From the spiractor, the water flows to three multi-media sand filters. The water flows through the sand filters and drains into a 100,000-gallon round clearwell. The water is pumped by two (one primary and one standby) vertical transfer pumps from the clearwell to into to a 250,000-gallon Ground Storage Tank. A 12" line from the ground storage tank feeds two

(2) 2,000 gpm Fire Pumps and two (2) 350 gpm High Service Pumps. Both sets of pumps feed the distribution system and are tied together in a common header. Chlorine is added at the inlet line to the clearwell. Chloramines are used as residual disinfectants due to the natural ammonia in the groundwater as well as the injection of ammonia during the process. The plant also feeds hydrofluosilicic acid (HFS) to the finished water before it goes out into the distribution system. **Figure 2-2** shows a schematic of the water treatment process.

2.3.3 Transmission and Distribution System

THISCD owns, operates, and maintains an adequately sized distribution system to deliver required flow and pressure to customers throughout the service area.

2.3.3.1 Customer Connections

The THISCD's water system provided water service to 702 customer accounts by August 2019. Existing meteres range in size from 5/8 to 3 inches.

2.3.3.2 Interconnects with Other Utilities

THISCD has three interconnects with the Town of Davie. The first is a 10-in interconnect on the Western boundary of the service area, located at the western bend of Reese Rd. The second is a 10-in interconnect, located at the intersection of Oaks Rd. and 46th Avenue which feeds into the customers on the east side of the Florida Turnpike. This interconnect is where THISCD purchases water from the Town of Davie. The third one is a 6-inch interconnect located at the corner of Oaks Rd. and 56th Avenue.

2.3.4 Bulk User Agreement

THISCD (former Ferncrest Utilities) signed an agreement with Town of Davie on July 7th, 1999 for Bulk Water and Sewage Service. The agreement includes the purchase of maximum average flow of 0.2 MGD of potable water from Town of Davie (as shown in **Appendix A**). The purchased water is provided to customers on the east side of Turnpike.

2.4 Water Conservation

THISCD does not have the authority to enact ordinances. It complies with local government ordinances.

a. Permanent Irrigation Ordinance – Town of Davie automatically adopts all County-wide ordinances passed by the Broward County Commission. The County adopted Water Conservation Ordinance No. 91-8 in February 1991. This Ordinance contains procedures on all water shortages and water shortage emergencies declared by the SFWMD. In addition, it outlines permanent restrictions on landscape irrigation. Under Ordinance No. 91-8, violations of any provision will result in civil penalties. The Ordinance allows all County and Municipal police officers to enforce the Code. Davie also abides by all Broward County Zoning Code regulations, such as Section 39-78 of the Broward County Zoning Code that stipulates measures to conserve water usage through landscaping and irrigation. The Code requires the 100% coverage and 100% overlap, the design to minimize application of water to impervious areas, the installation of rain sensors, and the use of safe non-potable water if obtainable. Furthermore, Davie Ordinance No. 98-028 restricts hours of permitted watering to the hours of 4:00 pm to 10:00 am.

b. Xeriscape Ordinance - On June 19, 1996, Davie adopted Ordinance No. 96-27. This Ordinance provides provisions for site landscaping and outlines mandatory principles of xeriscaping that must be incorporated into the landscape design. Davie's Planning and Zoning Department reviews the developers' landscape plans and requires that each project be inspected for full compliance.

c. Ultra-low Volume Plumbing Fixture Ordinance - Davie has adopted a new "ultra-low" volume plumbing fixture standard by virtue of its mandatory adoption of the Florida Building Code.

d. Leak Detection - THISCD is planning a leak detection program in coordination with the Rural Water Association.

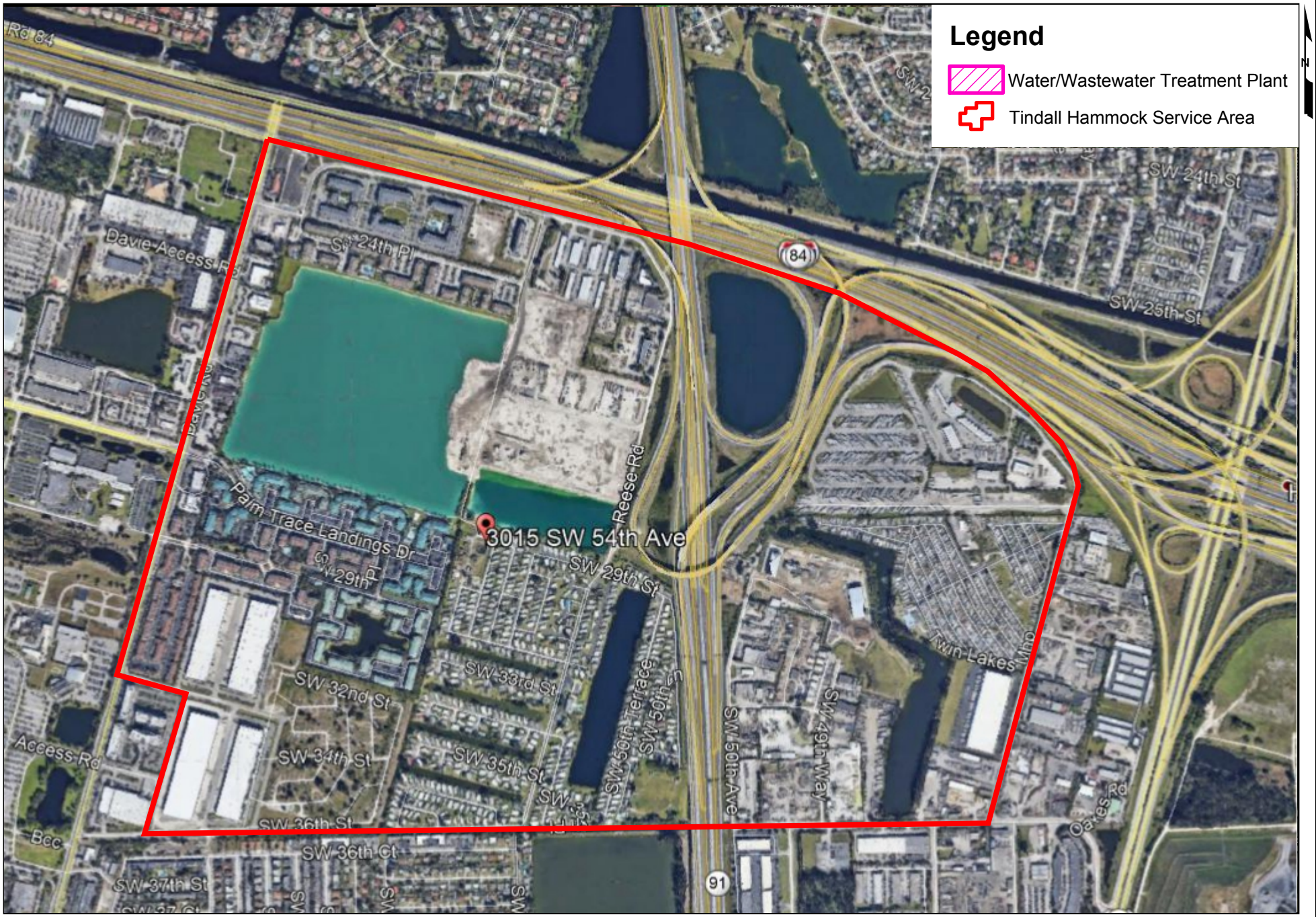
e. Rain Sensor Device Ordinance – Town of Davie abides by all the Broward County Zoning Codes regulations, which includes Section 39-78 regarding rain sensors on automatic lawn sprinkler systems.

f. Water Conservation Education Program - The citizens of Davie are informed on water conservation issues by way of legislation, pamphlets and bill notifications.

g. Reclaimed Water - Wastewater generated within the THISCD's service area is reused through irrigation and aquifer recharge. In accordance with the Florida Department of Environmental Protection, treated effluent is diverted to rock pits located north of the wellfield and south of the North New River Canal.

2.5 Summary

THISCD operates a well maintained and appropriately sized water system, which is in fair to good condition and appears to be consistent with utility industry standards. The current permitted water supply allocation is adequate to meet the existing customer demands.



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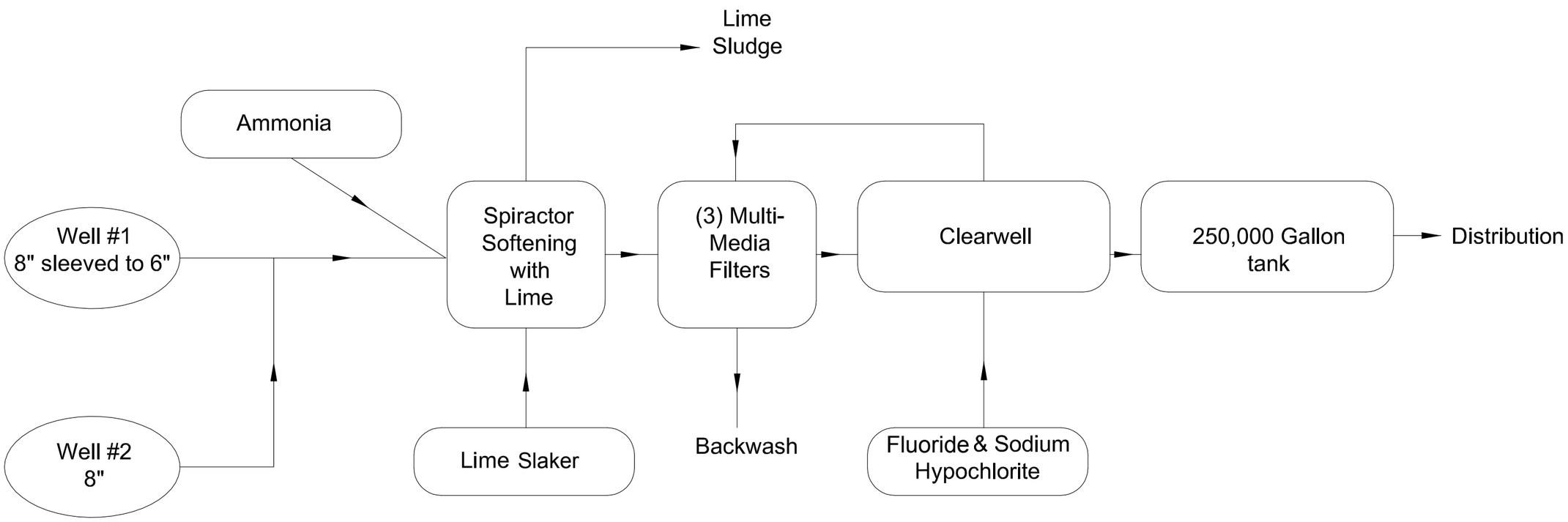
Water Service Area Map
10-Year Water Supply Facilities Work Plan Update
Tindall Hammock Irrigation and Soil Conservation District

FIGURE
2-1



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Flow Process Diagram
10-Year Water Supply Facilities Plan Update
Tindall Hammock Irrigation and Soil Conservation District

FIGURE
2-2

3.0 Historical and Projected Water Supply Demands

In this section, the water demand for the THISCD's service area is projected for a twenty-year planning period starting 2020 and extending to 2040.

3.1 Current Population and Equivalent Residential Connections

Currently, THISCD serves approximately 3,100 people by July 2019. THISCD's service area is mainly residential and multifamily units with some commercial customers. There is a Ferncrest Industrial Park in the western portion of the service area south of the corner of Ronald Reagan turnpike and State Road 84.

THISCD calculates system capacity based upon the number of "equivalent residential connections" (ERCs). An ERC is the amount of water or treatment demand that is used for an average residential unit. THISCD's average residential unit is one ERC which is defined as 275 gallons per day (gpd) determined by its engineer and any non-residential unit has an equivalent factor associated with it based on meter size/units/use. The equivalency factor scales the ERC for larger meters associated with higher water usage. In the year of 2019, the estimated number of ERC for the THISCD's water system was 1,602.

3.2 Historical Water Demand

THISCD's historical water demand data was obtained from Monthly Operating Reports (MORs). **Table 3-1** presents the historical annual finished water usage since 2009. The decrease of demands was caused by a closure of mobile home communities.

The maximum day peaking factor is applied to peak the water demand in order to plan for treatment system capacity expansions. The max-day peaking factor was estimated to be 1.45, which is the average of the past 5 years, after the closure of mobile home communities. It is noted that maximum daily demand identified in the past eleven years has factored in seasonal change. The selection of 1.45 peak factor is considered reasonable and justifiable to be used for projection of the THISCD's future water demand and should be conservative for planning purposes to meet the peak demand within the THISCD's service area.

Table 3-1 THISCD Water System Historical Demand

Year	ERC	Average Daily Demand (MGD)	Maximum Daily Demand (MGD)	Max-Day Peaking Factor	GPD/ERC
2009	1,195	0.473	0.760	1.61	396
2010	1,195	0.417	0.723	1.73	349
2011	1,186	0.376	0.550	1.46	317
2012	1,202	0.314	0.463	1.47	261
2013	1,140	0.395	0.486	1.23	346
2014	1,473	0.367	0.688	1.87	249
2015	1,497	0.357	0.549	1.54	238
2016	1,500	0.368	0.416	1.13	245
2017	1,500	0.387	0.631	1.63	258
2018	1,500	0.414	0.474	1.14	276
2019	1,602	0.438	0.495	1.13	273

3.3 Future Water Demand Projections

SFWMD Lower East Coast Water Supply Plan Update provided population projections for THISCD's service area through 2040. However, a number of new devolvement of multi-family homes already requested utility availability from THISCD and are expected to come into place in the next a couple of years. Also, the THISCD's utility service area is located within the Town of Davie ("the Town").

The Town plans land use which will result in commercial/industrial redevelopment within THISCD and which is likely to result in more new utility connections. Therefore, for the purposes of these projections, overall customer growth as the number of ERC is anticipated to increase 10% in FY 2020, 18% in FY 2021 and then remain relatively constant throughout the 20-year projection period with purchasing water from the Town of Davie to serve customers east of Turnpike.

The average day finished water demand projections for the THISCD's system were estimated as the product of the THISCD's water service area ERC projections and the per ERC demand rate of 275 gpd. The maximum day finished water projections were estimated as the product of average day finished water projections and the maximum day peaking factor of 1.45. The projected maximum daily finished water demands estimated for the THISCD's system are presented in **Table 3-2**.

Table 3-2 THISCD Projected Finished-Water Demand

Year	ERC Projections	Average Daily Finished Water Demand (MGD)	Maximum Daily Finished Water Demand (MGD)
2020	**1,762**	**0.485**	**0.717**
2021	1,890	0.520	0.769
2022	1,947	0.536	0.793
2023	2,004	0.551	0.816
2024	2,061	0.567	0.839
2025	**2,118**	**0.583**	**0.862**
2026	2,175	0.598	0.885
2027	2,232	0.614	0.909
2028	2,289	0.630	0.932
2029	2,346	0.645	0.955
2030	**2,403**	**0.661**	**0.978**
2031	2,460	0.677	1.001
2032	2,517	0.692	1.025
2033	2,574	0.708	1.048
2034	2,631	0.724	1.071
2035	**2,688**	**0.739**	**1.094**
2036	2,745	0.755	1.117
2037	2,802	0.771	1.141
2038	2,859	0.786	1.164
2039	2,916	0.802	1.187
2040	**2,973**	**0.818**	**1.210**

3.4 Facility Capacity Analysis

3.4.1 Raw Water Demands through 2040

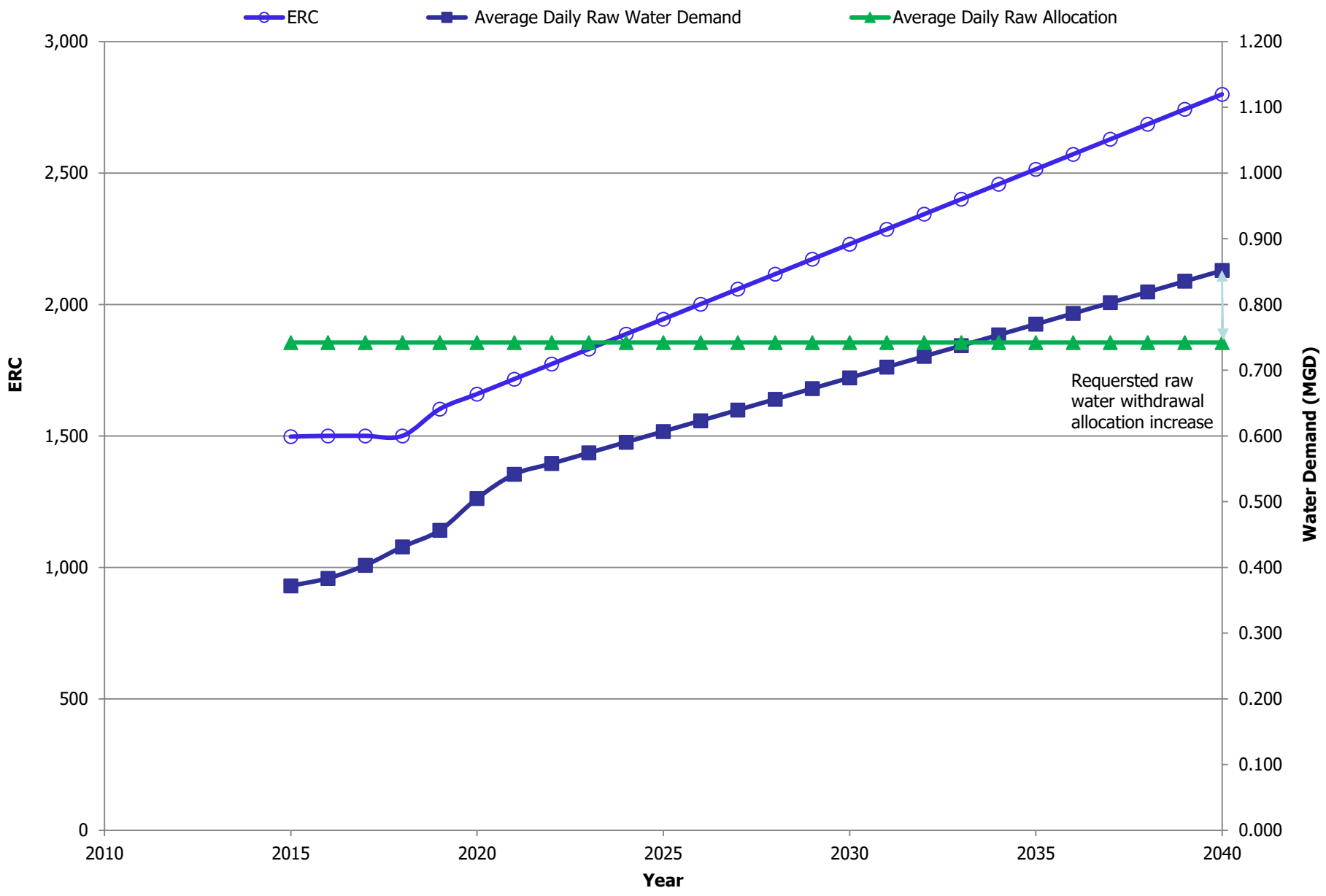
Table 3-3 presents the THISCD's projected raw water demands, by year, through 2040. **Figure 3-1** provides a summary of projected raw water demands. The current raw water allocation will not meet the future raw water demands by 2034. THISCD will need to apply for an increased annual allocation from the SFWMD through the planning year.

Table 3-3 Projected Water Demands

Year	ERC Projections	Ave. Day Finished (MGD)	Ave. Day Raw (MGD)	Annual Allocation Raw (MGY)	Maximum Month Raw (MGM)	Max. Month /Avg. Month
2020	**1,659**	**0.485**	**0.505**	**184**	**16.8**	**1.091**
2021	1,716	0.520	0.542	198	18.0	1.091
2022	1,773	0.536	0.558	204	18.5	1.091
2023	1,830	0.551	0.574	210	19.1	1.091
2024	1,887	0.567	0.590	216	19.6	1.091
2025	**1,944**	**0.583**	**0.607**	**221**	**20.1**	**1.091**
2026	2,001	0.598	0.623	227	20.7	1.091
2027	2,058	0.614	0.639	233	21.2	1.091
2028	2,115	0.630	0.656	239	21.8	1.091
2029	2,172	0.645	0.672	245	22.3	1.091
2030	**2,229**	**0.661**	**0.688**	**251**	**22.8**	**1.091**
2031	2,286	0.677	0.705	257	23.4	1.091
2032	2,343	0.692	0.721	263	23.9	1.091
2033	2,400	0.708	0.737	269	24.5	1.091
2034	2,457	0.724	0.754	275	25.0	1.091
2035	**2,514**	**0.739**	**0.770**	**281**	**25.6**	**1.091**
2036	2,571	0.755	0.786	287	26.1	1.091
2037	2,628	0.771	0.803	293	26.6	1.091
2038	2,685	0.786	0.819	299	27.2	1.091
2039	2,742	0.802	0.835	305	27.7	1.091
2040	**2,799**	**0.818**	**0.852**	**311**	**28.3**	**1.091**

3.4.2 Water Treatment Plant Expansion

The treatment capacity of the WTP is 1 MGD but it is limited by the permitted groundwater withdrawal allocation of 0.742 MGD. Assuming the request for increasing groundwater withdrawal limits is granted by the SFWMD, as shown in **Figure 3-2**, the WTP capacity needs to be expanded by 2031 to satisfy the future water demands. The expansion will be phased into two phases.



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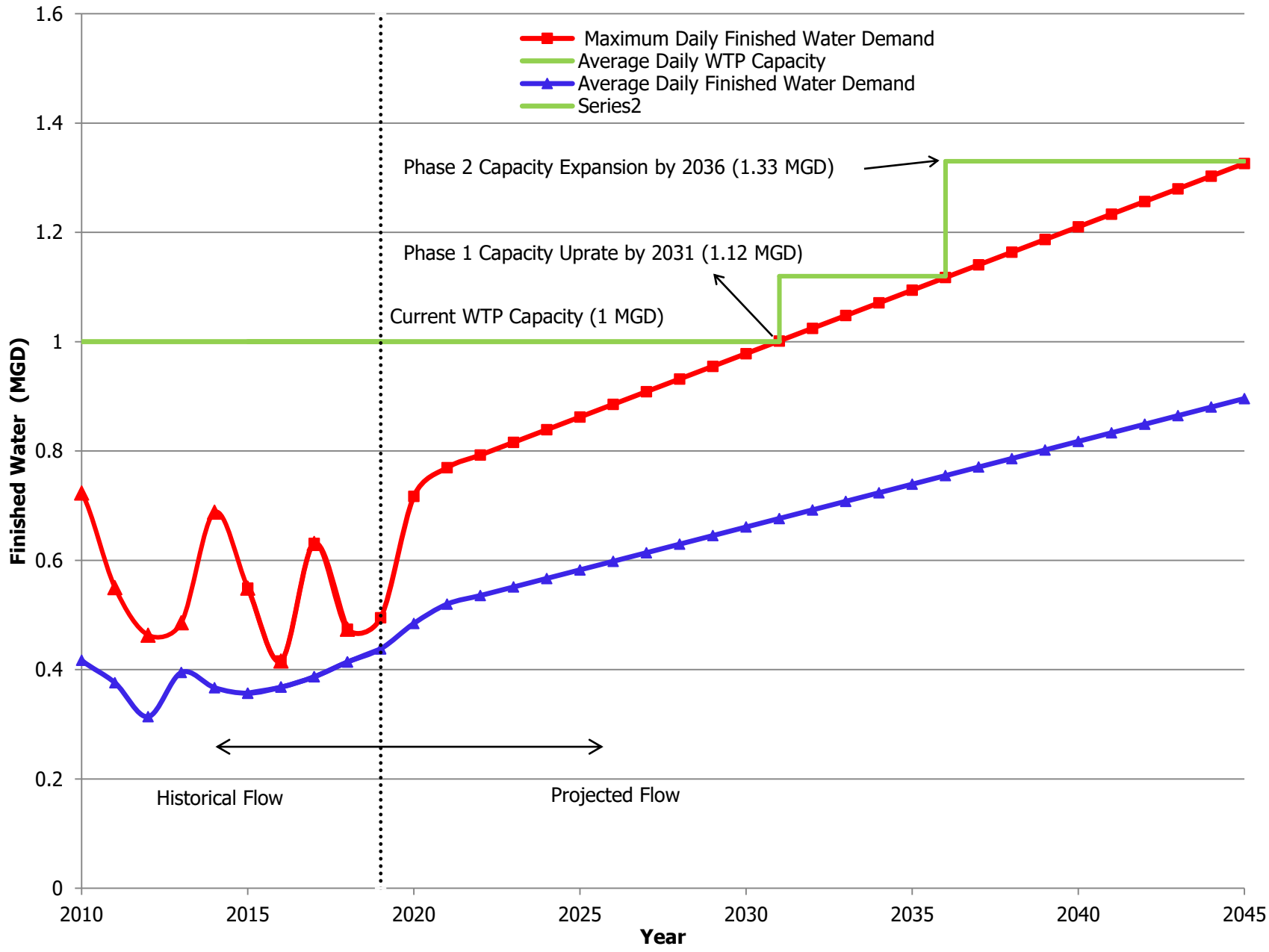
RAW WATER DEMAND THROUGH 2040
10-YEAR WATER SUPPLY FACILITIES WORK PLAN UPDATE
TINDALL HAMMOCK IRRIGATION AND SOIL CONSERVATION DISTRICT

FIGURE
3-1



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COMPARISONS BETWEEN PROJECTIONS AND TREATMENT CAPACITIES
10-YEAR WATER SUPPLY FACILITIES WORK PLAN UPDATE
TINDALL HAMMOCK IRRIGATION AND SOIL CONSERVATION DISTRICT

FIGURE
3-2

3.4.2.1 Phase 1-by 2030

The WTP will be uprated to 1.12 MGD through some minor modifications and improvements. The existing a spiractor tower will be rehabilitated to improve the treatment efficiency and increase treatment capacity. The existing filters will be uprated using a higher filtration rate without compromising the performance. The existing high service pumps will be replaced with large capacity pumps to deliver the required flows.

3.4.2.2 Phase 2–by 2040

The WTP will be expanded to 1.5 MGD using ion exchange or ultra-low-pressure reverse osmosis (ULPRO) prior to nanofiltration process. The existing spiractor and filters will be removed. Because of raw water from Biscayne Aquifer is normally high in color, with the pretreatment with the ion exchange or ULPRO process, a great amount of organics will be removed and reduce the fouling of nanofiltration membranes. These options will be explored to determine the most cost-effective process beyond 2040.

3.4.3 Feasibility of Using Reclaimed Water

THISCD is currently discharging the high-quality effluent into a rock pit that recharges the groundwater. THISCD has been permitted to use the west rock pit as a source of reclaimed water to serve residents and commercial users if it is cost effective. THISCD is exploring the feasibility of supplying reclaimed water to the nearby commercial properties for irrigation.

4.0 Water Supply Projects Identification

At present, THISCD is dependent upon the Surficial Aquifer as a supply and it seems that the permitted groundwater withdrawal allocation and the treatment capacity will meet the next 5-year water demands as discussed in **Section 3**. During this time THISCD will continuously comply with Regional Water Availability Rule and promote reclaimed water if feasible.

The Capital Improvement Program (CIP) for the THISCD's Water System is predicated on providing the most flexibility within the treatment system to meet future regulatory requirements while addressing growth and redevelopment within the service areas. This chapter describes the THISCD infrastructural capital needs for the next five years.

Beyond 5-year, THISCD will need to request additional groundwater withdrawal allocations and expand its water treatment capacity as described in **Section 3**.

4.1 Capital Improvements

The THSICD's current 5-year CIP organizes the water system investments into the following three major capital programs:

1. Water Well Addition
2. Treatment Plant Upgrades (converting the distribution system to a constant pressure system)
3. Water Distribution Expansion (additional Interconnects are planned)

4.1.1 Treatment Plant Upgrades

4.1.1.1 4-log Achievement

This project is to comply with Groundwater Rule. The existing softening unit and filters, like the majority of other lime softening plants in South Florida, are open to the atmosphere. According to Groundwater Rule, the water treatment plant would be required to either provide 4-log virus reduction or cover its open treatment units. All 4-logs of credit would have to be achieved downstream of the filters, as all structures downstream of the filters are closed to the atmosphere. New covers are recommended to be installed. Also the covers will reduce filter maintenance requirements, protect instrumentations, and increase the useful life of the filters and filter components. A 12-inch 150 LF pipe from the ground storage tank to the first user is recommended to be installed to increase the chlorine contact time and achieve the 4-log requirement.

4.1.1.2 High Service Pump

High Service Pump Discharge and Instrumentation: The existing high service pump discharge piping will be repiped with DIP that is more free flowing is recommended to provide better system performance and energy efficiency. Also variable frequency drives (VFDs) will be installed to adjust pump speed to fit system demand and increase the pumping efficiency.

4.1.1.3 Level Recorders with Alarm

Level sensors to properly maintain water levels in both clearwell and storage tank will be installed. Water level recorders with alarm will be installed in the laboratory.

4.1.1.4 Filter

Filter Backwash Water Recovery System: Due to limited process flexibility (spiractor operation) additional filter backwashing water is generated. Currently, backwashing water is sent to waste. A Recovery of the backwash water will reduce water loss and provide idling capacity for the treatment unit.

4.1.2 Water Distribution Extension

4.1.2.1 Interconnections (Pressure Sustaining Valve and Instrumentation)

The existing 10-in interconnect located at the western bend of Reese Rd. will be modified into a two-way interconnect between the Town of Davie and THISCD by using a 6-in pressure sustaining valve into a reducer flowing into a meter. The 10-in interconnect located at the intersection of Oaks Rd. and 46th Avenue will be modified using a 6-in pressure sustaining valve into a reducer flowing into a meter. The latter will provide service to the Town of Davie service area contiguous to the eastern boundary of the THISCD service area.

Table 4-1 presents the estimated costs of the water system improvement program over the next five years.

4.2 Conclusions

THISCD has prepared financially and technically water system improvement projects. For the five-year period, FY 2019 to FY 2024, the water system projected costs are $3,563,001. THISCD has successfully implemented a well-planned program to provide and maintain permanent water supply, treatment and transmission facilities necessary to serve the THISCD's service areas and residents. The current Capital Program includes requisite improvements and budgets to address ongoing renewal and replacement needs of the existing systems to help meet projected water demands for the future.

Table 4-1 Capital Improvement Project Summary – Water System
FY 2019-2024
(Without Inflation Rate)

	Current	Projected					
Project Name	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**Total**
WATER [1]							**-**
New Groundwater Well #3	$ 15,580	$ 200,000	$ 50,000	$ -	$ -	$ -	**$ 265,580**
Raw Water Line Modification	850	27,970	-	-	-	-	**28,820**
Well #2 Repiping	1,190	22,610	-	-	-	-	**23,800**
Well #1 Rehabilitation	-	-	-	-	-	45,000	**45,000**
4-log Compliance	-	-	-	70,875	673,313	673,313	**1,417,501**
Filter Media Replacement and repair	800	192,000	-	-	-	-	**192,800**
Lime Silo Dust Control and Filter Backwash Water Recovery Tank	-	40,000	-				**40,000**
New High Service Pump Surge Control Valve and Instrumentation	5,750	309,250	50,000	-	-		**365,000**
High Service Pump Repiping	-	-	-	-	-	100,000	**100,000**
Structure Rehabilitation	2,500	-	-	-	-	-	**2,500**
Clearwell Transfer Pumps/Backwash Pumps	-	-	-	50,000	50,000		**100,000**
Water Treatment Plant Control and Instrumentation	-	150,000	80,000	-	-	-	**230,000**
Subtotal Water	**$ 26,670**	**$ 941,830**	**$ 180,000**	**$ 120,875**	**$ 723,313**	**$ 818,313**	**$ 2,811,001**
							-
GENERAL							
Interconnect with Town of Davie	-	-	50,000	-	-	-	**50,000**
New Pressure Sustaining Valve and Instrumentation	-	-	50,000	-	-	-	**50,000**
Professional Engineering Services [3]		252,000	100,000	100,000	100,000	100,000	**652,000**
Subtotal General	**$ -**	**$ 252,000**	**$ 200,000**	**$ 100,000**	**$ 100,000**	**$ 100,000**	**$ 752,000**
TOTAL	**$ 45,465**	**$ 1,654,830**	**$ 495,000**	**$ 303,625**	**$ 848,313**	**$ 943,313**	**$ 3,563,001**

Note: (1) The construction of majority projects is anticipated to commence in 2019/2020.
(2) All the capital improvements projects will be funded by the District Enterprise Fund.
(3) Engineerings services include design of capital improvements, permitting of improvements, biding services, partial services during construction and preparation of as-builts , certifications to FDEP and Broward County.

Professional Engineering Service Breakdown (FY 2020 and 2021)

Design Services (Including Subs.)	$168,000
Bid Services (Including Subs.)	8,000
Permitting Services (Including Subs.)	20,000
Services During Construction-Part Time (Including Subs.)	121,000
Final Certification Services	35,000
TOTAL	**$352,000**

Appendix L TINDALL HAMMOCK IRRIGATION AND SOIL CONSERVATION DISTRICT WATER SUPPLY FACILITIES WORK PLAN UPDATE

APPENDIX A

Bulk Water and Sewage User Agreement Between Town of Davie and Ferncrest Utilities

RESOLUTION NO. R-99- 220

A RESOLUTION OF THE TOWN OF DAVIE, FLORIDA, AUTHORIZING THE MAYOR TO EXECUTE A BULK WATER AND SEWAGE USER AGREEMENT BETWEEN THE TOWN OF DAVIE AND FERNCREST UTILITIES TO PROVIDE BULK WATER AND SEWAGE SERVICE; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the Town of Davie owns and operates a water producing and distribution facility and a sewage collection and treatment facility located within the Town; and

WHEREAS, Ferncrest Utilities, Inc. is a private utility company with its service area located within and adjacent to the corporate limits of the Town; and

WHEREAS, to better service the customers of Ferncrest Utilities, Inc., Ferncrest has requested that the Town provide water and sewage service pursuant to a Bulk Water and Sewage User Agreement; and

WHEREAS, the Town is agreeable to providing said service and wishes to authorize the Mayor to enter an agreement providing for same, a copy of which is attached hereto as Exhibit "A".

NOW, THEREFORE, BE IT RESOLVED BY THE TOWN COUNCIL OF THE TOWN OF DAVIE, FLORIDA:

SECTION 1. That the above recitations are true and correct.

SECTION 2. The Town Council of the Town of Davie hereby authorizes the Mayor to execute the Bulk Water and Sewage User Agreement between the Town of Davie and Ferncrest Utilities, Inc., a copy of which is attached hereto as Exhibit "A".

SECTION 3. The appropriate Town officials are authorized to take all necessary actions to implement the Agreement.

SECTION 4. This Resolution shall take effect immediately upon its passage and adoption.

PASSED AND ADOPTED THIS 7th DAY OF JULY, 1999.

MAYOR/COUNCILMEMBER

ATTEST:

TOWN CLERK

APPROVED THIS 7th DAY OF JULY, 1999.

R-99-/Ferncrest Bulk Wtr Agmt

BULK WATER AND SEWAGE USER AGREEMENT

THIS AGREEMENT, made and entered into this 7th day of July, 1999, by and between:

Town of Davie, a municipal corporation of the State of Florida, herein called the "Seller",

and

Ferncrest Utilities, Inc., a Florida Corporation, hereinafter called the "Consumer",

WITNESSETH

WHEREAS, the Seller in its proprietary capacity, owns and operates a water producing and distribution facility and a sewage collection and treatment facility, collectively referred to as "Utility", and is in a position to service the Consumer; and

WHEREAS, the Consumer in its proprietary capacity, desires to purchase from Seller water to be used in Consumer's distribution system and to return sewage to Seller to be treated for servicing Consumer's customers, upon terms mutually agreeable;

NOW THEREFORE, for and in consideration of the premises and the sum of One Dollar ($1.00) cash in hand paid by the Consumer to the Seller, receipt whereof is hereby acknowledged, and other good and valuable consideration, IT IS HEREBY COVENANTED AND AGREED by and between the parties hereto as follows:

(1) The Seller agrees to sell to the Consumer and the Consumer agrees to buy from the Seller water for resale to the customers of the Consumer, and the Seller agrees to accept untreated sewage and the Consumer agrees to pay for the treatment of the sewage from the same citizens and customers of the Consumer, under the terms and conditions set forth herein.

(2) All water delivered by the Seller shall be clean, potable water, meeting all current Federal, State and Local regulations in effect for the Utility at the time of transmission, relating to the quality of water as such Regulations may apply during the life of this Agreement. Failure of the Seller to provide water of the quality required by this paragraph shall be deemed a breach of this agreement, however, an allegation of failure to meet any such Regulations which is challenged by the Seller, shall not be deemed a breach of the Agreement unless there is a final finding after exhaustion of any appeals that there has, in fact, been non-compliance with said Regulations.

(3) During the term of this Agreement, the Seller will undertake to deliver water to the Consumer in such quantities as are required by the Consumer for resale by the Consumer to its customers in the areas hereinafter described, and subject to the conditions herein contained, but only after proper water meter or master water meters are installed. The maximum average flow shall be 200,000 gallons per day per month. However the Seller does not bind itself during periods of water shortage resulting from an emergency condition to do more than deliver water to said metering station in such quantities and pressure as are available throughout the Town. In the event it should become necessary for the Seller to adopt regulations for conservation of water during such time of emergency, the Consumer agrees that it will adopt and use reasonable efforts to enforce in the areas covered by this Agreement the same regulations for conservation of water during such time of emergency.

(4) The areas to be serviced by Consumer are situated in Broward County, Florida, and shall be referred to as "Service Area" for the purpose of this Agreement. The Service Area is described as follows:

> Areas in the corporate limits of the Town of Davie east of the Florida Turnpike and north of Oakes Road.

(5) There shall be water meters installed at points mutually agreeable, through which all water provided to Consumer shall be supplied, and all water furnished by

Seller shall be metered through such meters. The Consumer shall, at its own expense, procure and install a water meter or water meters, the type of such meters to be approved by, and the installation thereof to be approved by the Seller or its authorized agents. The sewage connection point shall be at a mutually agreeable location and its installation shall be at the sole expense of the Consumer and approved by the Seller or its authorized agents. After installation, the Consumer will, at its own expense, operate and maintain the water meters and downstream distribution lines and the sewage collection lines.

(6) The Consumer shall own the water meters. The meters shall be of standard make and type, pursuant to AWWA standards, installed in a readily accessible location with checking or calibration devices, and the installation shall indicate flow with an error not to exceed plus or minus three percent of full scale reading. If found to be in error exceeding three percent of true accuracy, the meter shall be recalibrated to the satisfaction of the parties hereto. If such error of more than three percent is discovered, bills for the next period following the prior meter accuracy check shall be adjusted to reflect the quantity of over-read or under-read exceeding three percent. In calculating such billing adjustment it will be assumed that the meter inaccuracy existed for one-half of the entire time interval between meter accuracy checks, not to exceed twelve (12) months. The billing adjustment shall be made at the same rate established in accordance with Section (9) hereinafter, but the volume used in the billing calculations shall be adjusted as described above.

The Seller may request and the Consumer agrees to perform a meter accuracy check at any reasonable time acceptable to both parties. The meter accuracy test will be required at least once every two years. If the meter is found to be in error exceeding three percent true accuracy, it shall be recalibrated as described above and the entire cost for such checking and recalibration shall be paid for by the Consumer.

(7) The water furnished by the Seller hereunder shall be delivered to the Consumer at the points of delivery (meter locations) at a minimum head of one hundred (100) feet (+44PSI) except during fire demand. The Seller shall not be responsible for water hammer in any of the pipe lines of the Consumer nor shall

the Seller be responsible for meeting any demands for water other than that required by the terms of this Agreement. It shall be the obligation and duty of the Consumer to carry the water at its own expense from each point of delivery to the place or places of ultimate use and, in so doing, to supply and impart to the water adequate pressure as may be necessary to provide adequate pressure at all points beyond such point of delivery, in consequence whereof the Seller shall not be responsible for insufficient pressure, nor be required to correct any fluctuation in pressure, occurring beyond any such point of delivery.

(8) The sewage to be delivered by the Consumer to the Seller shall be untreated wastes only from the Consumer's customers who are recipients of the Sellers water. It shall be the Consumer's responsibility to collect and transmit the sewage to the agreed point of sewage connection.

(9) The water rates to be charged by the Seller to the Consumer herein shall be a user rate of $1.12 per 1,000 gallons. The rates may be adjusted to the Consumer as Seller adjusts its rate structure for all customers of Sellers service. At the time of execution of this agreement, the differential of rates between retail customers and Consumer is $0.25 per 1,000 gallons. It is the intention of the parties that any future rate adjustments will result in the same differential of rates so that the Consumer's rates are $0.25 less per 1,000 gallons than the rate to retail customers. The sewage rates to be charged by the Seller to the Consumer herein shall be a user rate of 100% of the water rate @ $1.46 per 1,000 gallons. The rates may be adjusted to the Consumer as Seller adjusts its rate structure for all customers of Sellers service. It is the intention of the parties that any future rate adjustments will result in the same differential of rates so that Consumer's rates are $0.25 less per 1,000 gallons than the rate to retail customers.

(10) Readings of each water meter at all points of delivery shall be taken by the Consumer on or about the fifteenth day of each month and shall be used for monthly billing purposes under the provision of this section.

The Seller shall render monthly statements for water furnished to each meter and the Consumer shall pay promptly all statements furnished by Seller.

(11) Seller shall obtain from the State Board of Health and the Broward County Department of Natural Resource Protection such construction and operation permits or other data as may be required for any addition or extension of seller's system within the Service Area.

(12) Water sold to Consumer hereunder will be supplied from Seller's water producing facilities and will be of substantially the same quality and at the same pressure at the point of connection as the water furnished by Seller to its consumers within the Town limits of Seller, and said pressure shall not be below the minimum provided in Section (7).

(13) Sewage treatment service purchased by Consumer shall include full responsibility of Seller for compliance with all applicable Federal, State, Town of Davie and County regulations regarding treatment criteria and operation.

(14) Any temporary or continuing cessation of the service by the Seller caused by an Act of God, fire, strike, casualty, necessary maintenance work, breakdown of or injuries to machinery, pumps or pipelines, civil or military authority, insurrection, riot, or any other causes, whether or not of the same kind as enumerated herein, shall not constitute a breach of the Agreement on the part of the Seller, and the Seller shall not be liable to the Consumer for any damage resulting from such cessation of service. The Seller shall use due diligence in the operation and maintenance of its water supply and transmission facilities; however, the Seller shall not be responsible to the Consumer for any interruption of service due to causes beyond the Seller's control not due to the negligence of the Seller. All of the provisions of this Section shall apply equally to obligations of the Seller and the Consumer under this Agreement.

(15) Any controversy or claim arising out of this Agreement which cannot be amicably resolved by the parties shall be voluntarily submitted to arbitration by

agreement of both parties. If both parties do not agree to arbitration, then either party can proceed with litigation without having to first obtain an Order of Arbitration.

(16) The purchase and sale of water and sewer treatment services pursuant to this Agreement shall commence thirty (30) days after the Consumer notifies the Seller in writing that it is able to accept water at the point of connection, and shall continue until terminated in the following manner. The terminating party, either the Seller or the Consumer, shall give the other party hereto twelve (12) months notice of its intention to terminate this Agreement. At the expiration of the 12 month notice period the agreement shall be deemed terminated. Such notices shall be in writing and shall be sent by registered or certified mail, return receipt requested, to the party entitled to such notice at the address specified in paragraph numbered (18) of this Agreement.

(17) This Agreement shall inure to and be binding upon the successors of each of the parties hereto.

(18) All notices required pursuant to this Agreement shall be properly given if mailed by United States registered or certified mail addressed to the party to which notice is to be given at the following respective addresses:

Town of Davie
Attn: Town Administrator
6591 Orange Drive
Davie, Florida 33314

with a copy to:

Barry Webber

Ferncrest Utilities, Inc. 3015 SW 54th Ave., Ft. Lauderdale, FL 33314

with a copy to: H. Collins Forman, Jr., Esq.
H. Collins Forman, Jr., P.A.
1323 S.E. Third Avenue
Ft. Lauderdale, FL 33316

(19) This Agreement may be amended, changed, voided or annulled any time by joint consent of the parties in writing.

(20) This Agreement shall not become effective until a resolution has been adopted by such of the parties hereto approving this Agreement and authorizing its execution.

IN WITNESS WHEREOF, Seller has caused this Agreement to be signed by its Mayor and attested by its Town Clerk and its Corporate Seal to be affixed, and approved by the Town Attorney, and Consumer has caused this Agreement to be signed by its and , and attested by the , and its Corporate Seal to be affixed, and approved by its Attorney, in duplicate, the day and year above written.

TOWN OF DAVIE

By_____
Mayor

(Corporate Seal) Attest:

Town Clerk

FERNCREST UTILITIES, INC.

By_____

(Corporate Seal) By Robert V. Salerno
President

Attest:

Attorney for Ferncrest Utilities, Inc.

Approved as to form:

Town Attorney

Appendix M REUSE WATER AGREEMENT BETWEEN TOWN OF DAVIE AND NOVA SOUTHEASTERN UNIVERSITY

RESOLUTION NO. R-2017-370

A RESOLUTION OF THE TOWN OF DAVIE, FLORIDA, APPROVING THE FIRST AMENDMENT TO THE RECLAIMED WATER AGREEMENT BETWEEN THE TOWN OF DAVIE AND NOVA SOUTHEASTERN UNIVERSITY, INC., AND NSU GRANDE OAKS, LLC., AND AUTHORIZING THE MAYOR TO EXECUTE THE FIRST AMENDMENT; PROVIDING FOR SEVERABILITY; PROVIDING FOR CONFLICT; AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, on February 21, 2014, the Town of Davie, Nova Southeastern University Inc., and NSU Grand Oaks, LLC entered into a Reclaimed Water Agreement; and

WHEREAS, certain conditions between the parties has changed since 2014, Nova Southeastern University, Inc. has a greater need for reclaimed water while NSU Grande Oaks, LLC., has the ability to hydrate its golf course with surface water; and

WHEREAS, the Town of Davie will continue to provide up to nine hundred and forty thousand (940,000) gallons per day calculated on an annual daily average to Nova Southeastern University; and

WHEREAS, the Town of Davie, Nova Southeastern University, Inc., and NSU Grande Oaks, LLC. agree that entering into the attached First Amendment to the Reclaimed Water Agreement is in the best interest of all of the parties.

NOW, THEREFORE, BE IT RESOLVED BY THE TOWN COUNCIL OF THE TOWN OF DAVIE, FLORIDA:

SECTION 1. Legislative Findings/Recitals. The above recitals are hereby adopted by the Town Council of the Town of Davie as its legislative findings relative to the subjects and matters set forth in this Resolution.

SECTION 2. The Town Council of the Town of Davie hereby approves the First Amendment to the Reclaimed Water Agreement between the Town of Davie, Nova Southeastern University, Inc., and NSU Grande Oaks, LLC., and authorizes the Mayor to execute the agreement.

SECTION 3. Severability. If any provision of this Resolution or the application thereof to any person or circumstance is held invalid, it is the intent of the Town Council that such invalidity shall not affect other provisions or applications of the Resolution which can be given effect without the invalid provision or application and, to this end, the provisions of this

Resolution are declared severable.

SECTION 4. Conflicts. All resolutions or parts of resolutions in conflict with any of the provisions of this Resolution are hereby repealed.

SECTION 5. Effective Date. This Resolution shall take effect immediately upon passage and adoption.

PASSED AND ADOPTED THIS **1ST** DAY OF **NOVEMBER**, 2017.

MAYOR/COUNCILMEMBER

ATTEST:

Julian Esquenazi for E Roig

TOWN CLERK / Deputy Town Clerk

APPROVED THIS **1ST** DAY OF **NOVEMBER**, 2017.

Approved as to form and legality:

TOWN ATTORNEY

Prepared by: John Rayson, Esq.
Return to: Town of Davie
Utilities Department
6591 Orange Drive
Davie, FL. 33314

FIRST AMENDMENT TO
TOWN OF DAVIE UTILITIES DEPARTMENT
RECLAIMED WATER AGREEMENT

WITNESSETH:

WHEREAS, the Town of Davie, Nova Southeastern University Inc., and NSU Grande Oaks, LLC did enter into a Reclaimed Water Agreement with an effective date of February 21, 2014; and

WHEREAS, certain conditions have changed including that Nova Southeastern University, Inc. has a greater need for reclaimed water to hydrate its growing campus while NSU Grande Oaks LLC has the ability to hydrate its golf course with surface water directly from water courses on the golf course; and

WHEREAS, the Town of Davie will continue to provide up to nine hundred forty thousand (940,000) gallons per day calculated on an annual daily average to Nova Southeastern University to meet its growing needs.

NOW THEREFORE, in consideration of the mutual promise, covenants and agreements contained herein the Town and the Owners mutually agree to amend the reclaimed water agreement as follows:

1. Commencing with the effective date of the amendment, the Town of Davie shall provide up to nine hundred and forty thousand gallons a day calculated on an annual daily average during the term of the agreement dated February 21, 2014 to Nova Southeastern University at a price subject to the provisions of section 6 of the original agreement including the annual adjustment of the rate on October 1 by an amount equal to the Consumer Price Index ("CPI") percentage increase published by the United States Department of Labor's Bureau of Labor Statistics for ALL Urban Consumers for Miami-Fort Lauderdale, with a maximum annual increase of no more than three percent (3%). The pricing is also subject to Exhibit "C" of the original agreement for utilization of more than 438 million gallons in any given year.

2. NSU Grand Oaks LLC shall not accept or purchase reclaimed water from the Town of Davie unless a new agreement is entered into for such.

3. Nova Southeastern University Inc. and NSU Grande Oaks LLC have filed for an amendment to their consumptive use permit with the South Florida Water Management District. The Town of Davie agrees not to object to or oppose an application to allow NSU Grande Oaks to use surface water from ponds to hydrate its golf course.

4. Nova Southeastern University Inc. and NSU Grande Oaks agree to pay the Town of Davie $1453.34 per month for NSU Grande Oaks LLC prorated Reclaimed Water allocations until the former Grande Oaks capacity has been met under the terms of this Amendment.

5. A revised Exhibit A shall be attached delineating the property description for up to 600,000 gallons per day that will hydrate newly developed portions of the NSU campus which shall include the Academical Village.

6. The Irrigation schedule will be determined jointly by Nova Southeastern University and the Town of Davie Utilities Department.

7. The parties to this agreement agree to adhere to the terms of the Reclaimed Water Agreement and the terms of this first amendment and further agree to communicate regularly with each other and to collaboratively resolve any issues prior to seeking any CUP amendments.

8. All of the other terms of the Reclaimed Water agreement, not inconsistent herewith, shall remain in full for and effect during the terms of the agreement.

IN WITNESS WHEREOF, The parties to this amendment have caused the same to be signed by their duly authorized representatives on the date set forth below.

Witness SHIRLEY NAIDOO

Witness JULISSA BATISTA

NOVA SOUTHEASTERN UNIVERSITY, INC.

By: George L. Hanbury II

Printed Name: George L. Hanbury II, Ph.D.

Title: President

Date: 10/23/2017

STATE OF FLORIDA

COUNTY OF BROWARD

The forgoing instrument was acknowledged before me this 23rd day of October, 2017, by George L. Hanbury II, Ph.D. as president of Nova Southeastern University, Inc. on behalf of the corporation, who is personally known to me or has produced _____ as identification.

Notary Public

SHIRLEY NAIDOO
Commission # GG 129902
Expires November 30, 2021
Bonded Thru Troy Fain Insurance 800-385-7019

My Commission Expires:

Witness

Witness

NSU GRANDE OAKS, LLC

By: **NOVA SOUTHEASTERN UNIVERSITY, INC., its sole member**

By: George L. Hanbury II

Printed Name: George L. Hanbury II, Ph.D.

Title: President

Date: 10/23/2017

STATE OF FLORIDA

COUNTY OF BROWARD

The forgoing instrument was acknowledged before me this 23rd day of October, 2017, by George L. Hanbury II, Ph.D. as president of Nova Southeastern University, Inc. on behalf of the corporation, who is personally known to me or has produced _____ as identification.

SHIRLEY NAIDOO
Commission # GG 129902
Expires November 30, 2021
Bonded Thru Troy Fain Insurance 800-385-7019

My Commission Expires:

Notary Public

TOWN OF DAVIE

Witness as to both

Witness as to both

Mayor

Date: 11/1/17

Town Administrator

Date: 11/1/17

Attested by:

Golian Esquenazy for E. Roig

Town Clerk / Deputy Town Clerk

STATE OF FLORIDA

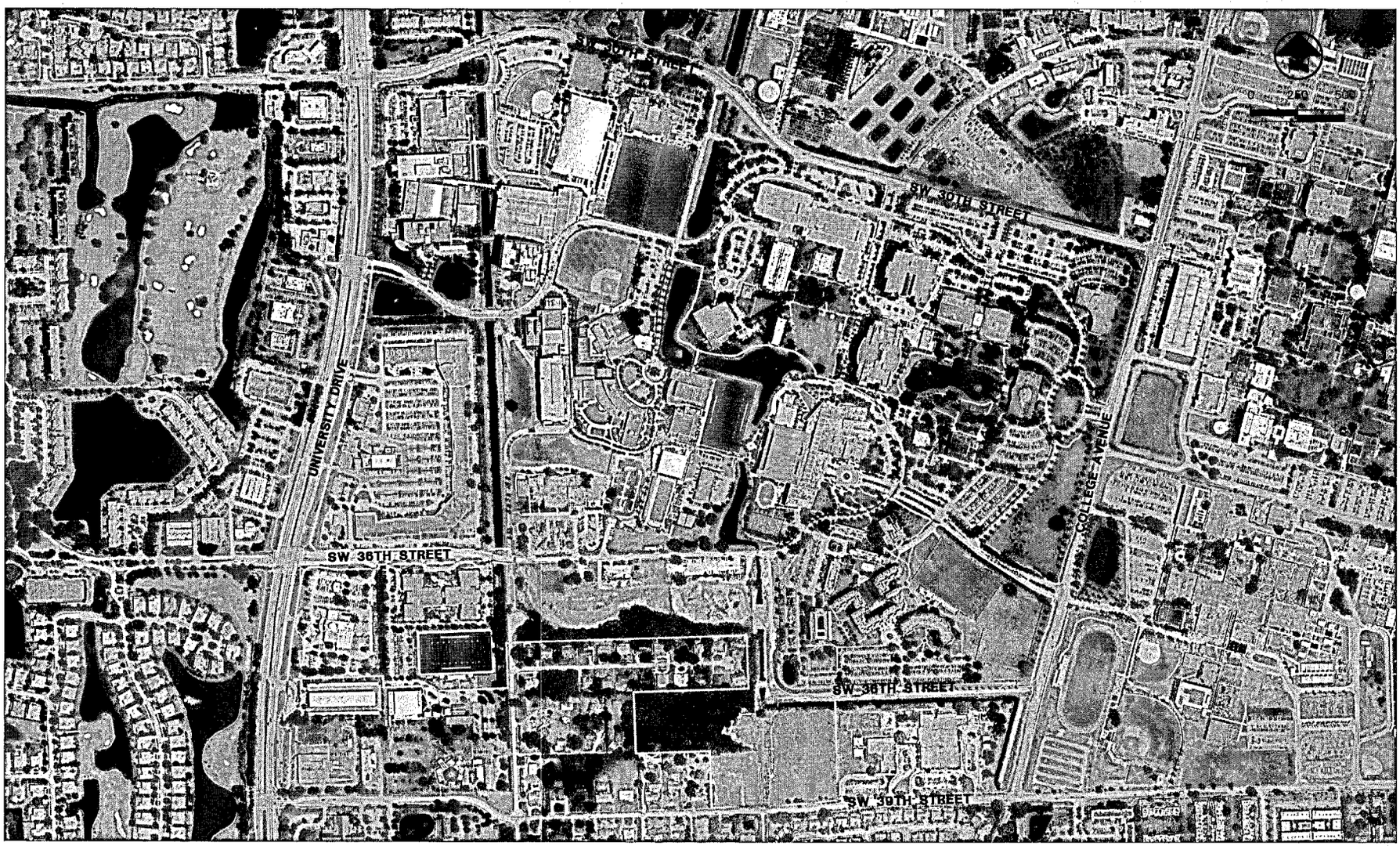
COUNTY OF BROWARD

The forgoing instrument was acknowledged before me this 15 day of November 2017 by Davie Mayor Judith Paul on behalf of the Town of Davie, who is personally known to me or has produced _____ as identification.

Notary Public

My commission Expires:

Notary Public State of Florida
Kristi Marie Szymanski
My Commission FF 978537
Expires 04/04/2020



CAMPUS AREA NOT SERVED BY REUSE IRRIGATION
(159 ACRES)

NSU
NOVA SOUTHEASTERN UNIVERSITY

CRAVEN • THOMPSON AND ASSOCIATES, INC.
ENGINEERS • PLANNERS • SURVEYORS
3563 N.W. 53RD STREET, FORT LAUDERDALE, FLORIDA 33309
FAX: (954) 739-6409 TEL.: (954) 739-6400
FLORIDA LICENSED ENGINEERING, SURVEYING & MAPPING BUSINESS No. 271
FLORIDA LICENSED LANDSCAPE ARCHITECTURE BUSINESS No. 0000114
THESE DRAWINGS ARE THE PROPERTY OF CRAVEN THOMPSON & ASSOCIATES, INC. AND SHALL NOT BE REPRODUCED IN WHOLE OR IN PART WITHOUT WRITTEN PERMISSION OF CRAVEN THOMPSON & ASSOCIATES, INC. CRAVEN THOMPSON & ASSOCIATES, INC. COPYRIGHT © 2010

DAVIE - FT. LAUDERDALE CAMPUS
REUSE AREAS
PREPARED FOR:
NOVA SOUTHEASTERN UNIVERSITY
REUSE IRRIGATION EXHIBIT

EXHIBIT
tabbies
"A"

Prepared by: John Rayson, Esq.
Return to: Town of Davie
Utilities Department
6591 Orange Drive
Davie, FL. 33314

FIRST AMENDMENT TO
TOWN OF DAVIE UTILITIES DEPARTMENT
RECLAIMED WATER AGREEMENT

WITNESSETH:

WHEREAS, the Town of Davie, Nova Southeastern University Inc., and NSU Grande Oaks, LLC did enter into a Reclaimed Water Agreement with an effective date of February 21, 2014; and

WHEREAS, certain conditions have changed including that Nova Southeastern University, Inc. has a greater need for reclaimed water to hydrate its growing campus while NSU Grande Oaks LLC has the ability to hydrate its golf course with surface water directly from water courses on the golf course; and

WHEREAS, the Town of Davie will continue to provide up to nine hundred forty thousand (940,000) gallons per day calculated on an annual daily average to Nova Southeastern University to meet its growing needs.

NOW THEREFORE, in consideration of the mutual promise, covenants and agreements contained herein the Town and the Owners mutually agree to amend the reclaimed water agreement as follows:

1. Commencing with the effective date of the amendment, the Town of Davie shall provide up to nine hundred and forty thousand gallons a day calculated on an annual daily average during the term of the agreement dated February 21, 2014 to Nova Southeastern University at a price subject to the provisions of section 6 of the original agreement including the annual adjustment of the rate on October 1 by an amount equal to the Consumer Price Index ("CPI") percentage increase published by the United States Department of Labor's Bureau of Labor Statistics for ALL Urban Consumers for Miami-Fort Lauderdale, with a maximum annual increase of no more than three percent (3%). The pricing is also subject to Exhibit "C" of the original agreement for utilization of more than 438 million gallons in any given year.

2. NSU Grand Oaks LLC shall not accept or purchase reclaimed water from the Town of Davie unless a new agreement is entered into for such.

3. Nova Southeastern University Inc. and NSU Grande Oaks LLC have filed for an amendment to their consumptive use permit with the South Florida Water Management District. The Town of Davie agrees not to object to or oppose an application to allow NSU Grande Oaks to use surface water from ponds to hydrate its golf course.

4. Nova Southeastern University Inc. and NSU Grande Oaks agree to pay the Town of Davie $1453.34 per month for NSU Grande Oaks LLC prorated Reclaimed Water allocations until the former Grande Oaks capacity has been met under the terms of this Amendment.

5. A revised Exhibit A shall be attached delineating the property description for up to 600,000 gallons per day that will hydrate newly developed portions of the NSU campus which shall include the Academical Village.

6. The Irrigation schedule will be determined jointly by Nova Southeastern University and the Town of Davie Utilities Department.

7. The parties to this agreement agree to adhere to the terms of the Reclaimed Water Agreement and the terms of this first amendment and further agree to communicate regularly with each other and to collaboratively resolve any issues prior to seeking any CUP amendments.

8. All of the other terms of the Reclaimed Water agreement, not inconsistent herewith, shall remain in full for and effect during the terms of the agreement.

IN WITNESS WHEREOF, The parties to this amendment have caused the same to be signed by their duly authorized representatives on the date set forth below.

NOVA SOUTHEASTERN UNIVERSITY, INC.

Witness SHIRLEY NAIDOO

By: George L. Hanbury II

Printed Name: George L. Hanbury II, Ph.D.

Title: President

Witness JULISSA BATISTA

Date: 10/23/2017

STATE OF FLORIDA

COUNTY OF BROWARD

The forgoing instrument was acknowledged before me this 23rd day of October, 2017, by George L. Hanbury II, Ph.D. as president of Nova Southeastern University, Inc. on behalf of the corporation, who is personally known to me or has produced _____ as identification.

Notary Public

SHIRLEY NAIDOO
Commission # GG 129902
Expires November 30, 2021
Bonded Thru Troy Fain Insurance 800-385-7019

My Commission Expires:

NSU GRANDE OAKS, LLC

By: **NOVA SOUTHEASTERN UNIVERSITY, INC., its sole member**

Witness

By: George L. Hanbury II

Printed Name: George L. Hanbury II, Ph.D.

Title: President

Witness

Date: 10/23/2017

STATE OF FLORIDA

COUNTY OF BROWARD

The forgoing instrument was acknowledged before me this 23rd day of October, 2017, by George L. Hanbury II, Ph.D. as president of Nova Southeastern University, Inc. on behalf of the corporation, who is personally known to me or has produced _____ as identification.

SHIRLEY NAIDOO
Commission # GG 129902
Expires November 30, 2021
Bonded Thru Troy Fain Insurance 800-385-7019

Notary Public

My Commission Expires:

TOWN OF DAVIE

Witness as to both

Witness as to both

Mayor

Date: 11/1/17

Town Administrator

Date: 11/1/17

Attested by:

Gelian Esquenazy for E. Roig

Town Clerk / Deputy Town Clerk

STATE OF FLORIDA

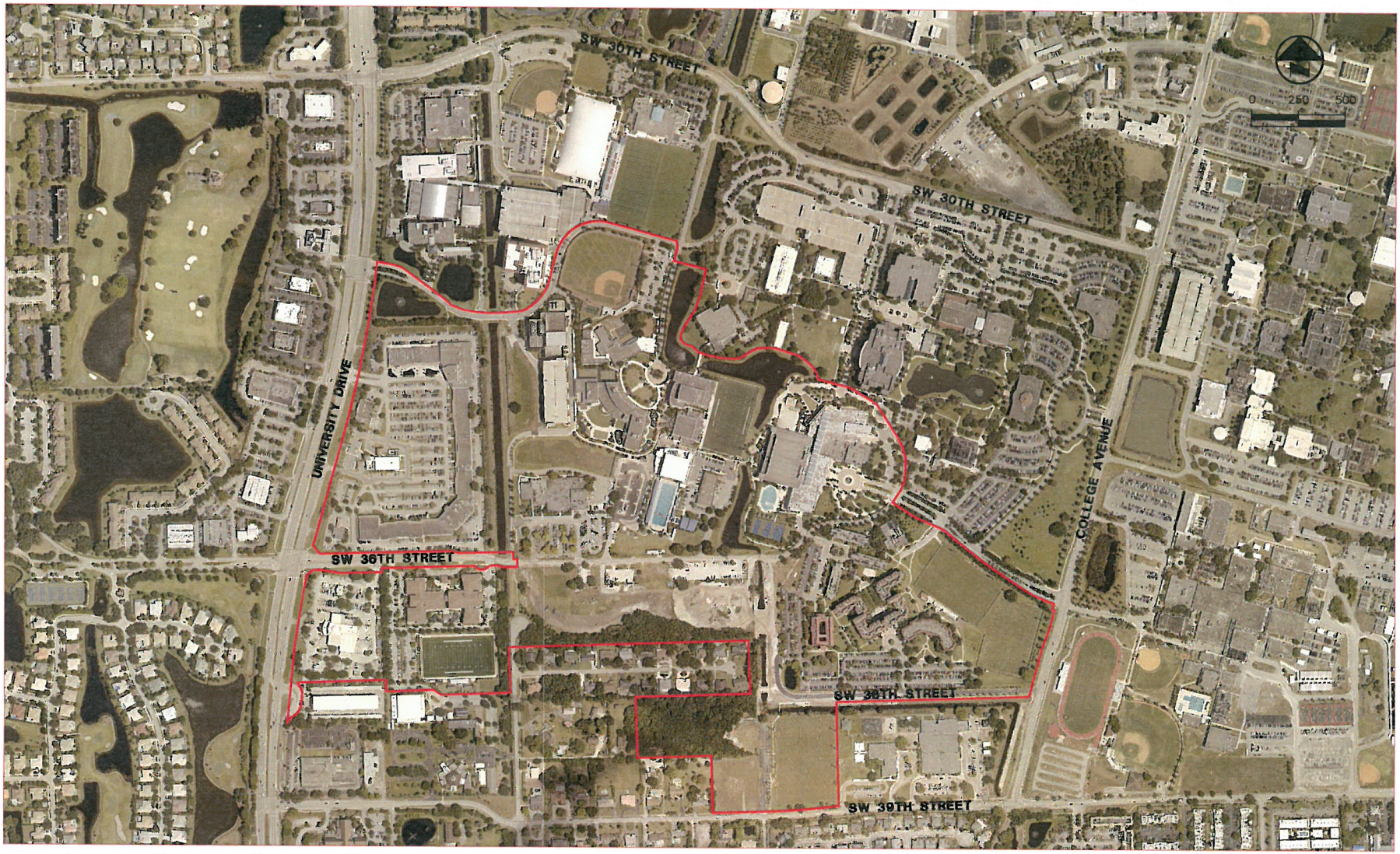
COUNTY OF BROWARD

The forgoing instrument was acknowledged before me this 1st day of November, 2017 by Davie Mayor Judith Paul on behalf of the Town of Davie, who is personally known to me or has produced _____ as identification.

Notary Public

My commission Expires:

Notary Public State of Florida
Kristi Marie Szymanski
My Commission FF 978537
Expires 04/04/2020



CAMPUS AREA NOT SERVED BY REUSE IRRIGATION
(159 ACRES)

NSU
NOVA SOUTHEASTERN UNIVERSITY

CRAVEN • THOMPSON AND ASSOCIATES, INC.
ENGINEERS • PLANNERS • SURVEYORS
3563 N.W. 53RD STREET, FORT LAUDERDALE, FLORIDA 33309
FAX: (954) 739-6409 TEL.: (954) 739-6400
FLORIDA LICENSED ENGINEERING, SURVEYING & MAPPING BUSINESS No. 271
FLORIDA LICENSED LANDSCAPE ARCHITECTURE BUSINESS No. 0000114

DAVIE - FT. LAUDERDALE CAMPUS
REUSE AREAS
PREPARED FOR:
NOVA SOUTHEASTERN UNIVERSITY
REUSE IRRIGATION EXHIBIT

EXHIBIT
"A"

19

INSTR # 112260232
OR BK 50743 Pages 1839 - 1865
RECORDED 05/01/14 02:03:55 PM
BROWARD COUNTY COMMISSION
DEPUTY CLERK 2085
#19, 27 Pages

Prepared by: John Rayson, Esq.
Return to: Town of Davie
Utilities Department
6591 Orange Drive
Davie, FL. 33314

TOWN OF DAVIE UTILITIES DEPARTMENT
RECLAIMED WATER AGREEMENT

THIS RECLAIMED WATER AGREEMENT (the "Agreement"), made and entered into as of 21 day of Feb., 2014 (the "Effective Date"), by and between the Town of Davie, a municipal corporation of the State of Florida, hereinafter called "Town" and Nova Southeastern University, Inc., a Florida not for profit corporation, and NSU Grande Oaks, LLC, a Florida limited liability company, hereinafter collectively called "Owners" and sometimes individually an "Owner".

WITNESSETH:

WHEREAS, the Town has issued its Water and Sewer Revenue Bonds, Series 2010B, a portion of the proceeds from which are available for the construction of a reclaimed water system (as hereinafter defined) as described in certain wastewater treatment permits held by the Town. The Town is presently constructing a water reclamation facility with the capacity to provide reclaimed water through bulk user agreements to owners of property within the Town and as adopted by Ordinance 2012-014 on August 1, 2012; and

WHEREAS, Nova Southeastern University, Inc. owns certain real property in Broward County, Florida legally described in Exhibit "A" attached hereto and made a part hereof; and

WHEREAS, NSU Grande Oaks, LLC. (whose sole member is presently Nova Southeastern University, Inc.) owns certain real property in Broward County, Florida legally described in Exhibit "B" attached hereto and made a part hereof.

27

WHEREAS, Owners are desirous of utilizing the services of the Utility to obtain reclaimed water on their Property.

NOW THEREFORE, in consideration of the mutual promises, covenants and agreements contained herein, the Town and the Owners mutually undertake, promise and agree for themselves, their successors and assigns as follows.

SECTION 1. DEFINITIONS. The following definitions of terms used in this Agreement shall apply unless the context indicates a different meaning:

Agreement. This Agreement for the delivery and use of reclaimed water.

Alternate Supply System. An alternate supply of irrigation and industrial quality water, including a source of water, facilities for treatment of irrigation and industrial quality standards, if required, and pumping facilities to deliver irrigation and industrial water to property through the Town's Distribution System to an On-Site Distribution system.

Application. A request in writing from Owner or a consumer on forms provided by Town requesting specific water reuse service.

Application Rate. The amount or rate of use for reclaimed water, measured in inches per week, based upon prevailing soil and hydrogeological conditions for a specific parcel or site.

Available. The presence of reclaimed water within the transmission and distribution network at pressures adequate to operate standard irrigation systems and devices.

Consumer Installation. All facilities ordinarily on the consumer's side of the point of delivery, (e.g. consumer side of the meter and/or back flow prevention device)

Contractors. The firms entering into Construction Contracts with the Owner.

Owner's Engineer. A registered professional engineer retained by the Owner to prepare plans and specifications, supervise the construction, and inspect the On-Site Improvements.

Irrigation well. A well located on private property with no means of supplying water for human consumption, used to supply water to an in-ground irrigation system or other irrigation devices which serve the property.

Non-potable water supply. A well-used as a source of water for other than human consumption, such as irrigation, cooling, or other uses.

Off-Site System. The Off-Site System shall include all water reuse storage, distribution lines and pump stations and related improvements located outside the Property to be constructed by the Town to the Owner's Point of Delivery.

On-Site Reuse Distribution System. The Reclaimed Water Distribution system to be construed within the Property for the distribution of Reclaimed Water from the Town's Off-Site System. The On-Site System shall include all reclamation distribution lines and pump stations and related improvements located within the Property which are not part of the Town System nor to be constructed by Town pursuant to this Agreement, from the Owner's Point of Delivery.

Owner's Point of Delivery. The point where the water or wastewater or reuse service enters each Owner's property.

Property. The real property of the Owners described in Exhibits "A" and "B", hereto together with any additional contiguous real property obtained by the Owners and located in the Town. The term "Property" shall apply to the real property of both Owners or the real property of an Owner, as the context requires.

PSI. Pounds per square inch.

Reclaimed Water. Domestic wastewater that has been treated by the Utility to the level required by the Florid Department of Environmental Protection for public access irrigation system and other non-potable purposes.

Reuse System. The pipelines and all appurtenances, required for the transmission and distribution of Reclaimed Water.

Service Rates or Rates. The Town's existing and future schedules of rates and charges for water reclaimed water. The schedules of Service Rates shall be of general and uniform application within the Town-wide water reuse utility systems.

Service area. The area defined in the Mandatory Reuse Zone as adopted by the Town of Davie via Ordinance #2012-014 adopted on August 1, 2012 as the reclaimed water system service area. **Town Administrator.** The chief executive office of the Town or such chief executive officer's designee.

Town System. The Town System shall include all: (i) wastewater treatment plants (wherever located) and all wastewater collection lines and lift/pump stations and all other wastewater system improvements to the extent such collection lines, lift/pump stations and improvements are located outside the limits of the Property; and (ii) water reclamation plant and facilities necessary to provide reclaimed water capacity and service to the Property and all distribution lines necessary to provide treated effluent to the boundary of the Property.

Utility Department. The Town of Davie Utility Department.

SECTION 2. AGREEMENT OF TOWN.

(a) The Town agrees to provide reclaimed water ("reclaimed water") to the Property in accordance with terms and conditions as set forth below.

(b) The Town shall be responsible for the design, permitting, non-ad valorem construction funding and operation and maintenance of all infrastructure constituting the Town System. The Town System improvements to be provided by the Town are to be constructed and operational in a timely manner consistent with this Agreement. The Town agrees that in order to provide service to the Owners in accordance with this Agreement, the Town will undertake in a timely manner, the design, permitting and construction necessary to expand its water reuse capacity, treatment or other facilities constituting part of the Town System, which shall be completed no later than August 31, 2013 subject only, irrespective of anything to the contrary contained herein, to obtaining necessary final governmental permits and approvals pertaining thereto. The Town shall

keep the Owners informed as to the Town's progress (or lack thereof) in obtaining such permits and approvals.

(c) The Town and Owners acknowledge that the reuse service of treated wastewater to water quality standards for reclaimed water for slow rate public access and other industrial users as established in Chapter 62-610, Florida Administrative Code and other applicable laws, rules and regulations in effect from time to time, constitutes an alternative water supply system for the Property and will be provided to the Property by Town as reclaimed water becomes available. Until such time as reclaimed water is available to the Property, irrigation water supply may be provided from potable water and/or stormwater pond sources available to the Property. The parties shall act in good faith to reach a mutually acceptable agreement on these issues, so as to provide both parties the benefits of this Agreement. Upon each Owner's connection to the Town's Reuse System, the Owner agrees to allow the South Florida Water Management District (the "SFWMD") to reassign its water allocation identified in the Owner's consumptive use permit ("CUP") to the Town to the extent that reuse flows are available to the Owner's Property; the authority of the SFWMD shall govern said reassignment.

SECTION 3. AGREEMENT TO PROVIDE SERVICE.

(a) Upon the Owners completing construction of the On-Site Reuse Distribution System, and upon satisfactory inspection(to be determined in the Town's reasonable discretion) of the On-Site Reuse Distribution System by the Town, and issuance by the Town of a final letter of acceptance of the On-Site Reuse Distribution System, Town agrees to connect the On-Site Reuse Distribution System installed by Owners to the Town System and to provide Utility service in accordance with the terms of this Agreement. Said system shall be operated and constructed consistent with Ord. 2012-014, as may be amended by the Town from time to time, provided that any such amendment does not increase the obligations or reduce the rights of the Owners or reduce the obligations of the Town, in which case the written consent of all parties shall be required. Such connections shall at all times be in accordance with rules, regulations and orders of all applicable governmental authorities including, but not limited to, the Florida Department of Environmental Protection, the SFWMD, and subject to the proviso contained in the preceding sentence, the Town. The Town agrees that once each Owner has connected to the

Town System, Town will continuously, consistent with the provisions of this Agreement, provide water reuse service to the Owner's Property, unless an Owner is in breach of this Agreement after applicable cure periods, in which case water reuse service shall be suspended until such breach is cured in accordance with Section 13 of this Agreement.

(b) The Town reserves the right to enter the Property solely (i) to make inspections of the initial installation of the On-Site Reuse Distribution System, (ii) to make periodic inspections thereafter to verify that the On-Site Reuse Distribution System is being properly maintained and operated in accordance with the terms of this Agreement, and (iii) to take action in the event of an emergency where an imminent material adverse effect to the Town System will occur if action is not immediately taken. The Town shall provide to the Owners prior written notice of any such inspection, except with respect to an emergency where the Town shall promptly provide to the Owners or applicable Owner written notice of the date of entrance onto the Property and the action taken. In connection with any entrance onto the Property, the Town shall not damage any property of the Owners or interfere with the business operations of the Owners. If any such damage occurs, the Town shall promptly pay the cost of repairs or replacement.

(c) Unless otherwise provided by law, the Town may discontinue reclamation water service to either Owner due to a breach of the terms of this Agreement that is not cured by the Owner as provided for in Section 13 herein. The Town shall discontinue service until the breach has been corrected and all costs due the Town are paid. Costs to be paid include delinquent billings, connections charges, equipment costs and payment for any damage caused to the Town's System.

(d) The source of the reclaimed water is the Town of Davie Water Reclamation Facility. The Town shall use all commercially reasonable efforts to provide constant delivery of reuse service, but shall be excused from any delay in doing so upon the occurrence of a Force Majeure Event as defined in Section 22 herein. The Town also reserves the right to temporarily discontinue reuse service to any portion of, or the entire, reclaimed water system, as deemed necessary by the Utility Department. If reuse service is interrupted or

discontinued for the reasons stated in the preceding two (2) sentences, then the Town shall use all commercially reasonable efforts to restore service at the earliest possible time.

(e) The Town agrees to provide the Owners on a combined basis up to a maximum of nine hundred forty thousand (940,000) gallons per day calculated on an annual daily average during the term of this Agreement. Furthermore, notwithstanding the fact that the guaranteed maximum set forth in the preceding sentence is calculated on an annual daily average, the Town shall provide as much reclaimed water as either Owner needs during any annual period to the extent the Town has such water available for distribution that has not been committed by the Town to other users within the Town.

SECTION 4. AGREEMENT TO ACCEPT.

(a) Owners, for themselves and their successors and assigns hereby covenant and agree to accept the Town's reclaimed water service (also referred to herein as reuse service) in accordance to the terms, provisions and conditions set forth herein.

SECTION 5. OWNERS' AGREEMENT TO CONSTRUCT AND MAINTAIN.

(a) As a condition to the Town's provision of Utility service to the Property, the Owners shall be responsible for the design, permitting, construction and funding for all portions of the On-Site Reuse Distribution System. Owners shall provide easements to the Town for locating underground flow meter vaults at each point of reuse connection as may be necessary for said reuse. The design, permitting, and construction of the On-Site Reuse Distribution System may be phased at the Owner's discretion consistent with any development phasing.

(b) Each Owner shall be responsible for the maintenance of the On-Site Reuse Distribution System on the Owner's Property, including irrigation lines.

(c) An Owner may not tamper with any service or cross connection with a potable water source that materially adversely affects the Town System.

SECTION 6. SERVICE RATES.

The rate to be charged by the Town to the Owner of the Property described in Exhibit "A" shall be twenty two cents ($.22) per thousand gallons. The rate to be charged by the Town to the Owner of the Property described in Exhibit "B" shall be sixteen cents ($.16) per thousand gallons, so long as the Property's primary use remains as a golf course, but if the Property's primary use is not a golf course, then the rate shall be twenty two cents ($.22) per thousand gallons. Upon the total combined Property use by both Owners exceeding four hundred thirty eight (438) million gallons per year (October 1st through September 30th), the cost for all subsequent reclaimed water used during that year shall be forty four cents (.$44) per thousand gallons as approved by Town Council via Resolution R-2013-47 adopted on March 20th, 2013, known as the Second Amendment to the NSU Infrastructure Agreement. The rates charged above shall remain in effect for the term of this Agreement without surcharge or additional assessment. However, the rates charged shall be adjusted annually, commencing on the second October 1st of the term of this Agreement, by an amount equal to the Consumer Price Index ("CPI") percentage increase published by the United States Department of Labor's Bureau of Labor Statistics for All Urban Consumers for Miami-Fort Lauderdale, with a maximum annual increase of no more than three percent (3%). The time period that serves as the basis for calculating an annual CPI percentage increase, if any, shall be as set forth in the Town's Ordinance 2007-38 adopting water and sewer rates. Consequently, the CPI percentage increase, if any, would be based on comparing the CPI for the sixth (6th) month prior to the adjustment date (the month of April) with the CPI for the seventeenth (17th) month prior to the adjustment date (the month of May). If the Town, through an ordinance or other governmental proclamation applicable to all Town users of water and sewer services, changes the months that serve as the basis for the calculation of an annual CPI percentage increase (the months presently used being the sixth (6th) and seventeenth 17th) months as stated in the preceding sentence), then the changed months shall be applicable to the parties under this Agreement. If the Town no longer has an ordinance or other governmental proclamation delineating the months used for the calculation of

CPI percentage increases with respect to water and sewer rates, then the parties shall use the CPI for the sixth (6th) month prior to the adjustment date and the CPI for the seventeenth (17th) month prior to the adjustment date in determining any annual percentage increase in the CPI. If the CPI is no longer published by the Department of Labor's Bureau of Labor Statistics or another federal governmental authority, then the parties shall mutually agree upon an index to use that most closely resembles the CPI that has been used to make percentage increase calculations.

These rates reflect negotiated rates and shall not be used as a basis for other consumers. Rates subject to the terms of this Agreement are subject to the provisions of Exhibit "C" attached hereto and made a part hereof. The reuse service to the Property shall be subject to such other regulations which from time to time may be imposed by the Town with respect to the operations of its water reuse systems, provided that any such regulations do not increase the obligations or reduce the rights of the Owners or reduce the obligations of the Town in which case the written consent of all parties shall be required except as may be limited by the regulations referenced in the preceding sentence and other applicable laws, ordinances or regulations, billing practices and times shall be exclusively within the reasonable discretion and control of Town, subject to the terms of this Agreement.

SECTION 7. SYSTEM PRESSURE.

The Town agrees to provide reclaimed water at pressures no less than forty (40) PSI at each Owner's Point of Delivery. Should an Owner require reclaimed water at different pressures or different quality, or in any way different from that normally supplied by the Town, the Owner shall be responsible for the necessary devices to make these adjustments subject to approval by the Utilities Department.

SECTION 8. TERM OF AGREEMENT.

(a) The term of this Agreement shall (i) commence on the date that reuse service is available to the Property of both Owners described in Exhibits "A" and "B", (ii) be operative through the thirtieth (30th) day of September after the commencement date, and (iii) continue for a period of ten (10) years from and including the first (1st) day of October immediately following

the thirtieth day of September referenced earlier in this sentence. This Agreement may be renewed for four (4) ten (10) year periods upon the written consent each Owner and the Town Council.

(b) If for any reason the Town is required by an applicable federal, state or county governmental authority to modify or restructure its reuse program, then subject to the following sentence, this Agreement shall be modified to be consistent with such requirement. If any required modification (i) increases the rates to be charged by the Town to either Owner under this Agreement, (ii) reduces the amount of reclaimed water available to either Owner under this Agreement, or (iii) alters the quality of reclaimed water available to either Owner under this Agreement, then the affected Owner may terminate this Agreement by written notice to the Town, which termination shall also terminate this Agreement as to such affected owner by written notice to the Town, which termination shall, in the non affected Owner's sole discretion, also terminate this Agreement with respect to the non affected Owner. Nothing precludes the Town or Owners to seek modifications to this Agreement as may be necessary from time to time, which shall be subject to the written consent of all parties.

SECTION 9. NOTICES.

(a) Any notice required or permitted hereunder shall be in writing and be deemed properly made (a) when hand delivered to the official hereinafter designated, or (b) upon receipt of such notice when deposited in the United States mail, postage prepaid, certified mail, return receipt requested, or (c) upon receipt of such notice when deposited with Federal Express or other nationally recognized overnight or next day courier, addressed as set forth herein, or at such other address as shall have been specified by written notice to the other party delivered in accordance herewith:

TOWN: Town Administrator
Town of Davie
6591 Orange Drive
Davie, FL. 33314

WITH A COPY TO: Utilities Director
Town of Davie Utilities Department
6591 Orange Drive
Davie, FL. 33314

OWNER: NOVA SOUTHEASTERN UNIVERSITY, INC.

Nova Southeastern University, Inc.

Office of Facilities Management

3301 College Avenue

Fort Lauderdale, Florida 33314

Att: Vice President for Facilities

WITH A COPY TO: Nova Southeastern University, Inc.

3301 College Avenue

Fort Lauderdale, Florida 33314

Att: President

OWNER: NSU Grande Oaks, LLC

c/o Nova Southeastern University, Inc.

3301 College Avenue

Fort Lauderdale, Florida 33314

Att: Vice President for Facilities

WITH A COPY TO: NSU Grande Oaks, LLC

c/o Nova Southeastern University, Inc.

3301 College Avenue

Fort Lauderdale, Florida

Att: President

(b) Each party shall, by written notice, notify the other of any change in address to which subsequent notices or other communication shall be sent.

SECTION 10. BINDING AGREEMENT

Both parties agree that this Agreement shall be binding on and inure to the benefit of them and their successors and permitted assigns, and with respect to the Owners their successors in title to the Property.

SECTION 11. CONSTRUCTION.

Words importing the singular number shall include the plural in each case and vice versa, and words importing persons shall include firms and corporations. The terms 'herein,' 'hereunder,' 'hereby,' 'hereto,' 'hereof,' and any similar terms shall refer to this Agreement; the term 'heretofore' shall mean before the date this Agreement is executed; and the term 'hereafter' shall mean after the date this Agreement is executed.

SECTION 12. SECTION HEADINGS.

Any headings preceding the texts of the several Articles and Sections of this Agreement and any table of contents or marginal notes appended to copies hereof shall be solely for the convenience of reference, and shall neither constitute a part of this Agreement nor affect its meaning, construction or effect.

SECTION 13. REMEDIES; COSTS AND ATTORNEY'S FEES; TERMINATION.

A party shall be in default under this Agreement if a party fails to cure a breach of this Agreement within thirty (30) days after receipt of written notice from one of the other parties specifying the breach. A party sending a notice of breach to the breaching party shall also send the notice to the other party. A default by a party hereunder shall entitle the other parties to seek all available remedies at law and in equity. In the event Town or either Owner brings an action to enforce this Agreement by court proceeding or otherwise, then the prevailing party shall be entitled to recover from the other party all reasonable costs incurred, together with reasonable attorneys' fees at all levels, including appeals. Should any governmental authority finally deny

applicable permit(s) in accordance with applicable regulations, after diligent efforts by Town to obtain such permits, then each Owner may terminate this Agreement. The Town shall promptly provide to the Owners written notice of the denial of any applicable permit.

SECTION 14. INTERPRETATION.

Owners and the Town agree that all words, terms and conditions contained herein are to be read in concert, each with the other, and that a provision contained under one heading may be considered to be equally applicable under another in the interpretation of this Agreement. This Agreement is the product of joint draftsmanship by all parties, and any ambiguities in this Agreement herein shall not be construed against any of the parties because of draftsmanship.

SECTION 15. ASSIGNMENT.

The (i) allocation of reclaimed water capacity granted to an Owner, (ii) Town commitments, (iii) any other rights provided to an Owner for under this Agreement, and/or (iv) the Owner's interest in this Agreement, may, subject to the following sentence, be assigned or transferred in whole or in part by either Owner in connection with a bona fide sale of the Owner's Property or a portion thereof to which the allocation of water, wastewater and reuse service capacity relates, or in the event of a bona fide merger or consolidation, but may not be otherwise assigned or transferred without the prior written consent of the Town, which consent shall not be unreasonably withheld or delayed. With respect to a bona fide sale of all or a portion of an Owner's Property referenced in the preceding sentence, the rates applicable to an Owner contained in Section 6 shall not be assignable to the purchaser. Each Owner shall notify the Town in writing of an assignment described in the first sentence of this Section 15. In connection with any such assignment, the assignee shall assume all of the duties and obligations of the Owner under this Agreement as to such portion of this Agreement assigned and Owner shall be released as to any obligations assigned. The Town shall have the right to assign or transfer this Agreement or the rights and responsibilities contained herein to any properly authorized commission, authority, corporation, or other public or private person, firm or entity which succeeds to the utility operations of Town and which assumes the obligations of Town hereunder, without the consent but with notice of Owner.

SECTION 16. STRICT COMPLIANCE.

The failure of any party to insist upon strict compliance of any of the terms, covenants, or conditions in this Agreement shall not be deemed a waiver thereof, nor shall any waiver of any right hereunder at any one time be deemed a waiver of such right at any other time or the waiver of any other right under this Agreement. All waivers shall be in writing executed by the waiving party.

SECTION 17. ENTIRE AGREEMENT; MODIFICATION; AND INCORPORATION BY REFERENCE.

This Agreement shall constitute the entire agreement of the parties with respect to the matters covered herein, and expressly supersedes all negotiations, previous agreements or representations whether verbal or written, and may not be amended in any way whatsoever except by a writing executed by all parties hereto in a manner equal in dignity to the execution of this Agreement; provided, however, that documents for the implementation of this Agreement, including all permits, engineering design and construction contracts, plans and specifications for the utility facilities as and when approved and filed with the Town are incorporated herein by reference.

SECTION 18. BINDING EFFECT.

This Agreement shall inure to the benefit of and be binding upon the respective successors, permitted assigns, and with respect to the Owners their successors in title to the Property. The parties acknowledge that this Agreement creates no liability or obligation on the part of either Owner or its successors, assigns or successors in title, except to the extent the Owner shall request water, wastewater or reuse service to its Property or any portion thereof.

SECTION 19. LIABILITY.

Owners and their successors, assigns, and successors in title hereby release Town, the Town Council, its employees and agents from any all claims, damages, causes of actions or other liabilities that arise out of or in relation to the denial by any governmental authority (other

than the Town) of applicable permits to provide reclaimed water service to the Property. Nothing herein shall be deemed in any way to constitute a waiver of sovereign immunity by the Town.

SECTION 20. FURTHER AGREEMENTS; REPRESENTATION.

The parties further agree to the following:

(a) In the event of any lawsuit, venue shall be in Broward County, Florida.

(b) This Agreement is intended to benefit only the parties who sign it and their successors, permitted assigns, and with respect to the Owners their successors in title to the Property, and does not create any right in favor of other persons or entities.

(c) This Agreement is binding on the parties.

Each party represents and warrants to the other parties that it has the power and authority to bind themselves by signing below.

SECTION 21. GOVERNING LAW.

This Agreement shall be governed by the (i) laws of the State of Florida, and (ii) subject to the provisions of this Agreement, the Ordinances, Resolutions and policies of Town not prohibited thereby, provided that none of the foregoing in item (ii) increase the obligations or reduce the rights of the Owners or reduce the obligations of the Town in which event the written consent of the Owners shall be required. Subject to the rights of the Owners set forth herein, the parties agree that this Agreement is subject to any applicable law, regulation, ordinance or code of any applicable federal, state or county governmental authority.

SECTION 22. FORCE MAJEURE

The Town's and Owners' obligations hereunder shall be subject to the concept of force majeure. Accordingly, in the event of acts of God, riot, weather disturbances, war, terrorism, civil disobedience, geologic subsidence, electrical failure or malfunction, and events of a similar or dissimilar nature coming that are beyond the reasonable control of a party (a "Force Majeure Event") Town or the Owner suffering a Force Majeure Event shall be excused

from their respective obligations until the cause or causes thereof have been remedied. Notwithstanding the foregoing, in addition to other remedies available to Owners, Owners shall have the right to terminate this Agreement in the event that Town at any time shall fail to obtain the necessary permits and approvals to supply the reclaimed water and service in a timely manner. In the event of any such termination of this Agreement, Owners shall have no further obligations hereunder.

IN WITNESS WHEREOF, the parties to this Agreement have caused the same to be signed by their duly authorized representatives on the dates set forth below.

Witness

Witness

NOVA SOUTHEASTERN UNIVERSITY, INC.

By: George L Hanbury II

Printed Name: George L. Hanbury II, Ph.D.

Title: President

Date: 2/6/2014

STATE OF FLORIDA

COUNTY OF BROWARD

The foregoing instrument was acknowledged before me this 6 day of February, 2014, by George L. Hanbury II, Ph.D. as President of Nova Southeastern University, Inc., on behalf of the corporation, who is personally known to me or has produced _____ as identification.

Julissa Batista

Notary Public

My Commission Expires:

Julissa Batista
Commission # FF 077634
Expires: Feb. 13, 2018
www.AARONNOTARY.com

NSU GRANDE OAKS, LLC

By: NOVA SOUTHEASTERN UNIVERSITY, INC., its sole member

By: George L Hanbury II

Printed Name: George L. Hanbury II, Ph.D.

Title: President

Date: 2/6/2014

Witness

Witness

STATE OF FLORIDA

COUNTY OF BROWARD

The foregoing instrument was acknowledged before me this 6 day of February, 2014 by George L. Hanbury II, Ph.D. as President of Nova Southeastern University, Inc., on behalf of the corporation, who is personally known to me or has produced _____ as identification.

Julissa Batista
Notary Public

My Commission Expires:

Julissa Batista
Commission # FF 077834
Expires: Feb. 13, 2018
WWW.AARONNOTARY.com

Witness as to both

Witness as to both

TOWN OF DAVIE

Judy Paul
Mayor
Date:

Richard J. Lemack
Town Administrator
Date: February 21, 2014

Attested by:

Town Clerk

STATE OF FLORIDA

COUNTY OF BROWARD

The foregoing instrument was acknowledged before me this 21 day of February, 2014 by Judy Paul and Richard J. Lemack, as Mayor and Town Administrator of the Town of Davie respectively, on behalf of the Town, who are personally known to me or have produced _____ as identification.

Sheila D. Preston
Notary Public

My Commission Expires:

Notary Public State of Florida
Sheila D Preston
My Commission FF 034295
Expires 07/11/2017

EXHIBIT "A"

General Legal Description NSU

NOVA UNIVERSITY NO. 1, PLAT BOOK 146, PAGE 49, AS RECORDED IN THE PUBLIC RECORDS OF BROWARD COUNTY, FLORIDA,

TOGETHER WITH

PARCELS A, C AND D, YOUNG WORLD PLAT, PLAT BOOK 124, PAGE 43, AS RECORDED IN THE PUBLIC RECORDS OF BROWARD COUNTY, FLORIDA,

TOGETHER WITH

NEW WORLD PLAT, PLAT BOOK 166, PAGE 37, AS RECORDED IN THE PUBLIC RECORDS OF BROWARD COUNTY, FLORIDA

EXHIBIT "B"

Legal Description of NSU Grande Oaks, L.L.C.

Two portions of land being portions of Tract "A" of "ROLLING HILLS GOLF ESTATES"
according to the Plat thereof as recorded in Plat Book 157, Page 15, of the Public Records of Broward County, Florida, together with portions of the vacated 30.00 foot canal easement, the 80.00 foot vacated right of way for Southwest 36th Street and the vacated 50.00 foot canal reservations, all per Official Records Book 24942, Page 66 of the Public Records of Broward County, Florida, being more particularly described as follows:

PORTION 1:
Commence at the North quarter corner of Section 28, Township 50 South, Range 41 East; thence along the East line of the Northwest one-quarter (N.W. 1/4) of said Section 28, South 02°09'52" East (based on the Stoner/Keith Resurvey No. 111 recorded in Miscellaneous Plat Book 5, Page 9, Broward County Records) a distance of 806.84 feet to Point of Beginning Number 1; thence continue along said East line South 02°09'52" East 146.20 feet; thence South 88°33'01" West 243.02 feet to a point of curvature of a 28.42 foot radius curve concave to the North; thence Westerly along said curve through a central angle of 45°30'02" an arc distance of 22.57 feet to a point of non-tangency; thence South 88°33'01" West 575.48 feet to a point of curvature of a 15.00 foot radius curve concave to the Northeast; thence Northwesterly along said curve through a central angle of 89°18'45" an arc distance of 23.38 feet to a point of tangency; thence North 02°08' 14" West
10.00 feet to a point of curvature of 15.00 foot radius curve concave to the East; thence Northerly along said curve through a central angle of 45°00'00" an arc distance of 11.78 feet to a point of tangency; thence North 42°51'46" East 20.67 feet; thence South 87°51'46" West 172.84 feet; thence North 02°08'14" West 234.25 feet; thence North 87°51'46" East 176.00 feet; thence North 02'08'14" West 110.50 feet to Reference Point "A"; thence North 87°51'46" East 15.00 feet; thence South 02°08'14" East 110.50 feet; thence North 87°51'46" East 80.50 feet; thence South 88°00'56" East 81.96 feet; thence South 79°08'23" East 671.13 feet to Point of Beginning Number 1.

PORTION 2:
Commence at the aforesaid Reference Point "A"; thence North 06°42'40" West 50.16 feet to Point of Beginning Number 2; thence North 02°08'14" West 110.50 feet; thence South 87°51'46" West 65.50 feet; thence North 02°08'14" West 122.78 feet; thence North 28°11'54" East 35.74 feet to a point on a 25.00 foot radius non-tangent curve concave to the East whose radius point bears North 69°16'20" East; thence Northerly along said curve through a central angle of 65°20'07" an arc distance of 28.51 feet to a point of reverse curvature of a 185.50 foot radius curve concave to the West; thence Northerly along said curve through a central angle of 93°19'01" an arc distance of 302.12 feet to a point of non-tangency on the North line of said vacated 80.00 foot right of way for S.W. 36th Street; thence, along said North line being 60.00 feet North of and parallel with the North line of said Northwest quarter (N.W. 1/4), North 88°33'25" East 369.25 feet;

thence South 01°26'35" East 46.17 feet to a point on a 182.00 foot radius non-tangent curve concave to the Southeast whose radius point bears South 07°34'49" East; thence Southwesterly along said curve through a central angle of 61°38'45" an arc distance of 195.82 feet to a point of tangency; thence South 20°46'26" West 97.91 feet; thence South 15°54'20" West 107.46 feet; thence South 04°19'40" West 96.91 feet; thence South 87°51'46" West 80.50 feet; thence South 02°08'14' East 110.50 feet; thence South 87°51'46" West 15.00 feet to Point of Beginning Number 2.

All together said lands situate, lying and being in Broward County, Florida.

TOGETHER WITH
A portion of Parcel "A", "ROLLING HILLS GOLF AND TENNIS CLUB", according to the Plat thereof recorded in Plat Book 81, Page 27 of the Public Records of Broward County, Florida, being more particularly described as follows:

Commence at Northeast corner of the Southwest quarter (S.W. 1/4) of Section 21, Township 50 South, Range 41 East; thence, along the North line of said Southwest quarter (S.W. 1/4), South 88°18'23" West (based on the Stoner/Keith Resurvey No. 111 recorded in Miscellaneous Plat Book 5, Page 9 of the Public Records of Broward County, Florida) a distance of 82.08 feet to an intersection with the Northerly extension of the Easterly line of said Parcel "A"; thence along said Northerly extension and said Easterly line, South 02°13'53" East 126.78 feet to a point of curvature of a 593.93 foot radius curve concave to the East; thence along said Easterly line of Parcel "A" the following four described courses: (1) Southerly along said curve through a central angle of 24°11'08" an arc distance of 250.71 feet to a point of reverse curvature of a 420.00 foot radius curve concave to the West; (2) Southerly along said curve through a central angle of 20°44'04" an arc distance of 151.99 feet to Point of Beginning Number 3; (3) continue Southerly along said curve through a central angle of 03°27'04" an arc distance of 25.30 feet to a point of tangency; (4) South 02°13'53" East 869.79 feet; thence South 42°46'07" West 7.13 feet; thence South 87°46'07" West 324.63 feet; thence North 02°13'53" West 992.27 feet; thence North 32°28'17" West 45.13 feet; thence North 57°31'43" East 78.00 feet; thence South 32°28'17" East 35.70 feet; thence South 02°13'53" East 139.59 feet; thence North 87°46'07" East 266.27 feet to Point of Beginning Number 3.

Said lands situate, lying and being in Broward County, Florida.

TOGETHER WITH
A portion of Parcel "B" of "ROLLING HILLS GOLF AND TENNIS CLUB" according to the Plat thereof as recorded in Plat Book 81, Page 27 of the Public Records of Broward County, Florida, being more particularly described as follows:
Commence at the Northwest corner of the Southeast quarter (S.E. 1/4) of Section 21, Township 50 South, Range 41 East; thence, along the North line of said Southeast quarter (S.E. 1/4), North 88°18'23" East (based on the Stoner/Keith Resurvey No. 111 recorded in Miscellaneous Plat Book 5, Page 9 of the Public Records of Broward County, Florida) for a distance of 23.44 feet; thence South 01°41'37" East 30.00 feet to Point of Beginning Number 4, said point lying on the North line of said Parcel "B"; thence along said North

line, North 88°18'23" East 1440.14 feet; thence South 01°41'27" East 195.28 feet; thence North 88°18'33" East 75.01 feet; thence South 45°21'30" East 20.71 feet; thence South 00°58'27" West 476.02 feet; thence South 15°52'18" West 324.12 feet; thence South 14°36'27" West 466.77 feet; thence South 11°41'49" West 174.20 feet; thence South 87°46'07" West 1179.15 feet to the West line of said Parcel "B"; thence along said West line, North 02°13'53" West 37.02 feet; thence North 87°46'07" East 251.00 feet; thence North 02°13'53" West 326.00 feet; thence North 46°55'02" East 104.00 feet; thence North 02°13'53" West 713.45 feet; thence North 87°46'07" East 69.33 feet; thence North 02°13'53" West 335.00 feet; thence South 87°46'07" West 310.00 feet; thence North 02°13'53" West 34.00 feet; thence South 87°46°07" West 158.00 feet to the West line of said Parcel "B"; thence North 02°13'53" West along said West line 85.29 feet to a point of curvature of a 25.00 foot radius curve concave to the Southeast; thence Northeasterly along said curve and along the boundary of said Parcel "B" through a central angle of 90'32'16" an arc distance of 39.50 feet to Point of Beginning Number 4.

Said lands situate, lying and being in Broward County, Florida.

TOGETHER WITH
A portion of Parcel "A", "ROLLING HILLS GOLF AND TENNIS CLUB", according to the Plat thereof as recorded in Plat Book 81, Page 27 of the Public Records of Broward County, Florida, being more particularly described as follows:

Commence at the Northeast corner of the Southwest quarter (SW1/4 of Section 21, Township 50 South, Range 41 East; thence, along the North line of said Southwest quarter (SW 1/4), South 88°18'23" West (based on the Stoner/Keith Resurvey No. 111 recorded in Miscellaneous Plat Book 5, Page 9 of the Public Records of Broward County, Florida) a distance of 577.33 feet; thence South 01°41'58" East 30.00 feet to Point of Beginning Number 5; thence continue South 01°41'58" East 142.83 feet; thence South 50°35'53" East 296.02 feet; thence South 32°28' 17" East 69.34 feet; thence South 02° 13'53" East 992.27 feet; thence North 87°46'07" East 324.63 feet; thence North 42°46'07" East 7.13 feet to the east line of said Parcel ""A"; thence, along said East line, South 02°13'53" East 360.90 feet; thence North 47°13'53" West 50.00 feet; thence South 87°46'07" West 321.47 feet; thence South 59°23'00" West 165.47 feet; thence South 01°26'35" East 700.06 feet to the South line of said Parcel "A"; thence, along said South line, South 88°33'25" West 369.26 feet to a point on a 185.50 feet radius non-tangent curve concave to the South whose radius point bears South 41°17'27" West; thence Westerly along said curve through a central angle of 85°28'03" an arc distance of 276.71 feet to a point of non-tangency on the South line of said Parcel "A"; thence along said South line, South 88°33'25" West 1430.07 feet to a point of curvature of a 25.00 foot radius curve concave to the Northeast; thence Northwesterly along said curve, along the boundary of said Parcel "A", through a central angle of 89°14'13" an arc distance of 38.94 feet to a point of tangency on the West line of said Parcel "A"; thence, along said West line, North 02°12'22" West 2431.15 feet to a point of curvature of a 25.00 foot radius curve concave to the Southeast; thence Northeasterly along said curve and along the boundary of said Parcel "A" through a central angle of 90°30'45" an arc distance of 39.49 feet to a point of tangency on the North line of said Parcel "A"; thence, along said

North line, North 88°18'23" East 1976.85 feet to Point of Beginning Number 5.

Said lands situate, lying and being in Broward County, Florida.

TOGETHER WITH
Three portions of land being portions of Parcel "C" of "ROLLING HILLS GOLF AND TENNIS CLUB" according to the Plat thereof as recorded in Plat Book 81, Page 27 of the Public Records of Broward County, Florida, together with portions of the 50.00 foot canal right of way (now vacated) lying adjacent to said Parcel "C", said parcels being more particularly described as follows:

PORTION 1:
Commence at the Southeast corner of said Parcel "C"; thence along the East line of said Parcel "C", North 02°10'35" West (based on the Stoner/Keith Resurvey No. 111 recorded in Miscellaneous Plat Book 5, Page 9, Broward County Records) a distance of 624.51 feet to Point of Beginning Number 6; thence towards the radius point of the next described curve South 87°49'25" West 72.00 feet to a point on a 25.00 foot radius curve concave to the Northwest; thence Southwesterly along said curve through a central angle of 90°41'42" an arc distance of 39.57 feet to a point of tangency; thence South 88°31'07" West 146.45 feet to a point of curvature of a 25.00 foot radius curve concave to the Northeast; thence Northwesterly along said curve through a central angle of 57°27'31" an arc distance of 25.07 feet to a point of non-tangency; thence South 71°18'52" West 130.34 feet; thence South 88°31'07" West 176.00 feet to Reference Point "B"; thence North 01°28'53" West 15.00 feet; thence North 88°31'07" East 140.00 feet; thence North 01°28'53" West 56.88 feet to a point of curvature of a 685.00 foot radius curve concave to the East; thence Northerly along said curve through a central angle of 12°42'54" an arc distance of 152.01 feet to a point of reverse curvature of a 3200.00 foot radius curve concave to the West; thence Northerly along said curve through a central angle of 15°20'04" an arc distance of 856.43 feet to a point of compound curvature of a 820.00 foot radius curve concave to the West; thence Northerly along said curve through a central angle of 27°27'11" an arc distance of 392.90 feet to a point of reverse curvature of a 490.00 foot radius curve concave to the Northeast; thence Northwesterly along said curve through a central angle of 16°28'17" an arc distance of 140.87 feet to a point of compound curvature of a 30.00 foot radius curve concave to the Southeast; thence Northerly and Easterly along said curve through a central angle of 132°02'02" an arc distance of 69.13 feet to a point of tangency; thence South 63°02'54" East 69.09 feet to a point of curvature of a 25.00 foot radius curve concave to the Southwest; thence Southeasterly along said curve through a central angle of 43°41'44" an arc distance of 19.07 feet to a point of reverse curvature of a 185.32 foot radius curve concave to the North; thence Easterly along said curve through a central angle of 117°19'40" an arc distance of 379.48 feet to a point of non-tangency; thence North 15°16'51" East 87.11 feet to a point of curvature of a 163.57 foot radius curve concave to the West; thence Northerly along said curve through a central angle of 52°32'57" an arc distance of 150.02 feet to a point of tangency; thence North 37°16'06" West 87.31 feet; thence North 63°31'24" West 193.29 feet to a point of curvature of a 354.67 foot radius curve concave to the South; thence Westerly along said curve through a central angle of 28°12'31" an

arc distance of 174.62 feet to a point of tangency; thence South 88°16'05" West 190.26 feet; thence North 01°43'55" West 67.50 feet to a point of curvature of a 41.00 foot radius curve concave to the Southeast; thence Northeasterly along said curve through a central angle of 57°42'27" an arc distance of 41.29 feet to a point of non-tangency on the North boundary of said Parcel "C"; thence along the boundary of said Parcel "C" the following four described courses: (1) North 88°31'35" East 734.28 feet to a point of curvature of a 25.00 foot radius curve concave to the Southwest; (2) Southeasterly along said curve through a central angle of 102°25'22" an arc distance of 44.69 feet to a point of reverse curvature of a 5789.58 foot radius curve concave to the East; (3) Southerly along said curve through a central angle of 13°07'32" an arc distance of 1326.29 feet to a point of tangency; (4) South 02°10'35" East 619.86 feet to Point of Beginning Number 6.

PORTION 2:
Commence at said Reference Point "B"; thence South 88°31'07" West 50.00 feet to Point of Beginning Number 7; thence continue South 88°31'07" West 130.99 feet; thence North 70°47'27" West 48.12 feet; thence South 88°31'07" West 130.21 feet; thence North 02°09'52" West 714.25 feet; thence North 01°20'43" West 110.01 feet; thence North 02°09'52" West 252.36 feet to a point of curvature of a 1154.07 foot radius curve concave to the West; thence Northerly along said curve through a central angle of 03°47'41" an arc distance of 76.43 feet; thence towards the radius point of the next and last described curves South 84°02'27" West 129.07 feet to Reference Point "C" on a 1025.00 foot radius curve concave to the West; thence Northerly along said curve through a central angle 00°50'19" an arc distance of 15.00 feet to a point of non-tangency; thence North 84°02'27" East 128.21 feet to a point on a 446.81 foot radius non-tangent curve concave to the East whose radius point bears North 83°04'54" East; thence Northerly along said curve through a central angle of 17°46'43" an arc distance of 138.64 feet to a point of non-tangency; thence North 88°33'01" East 192.44 feet to a point on a 808.25 foot radius non-tangent curve concave to the Northeast whose radius point bears North 61°18'05" East; thence Southeasterly along said curve through a central angle of 02°51'18" an arc distance of 40.28 feet to a point of reverse curvature of a 501.75 foot radius curve concave to the West; thence Southerly along said curve through a central angle of 27°27'11" an arc distance of 240.41 feet to a point of compound curvature of a 2881.75 foot radius curve concave to the West; thence Southerly along said curve through a central angle of 15°20'04" an arc distance of 771.26 feet to a point of reverse curvature of a 1003.25 foot radius curve concave to the East; thence Southerly along said curve through a central angle of 12°42'54" an arc distance of 222.64 feet to a point of tangency; thence South 01°28'53" East 56.99 feet; thence North 88°31'07" East 128.25feet; thence South 01°28'53" East 15.00 feet to Point of Beginning Number 7.

PORTION 3:
Commence at the aforesaid Reference Point "C"; thence South 43°51'59" West 66.68 feet to Point of Beginning Number 8; thence South 88°33'01" West 160.27 feet to a point on the West line of said canal right of way, said point also lying on the West line of the Northeast quarter (N.E. 1/4) of Section 28, Township 50 South, Range 41 East and being 953.04 feet South of the Northwest corner of said Northeast quarter (N.E. 1/4); thence along said West line, North 02°09'52" West 146.20 feet; thence South 79°08'23" East

159.47 feet to a point on a 625.00 foot radius non-tangent curve concave to the East whose radius point bears North 88°20'20" East; thence Southerly along said curve through a central angle of 05°06'12" an arc distance of 55.67 feet to a point of reverse curvature of a 975.00 foot radius curve concave to the West; thence Southerly along said curve through a central angle of 03°20'01" an arc distance of 56.73 feet to Point of Beginning Number 8.

All together said lands situate, lying and being in Broward County, Florida.

TOGETHER WITH
Those lands conveyed to Florida Golf Management, Inc. by Quit Claim Deed filed September 27, 2004 and recorded in Official Records Book 38261, Page 142, more particularly described as follows:

Portions of Tract A of "Rolling Hills Golf Estates" according to the plat thereof as recorded in Plat Book 157, Page 15 of the Public Records of Broward County, Florida, described as follows:

Commence at the Northeast corner of the Northwest one-quarter (NW 1/4) in Section 28, Township 50 South, Range 41 East; thence South 41°11'10" West 1215.48 feet to Point of Beginning Number 9; thence South 42°51'46" West 20.67 feet to a point of curvature of a 15.00 foot radius curve concave to the East; thence Southerly along said curve through a central angle of 45°00'00" an arc distance of 11.78 feet to a point of tangency; thence South 02°08'14" East 10.00 feet to a point of curvature of a 15.00 foot radius curve concave to the Northeast; thence Southeasterly along said curve through a central angle of 89°18'45" an arc distance of 23.38 feet to Reference Point "D" and a point of cusp; thence tangent to the last described curve, South 88°33'01" West 141.09 feet; thence North 02°08'14" West 48.53 feet; thence North 87°51'46" East 145.27 feet to Point of Beginning Number 9.

Together with the following described portion:
Commence at aforesaid Reference Point "D"; thence North 88°33'01" East 575.48 feet to Point of Beginning Number 10, said point being on a 28.42 foot radius non-tangent curve concave to the North whose radius point bears North 44°03'03" East; thence Easterly along said curve through a central angle of 45°30'02" an arc distance of 22.57 feet to a point of cusp; thence tangent to the last described curve, South 88°33'01" West 20.27 feet; thence North 01°26'59" West 8.50 feet to Point of Beginning Number 10.

All of the above lands situate, lying and being in Broward County, Florida.

All said lands LESS AND EXCEPT those lands contained and conveyed to Space Development, Ltd., in Quit Claim Deed recorded in Official Records Book 38261, Page 164, Broward County, Florida, more fully particularly as follows:

A portion of Tract A of "Rolling Hills Golf Estates" according to the plat thereof as recorded in Plat Book 157, Page 15 of the Public Records of Broward County, Florida,

described as follows:

Commence at the Northeast corner of the Northwest one-quarter (NW 1/4) in Section 28, Township 50 South, Range 41 East; thence South 54°17'13" West 1175.33 feet to Point of Beginning Number 11; thence South 02°08'14" East 234.25 feet; thence South 87°51'48" West 27.57 feet; thence North 02°08'14" West 234.25 feet; thence North 87°51'48" East 27.57 feet to Point of Beginning Number 11.

Said lands situate, lying and being in Broward County, Florida.

SUBJECT TO EASEMENT PARCEL:

Non-exclusive sign easement created by that Sign Easement dated October 13, 1989, filed in Official Records Book 16872, Page 332, over and across the land therein described as "Sign Parcel", more particularly described as follows:

A portion of Parcel "C" of "ROLLING HILLS GOLF AND TENNIS CLUB" according to the Plat thereof as recorded in Plat Book 81, Page 27 of the Public Records of Broward County, Florida, described as follows:

Commence at the Point of intersection of the Easterly extension of the North line of said Parcel "C" and the Northerly circular extension of the East line of said Parcel "C"; thence South 88°57'32" West along said Easterly extension and North line a distance of 40.99 feet to Point of Beginning Number 12, said point being the point of curvature of a curve to the left whose radius point bears South 78°26'24" East; thence Southerly along the arc of said curve having a radius of 5829.58 feet, a central angle of 00°40'18" for an arc distance of 68.34 feet; thence North 79°06'42" West a distance of 85.60 feet; thence North 01°02'28" West to the North line of said Parcel "C" a distance of 49.09 feet; thence North 88°57'32" East along said North line a distance of 98.27 feet to Point of Beginning Number 12.

Subject to the terms, provisions and conditions set forth in said instrument.

TOGETHER WITH EASEMENT PARCEL:

Non-exclusive easement for ingress, egress and drainage, created by that Easement Agreement for Ingress, Egress and Drainage filed January 7, 1999 in Official Records Book 29132, Page 342 more particularly described as follows:

A portion of Parcel "A" of "ROLLING HILLS GOLF AND TENNIS CLUB" according to the Plat thereof as recorded in Plat Book 8 1, Page 27 of the Public Records of Broward County, Florida, described as follows:

Commence at the intersection of the extension of the West and South boundaries of said Parcel "A", also being the South boundary and the Westerly extension thereof of that certain parcel of land recorded in Official Records Book 27341, Page 184, of the Public

Records of Broward County, Florida, thence North 88°33'25" East (Bearings are based on the "Stoner Keith Resurvey No. 111", recorded in Miscellaneous Plat Book 5, Page 9 of the Public Records of Broward County, Florida) a distance of 1454.74 feet to a point on a 185.50 foot radius non-tangent curve concave to the South whose radius point bears South 44°10'36" East; thence continue along the boundary of said Parcel of Land the following (5) described courses: (1) Easterly along said curve through a central angle of 85°28'03" an arc distance of 276.71 feet to a point of non-tangency; (2) North 88°33'25" East 369.26 feet; (3) North 01°26'35" West 625.89 feet to Point of Beginning Number 13; (4) continue North 01°26'35" West 74.17 feet; (5) North 59°23'00" East 114.53 feet; thence South 01°26'35" East 130.00 feet; thence South 88°33'25" West 100.00 feet to Point of Beginning Number 13.

Subject to the terms, provisions and conditions set forth in said instrument.

EXHIBIT "C"

Town of Davie

Reclaimed Water Agreement

Fee Schedule

Folio Number:

Owner 's name and address : Nova Southeastern University, Inc. 3301 College Avenue, Fort Lauderdale, Florida 33314 Att: Vice President for Facilities

Owner's name and address: NSU Grande Oaks, LLC, c/o Nova Southeastern University, 3301 College Avenue, Fort Lauderdale, Florida 33314 Att: Vice President for Facilities

Project Name: Nova Southeastern University Main Campus

Project Address: 3301 University Drive, Davie, FL. 33314

Project Name: Grande Oaks Golf Course

Project Address: 3201 West Rolling Oakes Circle, Davie, FL. 33314

Intended Use: Irrigation and industrial use (chillers makeup water)

Committed Flow from Town: 940,000 gallons per day combined total for both Owners calculated on an annual daily average

CHARGES.

16 cents per 1,000 gallons for the Property described in Exhibit "B". If the Property is not used primarily as a golf course, then the rate shall be 22 cents per thousand gallons.

22 cents per 1,000 gallons for the Property described in Exhibit "A".

Upon the total combined utilization of greater than 438 million gallons per year, the rate shall be 44 cents per 1,000 gallons for the remainder of that calendar year.

SCHEDULE.

Exhibit "B" Property: irrigation from 8pm to 10am (daily)
Exhibit "A" Property: irrigation from 11pm to 5am (daily); chillers 24 hours (daily)

RESOLUTION NO. R-2012-165

A RESOLUTION OF THE TOWN OF DAVIE, FLORIDA, APPROVING A STANDARD RECLAIMED WATER AGREEMENT; PROVIDING AUTHORITY FOR THE TOWN ADMINISTRATOR OR HIS DESIGNEE TO ENTER INTO SUCH AGREEMENT CONSISTENT WITH THE REQUIREMENTS APPROVED IN THE TOWN OF DAVIE CODE OF ORDINANCES; AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, the Town of Davie has issues its Water and Sewer Revenue Bonds, Series 2010B, a portion of the proceeds from which are available for the construction of a reclaimed water system as described in certain wastewater treatment permits held by the Town; and

WHEREAS, as a condition of approval, the Florida Department of Environmental Protection (FDEP) and the South Florida Water Management District (SFWMD) required the Town to construct a water reclamation facility to off-set the demand for potable water within the Town's Utility Service Area; and

WHEREAS, the Town of Davie is presently constructing a water reclamation facility with the capability to provide reclaimed water; and

WHEREAS, the design of the two phased reclamation system has identified a series of potential bulk users who will benefit from the use of reclaimed water as opposed to potable water as further detailed in the Town of Davie Reclaimed Water Distribution System Report prepared by AECOM and dated October 2011, attached hereto as Exhibit "A"; and

WHEREAS, the Reclaimed Water Agreement outlines all terms and conditions consistent with the Code of Ordinances and allows for individual negotiations for price and other items depending upon individual circumstances; and

WHEREAS, the Agreement allows for the Town Administrator, or his designee, to negotiate and sign said Agreement and for the Mayor to sign upon recommendation from the Town Administrator.

NOW, THEREFORE, BE IT RESOLVED BY THE TOWN COUNCIL OF THE TOWN OF DAVIE, FLORIDA.

SECTION 1. That the foregoing "WHEREAS" clauses are hereby ratified and confirmed as being true and correct and are hereby made a specific part of this Resolution.

SECTION 2. The Town Council of the Town of Davie, Florida, does hereby authorize the Town Administrator, or his designee, to negotiate and sign said Reclaimed Water Agreements with those bulk users identified in the Town of Davie Reclaimed Water Distribution System Report identified above

SECTION 3. The Town Council of the Town of Davie, Florida, does hereby authorize the Mayor to sign said Agreement, upon recommendation by the Town Administrator, so long as said Agreement is consistent with the regulations contained in the Town of Davie Code of Ordinances.

SECTION 4. This resolution shall take effect immediately upon its passage and adoption.

PASSED AND ADOPTED THIS 18th DAY OF July, 2012.

Judy Paul
MAYOR/COUNCILMEMBER

ATTEST:

Russell Muniz
TOWN CLERK

APPROVED THIS 18th DAY OF July, 2012.

Prepared by:
Return to: Town of Davie
Utilities Department
6591 Orange Drive
Davie, FL. 33314

FILE NO: 12-

TOWN OF DAVIE UTILITIES DEPARTMENT
RECLAIMED WATER AGREEMENT

THIS RECLAIMED WATER AGREEMENT, made and entered into this ____ day of _____, 20__, by and between the Town of Davie, a municipal corporation of the State of Florida, hereby called "Utility" and _____ hereinafter called "Owners."

WITNESSETH:

WHEREAS, the Town of Davie has issued its Water and Sewer Revenue Bonds, Series 2010B, a portion of the proceeds from which are available for the construction of a reclaimed water system (as hereinafter defined) as described in certain wastewater treatment permits held by the Town. Utility is presently constructing a water reclamation facility with the capacity to provide reclaimed water through bulk user agreements to owners of property within the Town of Davie and as adopted by Ordinance 2012-___ on _____; and

WHEREAS, Owner owns or control certain real property in Broward County, legally described in **Exhibit "A"** and more commonly known as _____ with an address of _____.

WHEREAS, Owner is desirous of utilizing the services of the Utility to obtain reclaimed water on Owner's property, as shown in **Exhibit "A".**

NOW THEREFORE, in consideration of the mutual promises, covenants and agreements contained herein, the Town and the Owner mutually undertake, promise and agree for themselves, their successors and assigns as follows.

SECTION 1. DEFINITIONS. The following definitions of terms used in this Agreement shall apply unless the context indicates a different meaning:

Agreement. This Agreement for the Delivery and Use of Reclaimed Water.

Alternate Supply System. An alternate supply of irrigation and industrial quality water, including a source of water, facilities for treatment of irrigation and industrial quality standards, if required, and pumping facilities to deliver irrigation and industrial water to property through the Town's Distribution System to an On-Site Distribution system.

Application. A request in writing from Owner or a consumer on forms provided by Town requesting specific water reuse service.

Application Rate. The amount or rate of use for reclaimed water, measured in inches per week, based upon prevailing soil and hydrogeological conditions for a specific parcel or site.

Available. The presence of reclaimed water within the transmission and distribution network at pressures adequate to operate standard irrigation systems and devices.

Consumer Installation. All facilities ordinarily on the Consumer's side of the point of delivery, (e.g. consumer side of the meter and/or back flow prevention device)

Contractors. The firms entering into Construction Contracts with the Owner.

Owner's Engineer. A registered professional engineer retained by the Owner to prepare plans and specifications, supervise the construction, and inspect the On-Site Distribution Lines.

Development. The subject site upon which the reclaimed facilities will be provided.

Owner's Point of Delivery. The point where the water or wastewater or reuse service enters Owner's property.

Irrigation well. A well located on private property with no means of supplying water for human consumption, used to supply water to an in-ground irrigation system or other irrigation devices which serve the property.

Non-potable water supply. A well used as a source of water for other than human consumption, such a irrigation, cooling, or other uses.

Off-Site System. The Off-Site System shall include all water reuse collection and distribution lines and lift/pump stations and related improvements located outside the Property to be constructed by the Town to the Owner's Point of Delivery.

On-Site Distribution System. The Reclaimed Water Distribution system to be constructed within the Property for the distribution of Reclaimed Water from the Town's Off-Site System. The On-Site System shall include all reclamation distribution lines and lift/pump stations and related improvements located within the Property which are not part of the Town System nor to be constructed by Town pursuant to this Agreement, from the Owner's Point of Delivery.

Property. The land described in **Exhibit "A"**.

Reclaimed Water. Domestic wastewater that has been treated at the Town of Davie Water Treatment and Water Reclamation Facility to the level required by the Florida Department of Environmental Protection for public access irrigation system and other non-potable purposes.

Reuse System. The pipelines and all appurtenances, required for the transmission and distribution of Reclaimed Water.

Service Rates or Rates. The Town's existing and future schedules of rates and charges for water reclaimed water. The schedules of Service Rates shall be of general and uniform application within the Town-wide water reuse utility systems.

Service area. The area defined in the Mandatory Reuse Zone as adopted by the Town of Davie via Ordinance #2012-____ adopted on _____ as the reclaimed water system service area.

Town. The Town of Davie, a municipal corporation duly organized and validly existing under the laws of the State of Florida.

Town Administrator. The chief executive office of the Town or such chief executive officer's designee.

Town System. The Town System shall include all: (i) wastewater treatment plants (wherever located) and all wastewater collection lines and lift/pump stations and all other wastewater system improvements to the extent such collection lines, lift/pump stations and improvements are located outside the limits of the Property; and (ii) water reclamation plant and facilities necessary to provide reclaimed water capacity and service to the Property and all distribution lines necessary to provide treated effluent to the boundary of the Property.

Utility. The Town of Davie Utilities Department.

SECTION 2. AGREEMENT OF TOWN.

(a) The Town agrees to provide reclaimed water ("reclaimed water") to the Owner's Property, its successors and assigns, in accordance with terms and conditions as set forth below.

(b) Town shall be responsible for the design, permitting, non-ad valorem construction funding and operation and maintenance of all infrastructure constituting the Town's Reuse System. The Town System improvements to be provided by Town are to be constructed and operational in a timely manner consistent with this Agreement. The Town agrees that in order to provide service to the Owner in accordance with this Agreement, Town will undertake, in a timely manner, the design, permitting and construction necessary to expand its water reuse capacity, treatment or other facilities constituting part of Town System, subject only to obtaining necessary final governmental permits and approvals pertaining thereto.

(c) Town and Owner acknowledge that the reuse service of treated wastewater to water quality standards for reclaimed water for slow rate public access and other industrial users as established in Chapter 62-610, F.A.C. and other applicable laws, rules and regulations in effect from time to time, constitutes an alternative water supply system for the Property and will be provided to the Property by Town as reclaimed water becomes available. Until such time as reclaimed water is available to the Property, irrigation water supply may be provided from potable water and/or stormwater pond sources available to the Property. The parties shall act in good faith to reach a mutually acceptable agreement on these issues, so as to provide both parties the benefits of this Agreement. Upon the Owner's connection to the Town's Reuse System, Owner agrees to allow the South Florida Water Management District (SFWMD) to reassign its water allocation identified in the Consumptive Use Permit (CUP) to the Town of Davie. However, in the event the SFWMD requires an owner to maintain its CUP due to operational requirements, their authority shall govern said reassignment.

SECTION 3. AGREEMENT TO PROVIDE SERVICE.

(a) Upon the Owner completing construction of the On-Site Reuse System Improvements; and upon satisfactory inspections of these constructed improvements by the Town and issuance by the Town of a final letter of acceptance of the improvements, Town agrees to connect the On-Site Distribution System installed by Owner to the Town System and to provide Utility Service in accordance with the terms of this Agreement. Said system shall be operated and constructed consistent with Ord. 2012-_____, as may be amended from time to time. Such connections shall at all times be in accordance with rules, regulations and orders of all applicable governmental authorities including, but not limited to, FDEP, SFWMD, and Town. Town agrees that once Owner has connected to Town's System, Town will continuously, consistent with the provisions of this Agreement, provide water reuse service to the Property, subject to continued compliance by Owner with all applicable Town requirements for such service.

(b) The Town reserves the right to enter private property to make inspections of the initial installation and operation of irrigation systems and other reclaimed water facilities and to make periodic inspections thereafter to verify that the systems are being properly maintained and operated in strict accordance with this chapter.

(c) Unless otherwise provided by law, the Town may discontinue service to any customer due to a violation of these policies and regulations, non-payment of bills, failure to

properly maintain the Owner's system, or tampering with any service or cross-connection with a potable water source. The Town shall discontinue service until the condition has been corrected, all costs due the Town are paid and adequate guarantees have been provided that the violation will not re-occur. Costs to be paid include delinquent billings, connections charges, equipment costs and payment for any damage caused to the system.

(d) Service not guaranteed. The source of the reclaimed water is the Town of Davie Water Reclamation Facility which can produce a finite quantity of reclaimed water. While the demand for reclaimed water will be monitored, the Town does not guarantee delivery of service. The Town reserves the right to temporarily discontinue service to any portion of, or the entire reclaimed water system, as deemed necessary by the Utilities Department.

(e) Town agrees to provide Owner with up to a maximum ____ MGD of reclaimed water subject to overall availability within the Reuse System.

SECTION 4. AGREEMENT TO ACCEPT.

(a) Owners, for themselves, their heirs, executors, administrators, or successors hereby covenant and agree to accept said reclaimed water service in accordance to the terms, provisions and conditions set forth herein.

(b) Owners agree to guarantee to the Town the consumption of ____ million gallons per year of reclaimed water and compensate the Town for such amount.

SECTION 5. OWNER'S AGREEMENT TO CONSTRUCT AND MAINTAIN.

(a) As a condition to the Town's provision of Utility Service to the Property, Owner shall be responsible for the design, permitting, construction and funding for all portions of the On-Site System. The design, permitting, and construction of the On-Site System may be phased at the Owner's discretion consistent with the any development phasing. On-site improvement costs may be negotiated subject to incorporation into this Agreement.

(b) The Owner shall be responsible for the maintenance of all on-site distribution system, including irrigation lines and appurtenances, on the property. The Town reserves the right to disconnect the service to any property that does not adequately maintain the private portion of the system.

SECTION 6. SERVICE RATES.

The rates to be charged by Town to Owner or to a consumer or occupant for water reuse service on the Property shall be .86 cents per thousand gallons as approved by Town Council via Resolution 2012-____ adopted on _____. Those rates shall be charged by Town to its other consumers pursuant to service rates from time to time in effect without surcharge or additional assessment. Rates subject to the terms of this Agreement may be negotiated and accepted subject to Exhibit "B" attached and incorporated herein. The service to the Property shall be subject to such other regulations which from time to time may be imposed by or upon Town with

respect to the operations of its water reuse systems; and except as may be limited by such regulations, the amounts of utility deposits, billing practices and times, liability for damages to Town's property and rate changes shall be exclusively within the discretion and control of Town, subject to the terms of this Agreement.

SECTION 7. SYSTEM PRESSURE.

The Town agrees to provide reclaimed water at pressures between 40 and 65 psi. Should the Owner require reclaimed water at different pressures or different quality, or in any way different from that normally supplied by the Town, the Owner shall be responsible for the necessary devices to make these adjustments subject to approval by the Utilities Department.

SECTION 8. TERM OF AGREEMENT.

(a) This Agreement shall be valid for ten (10) years from the effective date of said Agreement. This Agreement shall be renewed, upon approval by the Town, for an additional ten (10) years for a maximum renewal time period of 40 years.

(b) If for any reason the Town of Davie is required by a regulatory agency to modify or restructure its reuse program, this Agreement shall be modified to be consistent with such requirement. Nothing precludes the Town or Owner to seek modifications to this Agreement as may be necessary from time to time.

SECTION 9. NOTICES.

(a) Any payment or notice required or permitted hereunder shall be in writing and be deemed properly made (a) when hand delivered to the official hereinafter designated, or (b) upon receipt of such notice when deposited in the United States mail, postage prepaid, certified mail, return receipt requested, or (c) upon receipt of such notice when deposited with Federal Express or other nationally recognized overnight or next day courier, addressed as set forth herein, or at such other address as shall have been specified by written notice to the other party delivered in accordance herewith:

TOWN:

Town Administrator
Town of Davie
6591 Orange Drive
Davie, FL 33314

Utilities Director
Town of Davie Utilities Department
6591 Orange Drive
Davie, FL 33314

OWNER:

WITH A COPY TO:

(b) Each party shall, by written notice, notify the other of any change in address to which subsequent notices or other communication shall be sent.

SECTION 10. BINDING AGREEMENT.

Both parties agree that this Agreement shall be binding on them, their heirs, executors, administrators or successors in title to the Owner's property. However, any other assignment or transfer of Owner's rights and obligations under this Agreement is hereby prohibited.

SECTION 11. CONSTRUCTION.

Words importing the singular number shall include the plural in each case and vice versa, and words importing persons shall include firms and corporations. The terms 'herein,' 'hereunder,' 'hereby,' 'hereto,' 'hereof,' and any similar terms shall refer to this Agreement; the term 'heretofore' shall mean before the date this Agreement is executed; and the term 'hereafter' shall mean after the date this Agreement is executed.

SECTION 12. SECTION HEADINGS.

Any headings preceding the texts of the several Articles and Sections of this Agreement and any table of contents or marginal notes appended to copies hereof shall be solely for the convenience of reference and shall neither constitute a part of this Agreement or affect its means, construction or effect

SECTION 13. REMEDIES; COSTS AND ATTORNEY'S FEES; TERMINATION.

The parties shall be entitled to all remedies available at law or in equity for breach of this Agreement except monetary damages. Each party shall provide thirty (30) days prior written notice of any default to the other, except as to defaults requiring emergency relief to avoid material harm to persons or property. In the event Town or Owner brings an action to enforce this Agreement by court proceeding or otherwise, then the prevailing party shall be entitled to recover from the other party all costs incurred, together with reasonable attorneys' fees at all levels, including appeals. Should any governmental authority finally deny applicable permit(s) in accordance with applicable regulations, after diligent efforts by Town to obtain such permits, Owner may terminate this Agreement.

SECTION 14. INTERPRETATION.

Owner and Town agree that all words, terms and conditions contained herein are to be read in concert, each with the other, and that a provision contained under one heading may be considered to be equally applicable under another in the interpretation of this Agreement. This Agreement shall not be construed more strictly against either party on the basis of being the drafter thereof, and both parties have contributed to the drafting of this Agreement.

SECTION 15. ASSIGNMENT.

The allocation of reclaimed water capacity granted to Owner, Town commitments, and any other rights provided for under this Agreement may be assigned or transferred in whole or in part in connection with a bona fide sale of the Property or a portion thereof to which the allocation of water, wastewater and reuse service capacity relates, but may not be otherwise sold or conveyed. Owner shall notify Town in writing of such an assignment and the assignee shall pay Town's reasonable administrative costs incurred in connection with such assignment and the assignee shall assume all of the duties and obligations of Owner under this Agreement as to such portion of this Agreement assigned and Owner shall be released as to any obligations assigned. Town shall have the right to assign or transfer this Agreement or the rights and responsibilities contained herein to any properly authorized commission, authority, corporation, or other public or private person, firm or entity which succeeds to the utility operations of Town and which assumes the obligations of Town hereunder, without the consent of the Owner.

SECTION 16. STRICT COMPLIANCE.

Failure to insist upon strict compliance of any of the terms, covenants, or conditions in this Agreement shall not be deemed a waiver thereof, nor shall any waiver of any right hereunder at any one time be deemed a waiver of such right at any other time.

SECTION 22. FORCE MAJEURE.

Town's and Owners's obligations hereunder shall be subject to the concept of force majeure. Accordingly, in the event of Acts of God, riot, weather disturbances, war, terrorism, civil disobedience, geologic subsidence, electrical failure, malfunctions, and events of a similar nature, Town or Owner shall be excused from their respective obligations until the cause or causes thereof have been remedied. Notwithstanding the foregoing, in addition to other remedies available to Owner, Owner shall have the right to terminate this Agreement in the event that Town at anytime shall fail to obtain the necessary permits and approvals to supply the reclaimed water and service in a timely manner. In the event of any such termination of this Agreement, Owner shall have no further obligations hereunder.

SECTION 23. EFFECTIVE DATE. This Agreement shall be effective upon proper execution by both parties hereto.

IN WITNESS WHEREOF, the parties to this Agreement have caused the same to be signed by their duly authorized representatives this ____ day of _____ 2012.

OWNER

_____
Witness

_____
Witness

by: _____
Printed Name: _____
Title: _____

STATE OF FLORIDA

COUNTY OF _____

Sworn to (or affirmed) and subscribed before me this _____ day of _____ 2012, by _____, who is personally known to me or produced identification.

Type of Identification_____. Witness my hand and official seal in the County and State last aforesaid this _____ day of _____ 2012.

_____

Notary Public

SECTION 17. ENTIRE AGREEMENT AND INCORPORATION BY REFERENCE.

This Agreement, as supplemented by any supplemental service agreement, shall constitute the entire agreement of the parties and expressly supersedes all negotiations, previous agreements or representations whether verbal or written, and may not be amended in any way whatsoever except by a writing executed by both parties hereto in a manner equal in dignity to the execution of this Agreement; provided, however, that documents for the implementation of this Agreement, including all permits, engineering design and construction contracts, plans and specifications for the utility facilities as and when approved and filed with the Town are incorporated herein by reference.

SECTION 18. BINDING EFFECT.

This Agreement shall inure to the benefit of and be binding upon the specific assigns of the parties hereto. The terms Owner, Owner, Consumer and Customer are used interchangeably. The parties acknowledge that this Agreement creates no liability or obligation on the part of Owner or its successors or assigns, except to the extent they shall request water, wastewater or reuse service to the Property or any portion thereof.

SECTION 19. LIABILITY.

Owner and successors and assigns hereby release Town, the Town Council, its employees and agents from any all claims, damages, causes of actions or other liabilities that arise out of or in relation to the denial by any governmental authority other than the Town of applicable permits to provide reclaimed water service to the Property. Nothing herein shall be deemed in any way to constitute a waiver of sovereign immunity by Town.

SECTION 20. FURTHER AGREEMENTS.

The parties further agree to the following:

(a) In the event of any lawsuit, venue shall be in Broward County, Florida.

(b) This Agreement is intended to benefit only the parties who sign it and their authorized assigns and does not create any right for other persons or entities.

(c) This Agreement is binding on both parties and each has the power and authority to bind themselves by signing below.

SECTION 21. GOVERNING LAW.

This Agreement shall be governed by the laws of the State of Florida and the Ordinances, Resolutions and policies of Town not prohibited thereby.

TOWN OF DAVIE

_____
Witness

_____
Mayor

_____
Witness

_____
Town Administrator

Attested by:

_____
Town Clerk

EXHIBIT "A"

Property

EXHIBIT "B"

Town of Davie

Reclaimed Water Agreement

File No. 12-_____

Fee Schedule

Project #
Date:
Folio Number:

Owner's name:

Owner's Address:

Project Name:

Project Address:

Intended Use:

Committed Flow:

Minimum Consumption per month:

Maximum Consumption per month:

Basis of Calculation:

CHARGES.

_____ per 1,000 gallons up to _____

_____ per 1,000 gallons up to _____

SCHEDULE.

TOWN OF DAVIE
TOWN COUNCIL AGENDA REPORT

TO: Mayor and Councilmembers

FROM/PHONE: Bruce Taylor/954.327.3741

PREPARED BY: Heidi G. Klemm-Phillip

SUBJECT: Resolution

AFFECTED DISTRICT: Townwide

ITEM REQUEST: **Schedule for Council Meeting**

TITLE OF AGENDA ITEM: AGREEMENT - A RESOLUTION OF THE TOWN OF DAVIE, FLORIDA, APPROVING A STANDARD RECLAIMED WATER AGREEMENT; PROVIDING AUTHORITY FOR THE TOWN ADMINISTRATOR OR HIS DESIGNEE TO ENTER INTO SUCH AGREEMENT CONSISTENT WITH THE REQUIREMENTS APPROVED IN THE TOWN OF DAVIE CODE OF ORDINANCES.

EXECUTIVE SUMMARY: As part of the Town's water reclamation facility, there are permit requirements to provide reuse water. The Town's consultants have identified a series of bulk users who are able to benefit from the reuse water. In order to allow the Town Administrator or his designee to enter into negotiations, a model Bulk User Agreement is attached for approval. The Bulk User Agreement outlines all terms and requirements consistent with the Code of Ordinances and allows for individual negotiations for price and other items depending upon individual circumstances.

KEY POINTS:

- **The Bulk User Agreement outlines all terms and requirements consistent with the Code of Ordinances.**
- **The Agreement allows for individual negotiations for price and other items depending upon individual circumstance.**

PREVIOUS ACTIONS: None

CONCURRENCES: Utilities Director, Calvin, Giordano & Associates, Inc. and the Town Attorney have reviewed and approved

FISCAL IMPACT: No

Has request been budgeted? No

RECOMMENDATION(S): Motion to approve resolution

Attachment(s): Resolution, Bulk User Agreement, Town of Davie Reclaimed Water Distribution System Report (report is too large to attach; CD provided for review in Town Clerk's office)

TOWN OF DAVIE
TOWN COUNCIL AGENDA REPORT

Item Number: 37.

To: Mayor and Councilmembers

From: John C. Rayson, Town Attorney & Allan T. Weinthal, Esq.

Prepared By: John C. Rayson, Town Attorney & Allan T. Weinthal, Esq. - Town Attorney

Subject: Resolution

Affected District: Town Wide

Item Request: Schedule for Council Meeting

Title of Agenda Item: **AGREEMENT AMENDMENT** - A RESOLUTION OF THE TOWN OF DAVIE, FLORIDA, APPROVING THE FIRST AMENDMENT TO THE RECLAIMED WATER AGREEMENT BETWEEN THE TOWN OF DAVIE AND NOVA SOUTHEASTERN UNIVERSITY, INC., AND NSU GRANDE OAKS, LLC., AND AUTHORIZING THE MAYOR TO EXECUTE THE FIRST AMENDMENT; PROVIDING FOR SEVERABILITY; PROVIDING FOR CONFLICT; AND PROVIDING FOR AN EFFECTIVE DATE

Executive Summary: On February 21, 2014 the Town of Davie entered into a reclaimed water agreement with Nova Southeastern University Inc., and NSU Grande Oaks, LLC. Certain conditions between the parties has changed since 2014; Nova Southeastern University, Inc. has a greater need for reclaimed water while NSU Grande Oaks, LLC., has the ability to hydrate its golf course with surface water. The Town of Davie will continue to provide up to nine hundred and forty thousand (940,000) gallons per day calculated on an annual daily average to Nova Southeastern University. NSU Grande Oaks will not accept or purchase reclaimed water from the Town unless we enter into a new and separate agreement.

The Town agrees to not object to NSU Grande Oaks using surface water from ponds to hydrate its golf course. Nova Southeastern University, Inc. and NSU Grande Oaks agree to pay the Town $1,453.34 per month for NSU Grande Oaks LLC's prorated reclaimed water allocations, until NSU Grande Oaks former capacity has been met.

The irrigation schedule shall be determined by Nova Southeastern University and NSU Grande Oaks.

This first amendment creates a additional financial benefit of $.06 per thousand gallons for the Town, plus CPI.

Key Points:

- On February 21, 2014 the Town of Davie entered into a reclaimed water agreement with Nova Southeastern University Inc., and NSU Grande Oaks, LLC.
- Certain conditions between the parties has changed since 2014; Nova Southeastern University, Inc. has a greater need for reclaimed water while NSU Grande Oaks, LLC., has the ability to hydrate its golf course with surface water.
- The Town of Davie will continue to provide up to nine hundred and forty thousand (940,000) gallons per day calculated on an annual daily average to Nova Southeastern University.
- NSU Grande Oaks will not accept or purchase reclaimed water from the Town unless we enter into a new and separate agreement.
- The Town agrees to not object to NSU Grande Oaks using surface water from ponds to hydrate its golf course.
- Nova Southeastern University, Inc. and NSU Grande Oaks agree to pay the Town $1,453.34 per month for NSU Grande Oaks LLC's prorated reclaimed water allocations, until NSU Grande Oaks former capacity has been met.
- The irrigation schedule shall be determined by Nova Southeastern University and NSU Grande Oaks.
- This first amendment creates a additional financial benefit of $.06 per thousand gallons for the Town, plus CPI.

Previous Actions: Original reclaimed water agreement dated February 21, 2014

Concurrences:

Fiscal Impact:

Has request been budgeted? N/A

If yes expected cost:

Account name and number:

If no, amount needed:

Account name funds will be appropriated from

Additional Comments There will be an increase to future revenue but that amount is undeterminable at this time.

Recommendation: Motion to approve

Strategic Goals This Item Supports:

ATTACHMENTS:

File Name	Description
NSU_Reclaimed_water_first_amendment.pdf	Resolution NSU reclaimed water
First_amendment_to_NSU_reclaimed_water_agreement.pdf	First Amendment
RECLAIMED_WATER_AGREEMENT_-_NSU.pdf	Reclaimed water Agreement 2014
R-2012-165_-_Standard_Reclaimed_Water_Agreement.pdf	Standard reclaimed water agreement

Appendix N GRANT AUTHORIZATION BY BROWARD COUNTY IWRP

BROWARD COUNTY FLORIDA

INTERLOCAL AGREEMENT BETWEEN BROWARD COUNTY AND TOWN OF DAVIE FOR DESIGN OF THE TOWN OF DAVIE PINE ISLAND- BAMFORD SPORTS COMPLEX RECLAIMED WATER PROJECT

This Agreement ("Agreement") is made and entered by and between Broward County, a political subdivision of the State of Florida ("County"), and Town of Davie, a municipal corporation ("Town")(each a "Party" and collectively referred to as the "Parties").

RECITALS

A. The Broward County-wide Integrated Water Resource Plan ("IWRP") was developed in partnership with municipal leaders, water managers, utility directors, and other stakeholder groups representing a broad cross-section of Broward County's water resource and water supply interests. Goals of the IWRP are to optimize the beneficial uses of local water resources through more efficient management of the County's secondary canal system; to provide a strategy for effective participation in water management on a regional level; to diversify water supplies as a drought management strategy and to meet long-term urban water needs. The Broward County IWRP Grants have been offered to drainage districts, water control districts, utilities, and municipal partners, since 2006, as cost-share funding to support the implementation of the IWRP.

B. In February 2019, partners were offered an opportunity to pursue Broward County funding to finance feasibility analysis and preliminary design of projects, or reclaimed water construction projects that serve the goals of the IWRP. Seven (7) grant applications were received and reviewed by the Technical Advisory Committee to the Water Advisory Board, later endorsed by the Water Advisory Board, and recommended to the Broward County Board of County Commissioners for funding. All seven (7) applications were offered cost-share funding as they are anticipated to provide regional benefits and support of efficient water resource management and alternative water supply development. This Agreement describes one (1) of the recommended reclaimed water feasibility and design projects to be conducted by the Town of Davie.

Now, therefore, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

ARTICLE 1. DEFINITIONS

1.1. **Board** means the Board of County Commissioners of Broward County, Florida.

1.2. **Contract Administrator** means the Director of the Environmental Planning and Community Resilience Division, or such other person designated by the Director in writing.

1.3. **County Business Enterprise** or **CBE** means an entity certified as meeting the applicable requirements of Section 1-81, Broward County Code of Ordinances.

1.4. **Notice to Proceed** means a written authorization to proceed with the project, phase, or task, issued by the Contract Administrator.

1.5. **Purchasing Director** means County's Director of Purchasing as appointed by the Broward County Administrator.

1.6. **Services** means all work required by Town under this Agreement, including without limitation all deliverables, consulting, training, project management, or other services specified in Exhibit A ("Scope of Services"), and any Optional Services procured under this Agreement.

1.7. **Subcontractor** means an entity or individual providing services to County through Town for all or any portion of the work under this Agreement. The term "Subcontractor" shall include all subconsultants.

ARTICLE 2. EXHIBITS

2.1 The following exhibits are attached hereto and incorporated into this Agreement:

Exhibit A **Scope of Services**
Exhibit B **Payment Schedule**

ARTICLE 3. SCOPE OF SERVICES

3.1. Scope of Services. Town shall perform all work identified in this Agreement including, without limitation, the work specified in Exhibit A (the "Scope of Services"). The Scope of Services is a description of Town's obligations and responsibilities and is deemed to include preliminary considerations and prerequisites, and all labor, materials, equipment, and tasks that are such an inseparable part of the work described that exclusion would render performance by Town impractical, illogical, or unconscionable. Town shall meet all applicable federal, state, and local laws, ordinances, codes, rules and regulations in performing the Services.

3.2. Modifications to Scope of Services. Town acknowledges that the Contract Administrator has no authority to make changes that would increase, decrease, or otherwise modify the Scope of Services to be provided under this Agreement, except as expressly set forth in this Agreement.

ARTICLE 4. TERM AND TIME OF PERFORMANCE

4.1. Term. The term of this Agreement shall begin on the date it is fully executed by the Parties ("Effective Date") and shall end twelve (12) months after the effective date ("Initial Term").

4.2. Time of the Essence. Unless otherwise agreed by the Parties in writing, all duties, obligations, and responsibilities of Town required by this Agreement shall be completed no later than twelve (12) months after the effective date. Time is of the essence in performing the duties, obligations, and responsibilities required by this Agreement.

4.3. Extensions. In the event County elects to extend the term of this Agreement beyond the Initial Term, Town agrees it shall continue to provide the Services upon the same terms and conditions as set forth in this Agreement for such extended period, which shall not be more than three (3) months beyond the Initial Term. This option, if elected by County, shall be exercised by County's Purchasing Director by written notice stating the duration of the extended period, of which notice shall be provided to Town at least thirty (30) days prior to the end of the Initial Term.

4.4. Extension Terms. For any Extension Term, Town shall not be paid additional compensation, unless otherwise expressly stated in Exhibit B. Town shall continue to provide the Services upon the same terms and conditions as set forth in this Agreement for such extended period.

4.5. Fiscal Year. The continuation of this Agreement beyond the end of any County fiscal year is subject to both the appropriation and the availability of funds in accordance with Chapter 129, Florida Statutes.

ARTICLE 5. COMPENSATION

5.1. Maximum Amounts. For all goods and services provided under this Agreement, County will pay Town up to, and not to exceed, fifty percent (50%) of the total project costs of $75,000, capping at a maximum amount as follows:

Services/Goods	Not-To-Exceed Amount
County Cost Share	$37,500
TOTAL NOT TO EXCEED	$37,500

Payment shall be made only for Services actually performed and completed pursuant to this Agreement, as set forth in Exhibit B (Payment Schedule), which amount shall be accepted by Town as full compensation for all such Services. Town acknowledges that the amounts set forth in this Agreement are the maximum amounts payable and constitute a limitation upon County's obligation to compensate Town for work under this Agreement. These maximum amounts, however, do not constitute a limitation of any sort upon Town obligation to perform all Services. Unless and except to the extent expressly required in this Agreement, Town shall not be reimbursed for any expenses it incurs under this Agreement.

5.2. Method of Billing and Payment.

5.2.1. Town may submit invoices for compensation once after Services have been completed. An original invoice plus one (1) copy are due within sixty (60) days after expiration or earlier termination of this Agreement. Invoices shall designate the Services performed and, as applicable, the personnel, hours, tasks, or other details as requested by the Contract Administrator.

5.2.2. Any invoice submitted by Town shall not exceed the Broward County Funds amount set forth in Exhibit B for the applicable Services.

5.2.3. County shall pay Town within thirty (30) days of receipt of Town's proper invoice, as required under the "Broward County Prompt Payment Ordinance," Section 1-51.6, Broward County Code of Ordinances. To be deemed proper, all invoices must comply with the requirements set forth in this Agreement and must be submitted on the then-current County form and pursuant to instructions prescribed by the Contract Administrator. Payment may be withheld for failure of Town to comply with a term, condition, or requirement of this Agreement.

5.2.4. Payment shall be made to Town at the address designated in the Notices section.

5.3. Subcontractors. County's cost share funding does not obligate County to pay any amount to any Town Subcontractor, if any exist, and Town agrees that no Subcontractor costs or invoices shall be paid or invoiced to County, directly or indirectly, on the basis of this Agreement.

5.4. Withholding Payment. Notwithstanding any provision of this Agreement to the contrary, County may withhold, in whole or in part, payment to the extent necessary to protect itself from loss on account of inadequate or defective work that has not been remedied or resolved in a manner satisfactory to the Contract Administrator or failure to comply with any provision of this Agreement. The amount withheld shall not be subject to payment of interest by County.

ARTICLE 6. REPRESENTATIONS AND WARRANTIES

6.1. Representation of Authority. Town represents and warrants that this Agreement constitutes the legal, valid, binding, and enforceable obligation of Town, and that neither the execution nor performance of this Agreement constitutes a breach of any agreement that Town has with any third party or violates any law, rule, regulation, or duty arising in law or equity applicable to Town. Town further represents and warrants that execution of this Agreement is within Town's legal powers, and each individual executing this Agreement on behalf of Town is duly authorized by all necessary and appropriate action to do so on behalf of Town and does so with full legal authority.

6.2. Solicitation Representations. Town represents and warrants that all statements and representations made in Town's proposal, bid, or other supporting documents submitted to County in connection with the solicitation, negotiation, or award of this Agreement, including during the procurement or evaluation process, were true and correct when made and are true and correct as of the date Town executes this Agreement, unless otherwise expressly disclosed in writing by Town.

6.3. Contingency Fee. Town represents that it has not paid or agreed to pay any person or entity, other than a bona fide employee working solely for Town, any fee, commission, percentage, gift, or other consideration contingent upon or resulting from the award or making of this Agreement.

6.4. Truth-In-Negotiation Representation. Town's compensation under this Agreement is based upon its representations to County, and Town certifies that the wage rates, factual unit costs, and other information supplied to substantiate Town's compensation, including without limitation those made by Town during the negotiation of this Agreement, are accurate, complete, and current as of the date Town executes this Agreement. Town's compensation will be reduced to exclude any significant sums by which the contract price was increased due to inaccurate, incomplete, or noncurrent wage rates and other factual unit costs.

6.5. Public Entity Crime Act. Town represents that it is familiar with the requirements and prohibitions under the Public Entity Crime Act, Section 287.133, Florida Statutes, and represents that its entry into this Agreement will not violate that Act. Town further represents that there has been no determination that it committed a "public entity crime" as defined by Section 287.133, Florida Statutes, and that it has not been formally charged with committing an act defined as a "public entity crime" regardless of the amount of money involved or whether Town has been placed on the convicted vendor list.

6.6. Discriminatory Vendor and Scrutinized Companies Lists. Town represents that it has not been placed on the "discriminatory vendor list" as provided in Section 287.134, Florida Statutes, and that it is not a "scrutinized company" pursuant to Section 215.473, Florida Statutes. Town represents and certifies that it is not ineligible to contract with County on any of the grounds stated in Section 287.135, Florida Statutes.

6.7. Claims Against Town. Town represents and warrants that there is no action or proceeding, at law or in equity, before any court, mediator, arbitrator, governmental or other board or official, pending or, to the knowledge of Town, threatened against or affecting Town, the outcome of which may (a) affect the validity or enforceability of this Agreement, (b) materially and adversely affect the authority or ability of Town to perform its obligations under this Agreement, or (c) have a material and adverse effect on the consolidated financial condition or results of operations of Town or on the ability of Town to conduct its business as presently conducted or as proposed or contemplated to be conducted.

6.8. Warranty of Performance. Town represents and warrants that it possesses the knowledge, skill, experience, and financial capability required to perform and provide all Services and that each person and entity that will provide Services is duly qualified to perform such services by all appropriate governmental authorities, where required, and is sufficiently experienced and skilled in the area(s) for which such person or entity will render such Services. Town represents and warrants that the Services shall be performed in a skillful and respectful manner, and that the quality of all such services shall equal or exceed prevailing industry standards for the provision of such services.

6.9. Breach of Representations. In entering into this Agreement, Town acknowledges that County is materially relying on the representations, warranties, and certifications of Town stated in this article. County shall be entitled to recover any damages it incurs to the extent any such representation or warranty is untrue. In addition, if any such representation, warranty, or certification is false, County shall have the right, at its sole discretion, to terminate this

Agreement without any further liability to Town, to deduct from any amounts due Town under this Agreement the full amount of any value paid in violation of a representation or warranty, and to recover all sums paid to Town under this Agreement. Furthermore, a false representation may result in debarment from County's procurement activities.

ARTICLE 7. GOVERNMENTAL IMMUNITY AND INDEMNIFICATION

7.1 Governmental Immunity. Nothing herein is intended to serve as a waiver of sovereign immunity by any Party, nor shall anything included herein be construed as consent to be sued by third parties in any matter arising out of this Agreement. The Parties are state agencies or political subdivisions as defined in Section 768.28, Florida Statutes, and shall be fully responsible for the negligent or wrongful acts or omissions of its agents or employees to the extent permitted by law.

ARTICLE 8. LIABILITY PROTECTION

8.1. Liability Protection. The Parties are entities subject to Section 768.28, Florida Statutes. Town shall furnish the Contract Administrator with written verification of liability protection in accordance with state law prior to final execution of this Agreement.

ARTICLE 9. TERMINATION

9.1. Termination Conditions. This Agreement may be terminated for cause by the aggrieved Party if the Party in breach has not corrected the breach within ten (10) days after receipt of written notice from the aggrieved Party identifying the breach. This Agreement may also be terminated for convenience by the Board. Termination for convenience by the Board shall be effective on the termination date stated in written notice provided by County, which termination date shall be not less than thirty (30) days after the date of such written notice. This Agreement may also be terminated by the County Administrator upon such notice as the County Administrator deems appropriate under the circumstances if the County Administrator determines that termination is necessary to protect the public health, safety, or welfare. If County erroneously, improperly, or unjustifiably terminates for cause, such termination shall be deemed a termination for convenience and shall be effective thirty (30) days after such notice of termination for cause was provided and Town shall be eligible for the compensation provided in Section 9.4 as its sole remedy.

9.2. Termination for Cause. This Agreement may be terminated for cause by County for Town's repeated (whether negligent or intentional) submission for payment of false or incorrect bills or invoices, or failure to suitably or continuously perform the Services in a manner calculated to meet or accomplish the objectives in this Agreement.

9.3. Notice of Termination. Notice of termination shall be provided in accordance with the "Notices" section of this Agreement except that notice of termination by the County Administrator to protect the public health, safety, or welfare may be oral notice that shall be promptly confirmed in writing.

9.4. Payment upon Termination for Convenience. In the event this Agreement is terminated for convenience by County, Town shall be paid for any Services properly performed under this Agreement through the termination date specified in the written notice of termination, subject to any right of County to retain any sums otherwise due and payable. Town acknowledges that it has received good, valuable, and sufficient consideration for County's right to terminate this Agreement for convenience in the form of County's obligation to provide advance notice to Town of such termination in accordance with Section 9.1.

9.5. Withholding Payment. In the event this Agreement is terminated for any reason, any amounts due Town shall be withheld by County until all documents are provided to County pursuant to Section 9.1.

9.6. Remedies. In addition to any right of termination stated in this Agreement, County shall be entitled to seek any and all available remedies, whether stated in this Agreement or otherwise available at law or in equity.

ARTICLE 10. EQUAL EMPLOYMENT OPPORTUNITY

10.1. Nondiscrimination Based on Suspect Class. No Party to this Agreement may discriminate on the basis of race, color, sex, religion, national origin, disability, age, marital status, political affiliation, sexual orientation, pregnancy, or gender identity and expression in the performance of this Agreement. Town shall comply with all applicable requirements of Section 1-81, Broward County Code of Ordinances, in the award and administration of this Agreement. Failure by Town to carry out any of the requirements of this Section shall constitute a material breach of this Agreement, which shall permit County to terminate this Agreement or exercise any other remedy provided under this Agreement, Broward County Code of Ordinances, Broward County Administrative Code, or under other applicable law, all such remedies being cumulative.

10.2. County Business Entities. Although no CBE goal has been set for this Agreement, County encourages Town to give full consideration to the use of CBE firms to perform work under this Agreement.

ARTICLE 11. MISCELLANEOUS

11.1. Contract Administrator Authority. The Contract Administrator is authorized to coordinate and communicate with Town to manage and supervise the performance of this Agreement. Unless expressly stated otherwise in this Agreement or otherwise set forth in an applicable provision of the Broward County Procurement Code, Broward County Code of Ordinances, or Broward County Administrative Code, the Contract Administrator may exercise any ministerial authority in connection with the day-to-day management of this Agreement. The Contract Administrator may approve in writing minor modifications to the Scope of Services provided that such modifications do not increase the total cost to County or waive any rights of County.

11.2. Rights in Documents and Work. Any and all reports, photographs, surveys, documents, materials, or other work created by Town in connection with performing Services are and shall remain property of Town. However, Town grants to County a nonexclusive license to use the reports, photographs, surveys, and other data and documents provided or created in connection with this Agreement indefinitely, to prepare derivative works, and to make and distribute copies to the public. In the event of termination of this Agreement, any reports photographs, surveys, and other data and documents prepared by Town, whether finished or unfinished, shall remain property of the Town. Any compensation due to Town shall be withheld until all documents necessary to support Town's proper invoice are received as provided in this Agreement. Town shall ensure that the requirements of this section are included in all agreements with its Subcontractor(s).

11.3. Public Records. To the extent Town is acting on behalf of County as stated in Section 119.0701, Florida Statutes, Town shall:

11.3.1. Keep and maintain public records required by County to perform the Services under this Agreement;

11.3.2. Upon request from County, provide County with a copy of the requested records or allow the records to be inspected or copied within a reasonable time and at a cost that does not exceed that provided in Chapter 119, Florida Statutes, or as otherwise provided by law;

11.3.3. Ensure that public records that are exempt or confidential and exempt from public record requirements are not disclosed except as authorized by law for the duration of this Agreement and following completion or termination of this Agreement if the records are not transferred to County; and

11.3.4. Upon completion or termination of this Agreement, transfer to County, at no cost, all public records in possession of Town or keep and maintain public records required by County to perform the services. If Town transfers the records to County, Town shall destroy any duplicate public records that are exempt or confidential and exempt. If Town keeps and maintains the public records, Town shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to County upon request in a format that is compatible with the information technology systems of County.

The failure of either Party to comply with the provisions of this Section shall constitute a material breach of this Agreement, entitling the nonbreaching Party to exercise any remedy provided in this Agreement or under applicable law.

A request for public records regarding this Agreement must be made directly to County, who will be responsible for responding to any such public records requests. Town will provide any requested records to County to enable County to respond to the public records request.

Any material submitted to County that Town contends constitutes or contains trade secrets or is otherwise exempt from production under Florida public records laws (including Chapter 119, Florida Statutes) ("Trade Secret Materials") must be separately submitted and conspicuously labeled "EXEMPT FROM PUBLIC RECORD PRODUCTION – TRADE SECRET." In addition, Town must, simultaneous with the submission of any Trade Secret Materials, provide a sworn affidavit from a person with personal knowledge attesting that the Trade Secret Materials constitute trade secrets under Section 812.081, Florida Statutes, and stating the factual basis for same. In the event a third party submits a request to County for records designated by Town as Trade Secret Materials, County shall refrain from disclosing the Trade Secret Materials, unless otherwise ordered by a court of competent jurisdiction or authorized in writing by Town. Town shall indemnify and defend County and its employees and agents from any and all claims, causes of action, losses, fines, penalties, damages, judgments, and liabilities of any kind, including attorneys' fees, litigation expenses, and court costs, relating to the nondisclosure of any Trade Secret Materials in response to a records request by a third party.

IF TOWN HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO TOWN'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS AGREEMENT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS, NORMA ELLISON, AT (954) 519-1466, nellison@broward.org, 115 S. ANDREWS AVE., SUITE 329H, FORT LAUDERDALE, FLORIDA 33301.

11.4. Audit Rights and Retention of Records. County shall have the right to audit the books, records, and accounts of Town and its Subcontractors that are related to this Agreement. Town and Subcontractors shall keep such books, records, and accounts as may be necessary in order to record complete and correct entries related to this Agreement and performance under this Agreement. All such books, records, and accounts shall be kept in written form, or in a form capable of conversion into written form within a reasonable time, and upon request to do so, Town or its Subcontractor shall make same available in written form at no cost to County.

Town shall preserve and make available, at reasonable times within Broward County, Florida, for examination and audit, all financial records, supporting documents, statistical records, and any other documents pertinent to this Agreement for at least three (3) years after expiration or termination of this Agreement or until resolution of any audit findings, whichever is longer. Any audit or inspection pursuant to this section may be performed by any County representative (including any outside representative engaged by County). Town hereby grants County the right to conduct such audit or review at Town's place of business, if deemed appropriate by County, with seventy-two (72) hours' advance notice.

Any incomplete or incorrect entry in such books, records, and accounts shall be a basis for County's disallowance and recovery of any payment upon such entry. If an audit or inspection in accordance with this section discloses overpricing or overcharges to County of any nature by Town in excess of five percent (5%) of the total contract billings reviewed by County, the reasonable actual cost of County's audit shall be reimbursed to County by Town in addition to making adjustments for the overcharges. Any adjustments or payments due as a result of such

audit or inspection shall be made within thirty (30) days after presentation of County's findings to Town.

Town shall ensure that the requirements of this section are included in all agreements with its Subcontractor(s).

11.5. Independent Contractor. Town is an independent contractor under this Agreement and nothing in this Agreement shall constitute or create a partnership, joint venture, or any other relationship between the Parties. In providing services under this Agreement, neither Town nor its agents shall act as officers, employees, or agents of County. Town shall not have the right to bind County to any obligation not expressly undertaken by County under this Agreement.

11.6. Regulatory Capacity. Notwithstanding the fact that County is a political subdivision with certain regulatory authority, County's performance under this Agreement is as a Party to this Agreement and not in its regulatory capacity. In the event County exercises its regulatory authority, the exercise of such authority and the enforcement of any rules, regulation, laws, and ordinances shall have occurred pursuant to County's regulatory authority as a governmental body separate and apart from this Agreement, and shall not be attributable in any manner to County as a party to this Agreement.

11.7. Third-Party Beneficiaries. Neither Town nor County intends to directly or substantially benefit a third party by this Agreement. Therefore, the Parties acknowledge that there are no third-party beneficiaries to this Agreement and that no third party shall be entitled to assert a right or claim against either of them based upon this Agreement.

11.8. Notices. In order for a notice to a Party to be effective under this Agreement, notice must be sent via U.S. first-class mail, hand delivery, or commercial overnight delivery, each with a contemporaneous copy via email, to the addresses listed below and shall be effective upon mailing or hand delivery (provided the contemporaneous email is also sent). The addresses for notice shall remain as set forth in this section unless and until changed by providing notice of such change in accordance with the provisions of this section.

FOR COUNTY:
Broward County Environmental Planning and Community Resilience Division
Attn: Dr. Jennifer Jurado, Director
115 South Andrews Avenue, Room 329H
Fort Lauderdale, Florida 33301
Email address: jjurado@broward.org

FOR TOWN:
Town of Davie Utilities Department
7351 SW 30 Street
Davie, FL, 33314
(954) 327-3742
Email: Renuka_Mohammed@Davie-fl.gov

11.9. Assignment. Except for subcontracting approved in writing by County at the time of the execution of this Agreement or any written amendment hereto, neither this Agreement nor any right or interest in it may be assigned, transferred, subcontracted, or encumbered by Town without the prior written consent of County. If Town violates this provision, County shall have the right to immediately terminate this Agreement. Town represents that each person and entity that will provide services under this Agreement is duly qualified to perform such services by all appropriate governmental authorities, where required, and is sufficiently experienced and skilled in the area(s) for which such person or entity will render services. Town agrees that all services under this Agreement shall be performed in a skillful and respectful manner, and that the quality of all such services shall equal or exceed prevailing industry standards for the provision of such services.

11.10. Conflicts. Neither Town nor its employees shall have or hold any continuing or frequently recurring employment or contractual relationship that is substantially antagonistic or incompatible with Town's loyal and conscientious exercise of judgment and care related to its performance under this Agreement. During the term of this Agreement, none of Town's officers or employees shall serve as an expert witness against County in any legal or administrative proceeding in which he, she, or Town is not a party, unless compelled by court process. Further, such persons shall not give sworn testimony or issue a report or writing as an expression of his or her expert opinion that is adverse or prejudicial to the interests of County in connection with any such pending or threatened legal or administrative proceeding unless compelled by court process. The limitations of this section shall not preclude Town or any persons in any way from representing themselves, including giving expert testimony in support of such representation, in any action or in any administrative or legal proceeding.

11.11. Materiality and Waiver of Breach. Each requirement, duty, and obligation set forth in this Agreement was bargained for at arm's-length and is agreed to by the Parties. Each requirement, duty, and obligation set forth in this Agreement is substantial and important to the formation of this Agreement, and each is, therefore, a material term of this Agreement. County's failure to enforce any provision of this Agreement shall not be deemed a waiver of such provision or

modification of this Agreement. A waiver of any breach of a provision of this Agreement shall not be deemed a waiver of any subsequent breach and shall not be construed to be a modification of the terms of this Agreement. To be effective, any waiver must be in writing signed by an authorized signatory of the Party granting the waiver.

11.12. Compliance with Laws. Town, and the Services they provide, must comply with all applicable federal, state, and local laws, codes, ordinances, rules, and regulations including, without limitation, American with Disabilities Act, 42 U.S.C. § 12101, Section 504 of the Rehabilitation Act of 1973, and any related federal, state, or local laws, rules, and regulations.

11.13. Severability. In the event any part of this Agreement is found to be unenforceable by any court of competent jurisdiction, that part shall be deemed severed from this Agreement and the balance of this Agreement shall remain in full force and effect.

11.14. Joint Preparation. This Agreement has been jointly prepared by the Parties, and shall not be construed more strictly against either Party.

11.15. Interpretation. The titles and headings contained in this Agreement are for reference purposes only and shall not in any way affect the meaning or interpretation of this Agreement. All personal pronouns used in this Agreement shall include the other gender, and the singular shall include the plural, and vice versa, unless the context otherwise requires. Terms such as "herein," "hereof," "hereunder," and "hereinafter" refer to this Agreement as a whole, and not to any particular sentence, paragraph, or section where they appear, unless the context otherwise requires. Whenever reference is made to a section or article of this Agreement, such reference is to the section or article as a whole, including all of the subsections of such section, unless the reference is made to a particular subsection or subparagraph of such section or article. Any reference to "days" means calendar days, unless otherwise expressly stated.

11.16. Priority of Provisions. If there is a conflict or inconsistency between any term, statement, requirement, or provision of any document or exhibit attached to, referenced by, or incorporated in this Agreement and any provision of Articles 1 through 11 of this Agreement, the provisions contained in Articles 1 through 11 shall prevail and be given effect.

11.17. Law, Jurisdiction, Venue, Waiver of Jury Trial. This Agreement shall be interpreted and construed in accordance with and governed by the laws of the State of Florida. The exclusive venue for any lawsuit arising from, related to, or in connection with this Agreement shall be in the state courts of the Seventeenth Judicial Circuit in and for Broward County, Florida. If any claim arising from, related to, or in connection with this Agreement must be litigated in federal court, the exclusive venue for any such lawsuit shall be in the United States District Court or United States Bankruptcy Court for the Southern District of Florida. **BY ENTERING INTO THIS AGREEMENT, TOWN AND COUNTY HEREBY EXPRESSLY WAIVE ANY RIGHTS EITHER PARTY MAY HAVE TO A TRIAL BY JURY OF ANY CIVIL LITIGATION RELATED TO THIS AGREEMENT. IF A PARTY FAILS TO WITHDRAW A REQUEST FOR A JURY TRIAL IN A LAWSUIT ARISING OUT OF THIS AGREEMENT AFTER WRITTEN NOTICE BY THE OTHER PARTY OF VIOLATION OF THIS SECTION, THE PARTY MAKING THE REQUEST FOR JURY TRIAL SHALL BE LIABLE FOR THE REASONABLE**

ATTORNEYS' FEES AND COSTS OF THE OTHER PARTY IN CONTESTING THE REQUEST FOR JURY TRIAL, AND SUCH AMOUNTS SHALL BE AWARDED BY THE COURT IN ADJUDICATING THE MOTION.

11.18. Amendments. No modification, amendment, or alteration in the terms or conditions contained in this Agreement shall be effective unless contained in a written document prepared with the same or similar formality as this Agreement and executed by duly authorized representatives of County and Town.

11.19. Prior Agreements. This Agreement represents the final and complete understanding of the Parties regarding the subject matter and supersedes all prior and contemporaneous negotiations and discussions regarding that subject matter. There is no commitment, agreement, or understanding concerning the subject matter of this Agreement that is not contained in this written document.

11.20. Payable Interest.

11.20.1. Payment of Interest. County shall not be liable to pay any interest to Town for any reason, whether as prejudgment interest or for any other purpose, and in furtherance thereof Town waives, rejects, disclaims, and surrenders any and all entitlement it has or may have to receive interest in connection with a dispute or claim arising from, related to, or in connection with this Agreement. This subsection shall not apply to any claim for interest, including for post-judgment interest, if such application would be contrary to applicable law.

11.20.2. Rate of Interest. If the preceding subsection is inapplicable or is determined to be invalid or unenforceable by a court of competent jurisdiction, the annual rate of interest payable by County under this Agreement, whether as prejudgment interest or for any other purpose, shall be, to the full extent permissible under applicable law, one quarter of one percent (0.25%) simple interest (uncompounded).

11.21. Incorporation by Reference. Any and all Recital clauses stated above are true and correct and are incorporated in this Agreement by reference. The attached Exhibits are incorporated into and made a part of this Agreement.

11.22. Representation of Authority. Each individual executing this Agreement on behalf of a party hereto hereby represents and warrants that he or she is, on the date he or she signs this Agreement, duly authorized by all necessary and appropriate action to execute this Agreement on behalf of such party and does so with full legal authority.

11.23. Counterparts and Multiple Originals. This Agreement may be executed in multiple originals, and may be executed in counterparts, each of which shall be deemed to be an original, but all of which, taken together, shall constitute one and the same agreement.

11.24. Use of County Logo. Town shall not use County's name, logo, or otherwise refer to this Agreement in any marketing or publicity materials without the prior written consent of County.

11.25. Force Majeure. If the performance of this Agreement, or any obligation hereunder is prevented by reason of hurricane, earthquake, or other casualty caused by nature, or by labor strike, war, or by a law, order, proclamation, regulation, ordinance of any governmental agency, the party so affected, upon giving prompt notice to the other party, shall be excused from such performance to the extent of such prevention, provided that the party so affected shall first have taken reasonable steps to avoid and remove such cause of non-performance and shall continue to take reasonable steps to avoid and remove such cause, and shall promptly notify the other party in writing and resume performance hereunder whenever such causes are removed; provided, however, that if such non-performance exceeds sixty (60) days, the party that is not prevented from performance by the force majeure event shall have the right to terminate this Agreement upon written notice to the party so affected. This section shall not supersede or prevent the exercise of any right the Parties may otherwise have to terminate this Agreement.

11.26. Financial Statements and Management Letters. Town shall provide a copy of Town's audited financial statements and any applicable management letter(s) as well as Town's response to any management letter(s). The audit of the financial statements shall be prepared by an independent certified public accountant in accordance with generally accepted accounting principles for the fiscal year County funds are received and for each subsequent fiscal year until such time as all of County funds are expended.

Town shall provide to Contract Administrator copies of a special report showing all revenues, by source, and all expenditures as set forth in the Scope of Services for the program being funded by this Agreement. The report shall specifically disclose any funds received which were not expended in accordance with this Agreement or with any regulations incorporated by reference therein. It shall identify the total of noncompliant expenditures as due back to County. If the special report is prepared by an independent certified public accountant, it shall be in accordance with generally accepted auditing standards. If the special report is prepared by an internal auditor, it shall be as nearly in accordance with generally accepted auditing standards as the status of the internal auditor permits, realizing that the internal auditor may not issue the opinions required therein. The special report is to be filed with Town's governing body.

Town shall submit the documents required by this section to Contract Administrator within one hundred twenty (120) days after the close of Town's fiscal years in which Town receives funds under this Agreement, unless otherwise approved by the Contract Administrator in writing.

(The remainder of this page is intentionally left blank.)

IN WITNESS WHEREOF, the Parties hereto have made and executed this Agreement: BROWARD COUNTY, through its BOARD OF COUNTY COMMISSIONERS, signing by and through its Purchasing Director authorized to execute same by Section 21.14.c.6 of the Broward County Administrative Code, and Town, signing by and through its Mayor duly authorized to execute same.

COUNTY

ATTEST:

Broward County Administrator, as
ex officio Clerk of the Broward County
Board of County Commissioners

BROWARD COUNTY, by and through
its Board of County Commissioners

By: _____
MAYOR

20 day of June, 2020

Approved as to form by
Andrew J. Meyers
Broward County Attorney
Governmental Center, Suite 423
115 South Andrews Avenue
Fort Lauderdale, Florida 33301
Telephone: (954) 357-7600
Telecopier: (954) 357-7641

By: _____ 6/11/2020
Michael C. Owens (Date)
Senior Assistant County Attorney

By: _____ 6/12/2020
Maite Azcoitia (Date)
Deputy County Attorney

MCO/gmb
IWPR Davie Reclaimed Water Project.doc
04/09/2020
#60057

INTERLOCAL AGREEMENT BETWEEN BROWARD COUNTY AND TOWN OF DAVIE FOR DESIGN OF THE TOWN OF DAVIE PINE ISLAND - BAMFORD SPORTS COMPLEX RECLAIMED WATER PROJECT

WITNESSES:

Signature

Gillian Brewster
Print Name of Witness above

Signature

Armani Beaumont
Print Name of Witness above

TOWN OF DAVIE

By: _____
Authorized Signor

Judy Paul, Mayor
Print Name and Title

6th day of May, 2020

ATTEST:

_____
Person authorized to attest

EXHIBIT A

Scope of Services

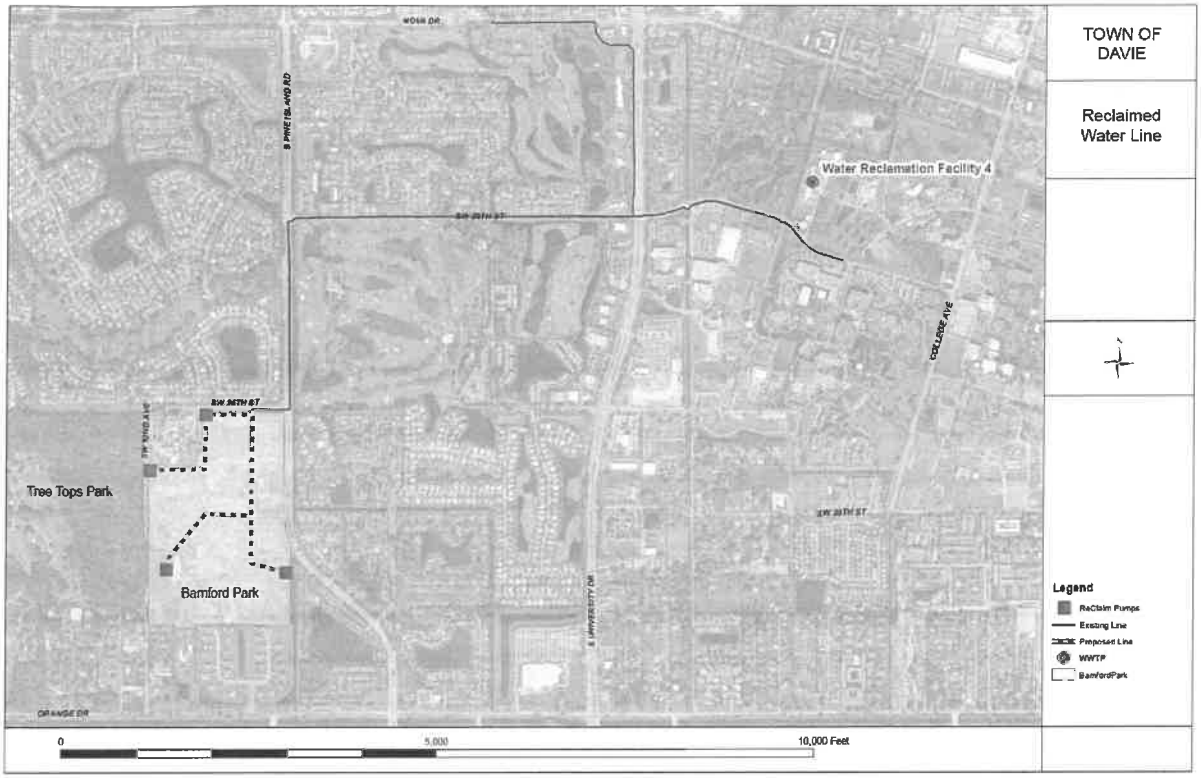
INTERLOCAL AGREEMENT BETWEEN BROWARD COUNTY AND TOWN OF DAVIE FOR DESIGN OF THE TOWN OF DAVIE PINE ISLAND - BAMFORD SPORTS COMPLEX RECLAIMED WATER PROJECT

PROJECT DESCRIPTION

The Town of Davie is implementing a multi phased reclaimed water project with the goal of eliminating the use of canal water to irrigate approximately one hundred thirty-eight (138) acres of the Pine Island Park and Bamford Sports Complex. The first phase of this project will consist of installing approximately eight thousand (8,000) linear feet of 4-inch reclaimed water pipe, along with supporting infrastructure, to offset the use of canal water at the Pine Island Park and Bamford Sports Complex. When implemented, the project will eliminate the need for canal water and replace its use with approximately 0.2 Million Gallons per day (mgd) of reclaimed water or seventy-three (73) Million Gallons annually.

The tentative second phase is under consideration, for the ability to supply reclaimed water to Broward County Tree Tops Park, which lies on the western boundary of Pine Island Park and Bamford Sports Complex. If pursued, the second phase may consist of extending the 12-inch reclaimed water transmission line along SW 36 St to the west, then south along SW 92 Ave to meet Orange Drive and west to SW 100 Ave to connect to Broward County Tree Tops Park.

Figure 1: Reclaimed Water Line from Water Reclamation Facility to Bamford Park



PROJECT GOALS AND OBJECTIVES:

The Project goals are to eliminate the use of canal water as an irrigation source for one hundred thirty-eight (138) acres of the Pine Island Park and Bamford Sports Complex, and to extend the reclaimed water line to Broward County Tree Tops Park. Canal water and ponds used for irrigation are sensitive habitats. This project will help protect these natural habitats.

The Town of Davie is considering various sustainable water supply options in an ongoing master plan. This project is a result of a compilation of ideas to reduce the dependability of fresh water sources for non-potable uses, reduce the risk of salt water intrusion within production wells, and promote water conservation through the use of sustainable alternative water supplies, which in this case, is reclaimed water. This approach goes hand in hand with the goals of sustainable water practices.

The Town has invested significantly in the application of Membrane Bioreactors (MBR) for the production of high-quality reclaimed water. It is the first of its treatment type within the South Florida region. The reclaimed water project meets most drinking water standards and reduces the need for fertilizer treatments common with canal water. This project is consistent with the Town's philosophy of: *"Clean through Green"* and demonstrates forward thinking by the Town towards *"Preserving Our Resources"*.

The project will also directly support the Ocean Outfall requirements by providing 0.2 mgd of new beneficial reuse that as required under the Town's wastewater permit. Additionally, the Pine Island Park - Bamford Sport Complex is a year-round, large anchor facility that once placed on reclaimed water, will serve as an example and promotion for the importance of recycling such a resource and preserving our natural resources.

This project is consistent with the Broward County IWRP, the South Florida Water Management District (SFWMD) Lower East Coast Water Supply Plan, and the Broward County Regional Reuse Master Plan. This project will also encourage regionalization of local water supplies by furthering efforts to comply with the State Ocean Outfall Legislation requiring elimination of wastewater discharges through ocean outfalls.

PROJECT DELIVERABLES:

TASK 1. Design of Town of Davie Pine Island - Bamford Park Reclaimed Water Project

Deliverable 1. Two (2) copies of the Design of Town of Davie Pine Island - Bamford Park Reclaimed Water Project Report.

Deliverable 2. Electronic GIS files developed for the project.

EXHIBIT B
Payment Schedule

The project will be funded through cost share support by Broward County up to, and not to exceed, fifty percent (50%) of the total project cost below, and the Town of Davie in the amounts shown below. The project will be completed in twelve (12) months.

Project Deliverables	Total Project Cost	Broward County Funds	Town of Davie Funds
Two (2) copies of the Design of Town of Davie Pine Island - Bamford Park Reclaimed Water Project Report and Electronic GIS files	$75,000	Not to Exceed $37,500	$37,500

Appendix O: WATER CONSERVATION AGREEMNET NATURESCAPE WITH BROWARD COUNTY

Agreement between Broward County and Town of Davie to Provide Cost Share Support of a NatureScape Irrigation Service Within the Water Utility Service Area and Authorize Broward County to Conduct Specific Technical Activities as Part of Landscape Irrigation System Evaluations.

This Agreement ("Agreement") is made and entered by and between Broward County, a political subdivision of the State of Florida ("County"), and Town of Davie, a municipal corporation of the State of Florida ("NIS Partner") (collectively referred to as the "Parties").

RECITALS

A. In 2015, County entered into various interlocal agreements to share the costs of County's NatureScape Irrigation Service ("NIS"). The NIS is intended to conserve water by providing detailed site evaluations and recommendations for producing water savings and water quality improvements through modification in landscape and irrigation system design, maintenance, and operation.

B. The 2015 interlocal agreements are set to terminate in 2020, and the Parties seek to enter into new, five (5) year cost sharing agreements.

C. In addition to providing for cost-sharing, County has established an optional Residential Irrigation Rebate Program ("RIR Program") through which County will facilitate rebates to residents within participating NIS Partners' water service area.

Now, therefore, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

ARTICLE 1. DEFINITIONS

1.1. **Board** means the Board of County Commissioners of Broward County, Florida.

1.2. **City Manager** means the manager or administrator, whichever is applicable, that is the chief executive officer of NIS Partner.

1.3. **Contract Administrator** means the Director of the Broward County Environmental Planning and Community Resilience Division, or such other person designated by same in writing.

1.4. **Services** mean all work required under this Agreement, including, without limitation, all deliverables, consulting, training, project management, or other Services specified in Exhibit A.

ARTICLE 2. SCOPE OF SERVICES

2.1. County shall perform all County obligations identified in this Agreement including, without limitation, County Responsibilities specified in Exhibit A (the "Scope of Services"), except

that County shall have no obligation to perform any Services under the RIR Program if NIS Partner does not elect to participate in the RIR Program or if NIS Partner withdraws from the RIR Program after having previously agreed to participate in it.

2.2. NIS Partner agrees to perform all NIS Partner obligations identified in this Agreement including, without limitation, the NIS Partner Responsibilities specified in the Scope of Services outlined in Exhibit A, except that NIS Partner shall have no obligation to perform any Services under the RIR Program if NIS Partner does not elect to participate in the RIR Program or if NIS Partner withdraws from the RIR Program after having agreed to participate in it.

2.3. The Scope of Services is a description of the Parties' obligations and responsibilities and is deemed to include preliminary considerations and prerequisites, and all labor, materials, equipment, and tasks that are such an inseparable part of the work described that exclusion would render performance by either party impractical, illogical, or unconscionable.

2.4. RIR Program. NIS Partner may optionally participate in the RIR Program. The Services to be provided as part of the RIR Program are further identified in Exhibit A of this Agreement under the heading RIR PROGRAM.

2.4.1. Unless the amount provided in Exhibit C is zero dollars ($0), NIS Partner agrees to participate in the RIR Program. If the amount in Exhibit C is zero dollars ($0), NIS Partner may later elect to participate in the RIR program. To participate, City Manager shall submit to County, in the manner required by the NOTICES section, a statement that NIS Partner wishes to participate in the RIR Program and the NIS Partner's desired not-to-exceed amount. Such not-to-exceed amount shall include at least $4,000 for the base fee and such amount NIS Partner wishes to offer in rebates. County may, through its Contract Administrator, provide written notice of its refusal to perform under the RIR Program within thirty (30) days after receipt of the participation request. County's refusal shall not terminate the remainder of this Agreement.

2.4.2. NIS Partner may change the not-to-exceed amount (whether that amount is established by Exhibit C or a subsequent notice under Section 2.4.1) for rebates with at least thirty (30) days' notice to County before the change becomes effective. If such notice reduces the not-to-exceed amount for rebates, County shall cease to accept applications from NIS Partner residents seeking to participate in the RIR Program if the residents' participation would be in excess of the new not-to-exceed amount. However, decreasing the number of rebates shall not relieve NIS Partner of its obligation to compensate County for any rebates actually provided prior to the effective date of termination of this Agreement or prior to any notice of change pursuant to this section.

2.4.3. By participating in the RIR Program, NIS Partner acknowledges that County is responsible for administering the program. County shall make good faith efforts to consult with NIS Partner regarding the promotion and administration of the RIR Program. Except as otherwise provided, all decisions, including, without limitation, whether to offer a rebate on an individual basis, the manner by which County promotes the RIR Program,

what rebates to offer, and the amount of the rebate shall be made in County's sole discretion.

2.5. NIS Partner acknowledges that the Contract Administrator has no authority to make changes that would increase, decrease, or otherwise modify the Scope of Services to be provided under this Agreement except as expressly set forth in this Agreement or, to the extent applicable, set forth in the Broward County Procurement Code.

2.6. NIS Program Brand. County, in consultation with all NIS Partners, shall develop a single brand for use in promoting the programs covered under this Agreement (the "NIS Program Brand"). Upon its approval by the Contract Administrator, the NIS Program Brand shall be the brand used on all materials, including websites, promotional materials, and correspondence associated with this Agreement, including the RIR Program, if applicable.

2.6.1. County shall own the NIS Program Brand and all derivatives. County shall register the NIS Program Brand as a trademark, tradename, fictitious name, or service mark, as applicable.

2.6.2. Once approved, NIS Partner shall have a nonexclusive license to use the NIS Program Brand and derivatives on materials governed by this Agreement, including websites, promotional materials, and correspondence for the duration of this Agreement.

2.6.3. Nothing in this subpart shall be interpreted to prohibit either party from using their own logos and brand on matters and materials not covered by this Agreement.

ARTICLE 3. TERM AND TIME OF PERFORMANCE

3.1. Term. The term of this Agreement shall begin on April 13, 2020 ("Effective Date") and shall end at 11:59 p.m. on April 12, 2025 ("Initial Term"). All site selections, duties, obligations, and responsibilities of the Parties required by this Agreement shall be completed no later than 11:59 p.m. on April 12, 2025.

3.2. Fiscal Year. The continuation of this Agreement beyond the end of either Party's fiscal year is subject to both the appropriation and the availability of funds in accordance with Chapters 129 and 166, Florida Statutes, whichever is applicable.

ARTICLE 4. COMPENSATION

4.1. County and NIS Partner agree to perform the NIS Program Services set forth in Section 2.1. and 2.2. at a cost to NIS Partner of the total yearly amount specified in Exhibit B. County shall have the option to refuse to perform any additional evaluations and may notify NIS Partner in writing of this fact. If County elects to not perform an additional evaluation, NIS Partner shall not be invoiced for that additional evaluation.

4.2. If NIS Partner elects to participate in the RIR Program, County will make a good faith effort to distribute as many rebates as possible within the designated amount identified in Exhibit C or

in the amount contained in NIS Partner's written notice to County pursuant to Section 2.4.1 of this Agreement, whichever is applicable. NIS Partner shall be invoiced for the actual amount of money distributed as rebates within NIS Partner's water service area. NIS Partner acknowledges that since rebate amounts vary per program guidelines, the number of rebates provided will depend on the amount of each rebate actually given per program guidelines.

4.3. County may submit invoices on an annual basis starting one (1) year following the effective date of this agreement for work actually performed and, if NIS Partner participates in the RIR Program, for the final amount distributed as rebates. NIS Partner shall pay County within forty-five (45) days following receipt of County's invoice and as otherwise provided by Chapter 218, Florida Statutes if NIS Partner is participating in the RIR Program. County may submit the final invoice up to sixty (60) days following the Initial Term of this Agreement.

4.4. Payments shall be made to County at:

NatureScape Irrigation Services
Broward County Environmental Planning and Community Resilience Division
115 S Andrews Ave. Room 329H
Fort Lauderdale, FL 33324

ARTICLE 5. INSURANCE

5.1. The Parties are entities subject to Section 768.28, Florida Statutes, and shall furnish the other party with written verification of liability protection in accordance with state law upon request by a party subject to this Agreement.

ARTICLE 6. EEO COMPLIANCE

6.1 No party to this Agreement may discriminate on the basis of race, color, sex, religion, national origin, disability, age, marital status, political affiliation, sexual orientation, pregnancy, gender identity and expression, or veteran or service member status in the performance of this Agreement. Failure by any party to carry out any of the requirements of this section shall constitute a material breach of this Agreement, which shall permit the other party to terminate this Agreement or to exercise any other remedy provided under applicable law, all such remedies being cumulative.

ARTICLE 7. TERMINATION

7.1. This Agreement may be terminated for cause by an aggrieved party if the party in breach has not corrected the breach within ten (10) days after receipt of written notice from the aggrieved party identifying the breach. This Agreement may also be terminated for convenience by the Parties' respective boards or commissions. Termination for convenience shall be effective on the termination date stated in the written notice provided pursuant to the NOTICES section, which termination date shall be not less than thirty (30) days after the date of such written notice.

This Agreement may also be terminated by the County Administrator or the City Manager upon such notice as the County Administrator or the City Manager deems appropriate under the circumstances in the event the County Administrator or the City Manager determines that termination is necessary to protect the public health, safety, or welfare. If County or NIS Partner erroneously, improperly, or unjustifiably terminates for cause, such termination shall be deemed a termination for convenience, which shall be effective thirty (30) days after such notice of termination is provided.

7.2. Notice of termination shall be provided in accordance with the NOTICES section of this Agreement except that notice of termination by the County Administrator or the City Manager, which the County Administrator or City Manager deems necessary to protect the public health, safety, or welfare may be verbal notice that shall be promptly confirmed in writing in accordance with the NOTICES section of this Agreement.

7.3. In the event this Agreement is terminated for convenience by County or NIS Partner, any Services properly performed under the Agreement through the termination date specified in the written notice of termination shall be paid. County and NIS Partner acknowledge that each has received good, valuable, and sufficient consideration from the other Party, in exchange for the right to terminate this Agreement for convenience.

7.4. Either party may withdraw from the RIR Program without terminating the remainder of this Agreement by providing notice of its intent in accordance with the NOTICES section of this Agreement. Such notice shall take effect not later than thirty (30) days after the date of such written notice. In the event either party withdraws from the RIR Program, any Services performed by County under the RIR Program prior to the notice's effective date shall be included in County's annual invoice as set forth in Section 4.3 of this Agreement.

ARTICLE 8. MISCELLANEOUS

8.1. Rights in Documents and Work. Any and all reports, photographs, surveys, and documents created by County in connection with performing Services under this Agreement shall be owned by County. If a copyright, trademark, service mark, or similar claim of rights is claimed by County, County grants NIS Partner a non-exclusive license to use the copyrighted item(s) to prepare derivative works and to make and distribute copies to the public. In the event of termination of this Agreement, any reports photographs, surveys, and other documents prepared by County, whether finished or unfinished, shall remain County's property, and, if in the possession of NIS Partner, shall be delivered by NIS Partner to the Contract Administrator within seven (7) days after termination of this Agreement by either party.

8.2. Public Records. The Parties are public agencies subject to Chapter 119, Florida Statutes. To the extent subcontractors are used in the performance of this Agreement, the subcontractor agreement shall contain language pursuant to Section 119.0701, Florida Statutes.

8.3. Independent Contractor. The Parties are independent contractors under this Agreement. In providing Services under this Agreement, neither party nor its agents shall act as officers,

servants, employees, or agents of the other party. Neither of the Parties shall have the right to bind the other party to any obligation not expressly undertaken under this Agreement.

8.4. Regulatory Capacity. Notwithstanding the fact that the Parties are political subdivisions and/or municipal corporations with certain regulatory authority, the Parties' performance under this Agreement is as a party to this Agreement. In the event the Parties exercise their regulatory authority, the exercise of such authority and the enforcement of any rules, regulation, laws, and ordinances shall have occurred pursuant to Parties' regulatory authority as governmental bodies separate and apart from this Agreement, and shall not be attributable in any manner to County or NIS Partner as a party to this Agreement.

8.5. Sovereign Immunity. Except to the extent sovereign immunity may be deemed to be waived by entering into this Agreement, nothing herein is intended to serve as a waiver of the Parties' sovereign immunity nor shall anything included herein be construed as consent by the Parties to be sued by third parties in any matter arising out of this Agreement. Parties are political subdivisions as defined in Section 768.28, Florida Statutes, and shall be responsible for the negligent or wrongful acts or omissions of their respective employees pursuant to Section 768.28, Florida Statutes, as amended. This section shall survive the termination of all performance or obligation under this Agreement and shall be fully binding until such time as any proceeding brought on account of this Agreement is barred by any applicable statute of limitations.

8.6. Third-Party Beneficiaries. Neither NIS Partner nor County intends to directly or substantially benefit a third party by this Agreement. Therefore, the Parties acknowledge that there are no third-party beneficiaries to this Agreement and that no third party shall be entitled to assert a right or claim against either of them based upon this Agreement.

8.7. Notices. In order for a notice to a party to be effective under this Agreement, notice must be sent via U.S. first-class mail, hand delivery, or commercial overnight delivery, each with a contemporaneous copy via e-mail, to the addresses listed below and shall be effective upon mailing, hand delivery, or commercial overnight delivery (provided the contemporaneous e-mail is also sent). The addresses for notice shall remain as set forth in this section unless and until changed by providing notice of such change in accordance with the provisions of this section.

FOR COUNTY:
Broward County Environmental Planning and Community Resilience
Attn: Stefanie Chicko
Governmental Center, Room 329H
115 South Andrews Avenue
Fort Lauderdale, Florida 33301
Email address: schicko@broward.org

FOR NIS Partner:
Town of Davie
ATTN: Legal
6591 Orange Drive
Davie, FL 33314
Email address: Allan_Weinthal@Davie-FL.gov

8.8. Assignment. All Subcontractors must be expressly identified in this Agreement or otherwise approved in advance and in writing by County's Contract Administrator and NIS Partner's City Manager. Except for subcontracting approved by County and NIS Manager in advance, neither this Agreement nor any right or interest herein may be assigned, transferred, subcontracted, or encumbered without the prior written consent of the Parties. If any party violates this provision, any other party shall have the right to immediately terminate this Agreement.

8.9. Materiality and Waiver of Breach. Each requirement, duty, and obligation set forth herein was bargained for at arm's-length and is agreed to by the Parties. Each requirement, duty, and obligation set forth herein is substantial and important to the formation of this Agreement, and each is, therefore, a material term hereof. Each of the Parties' failure to enforce any provision of this Agreement shall not be deemed a waiver of such provision or modification of this Agreement. A waiver of any breach of a provision of this Agreement shall not be deemed a waiver of any subsequent breach and shall not be construed to be a modification of the terms of this Agreement.

8.10. Compliance with Laws. The Parties shall comply with all applicable federal, State of Florida, and local laws, codes, ordinances, rules, and regulations in performing their duties, responsibilities, and obligations pursuant to this Agreement.

8.11. Severability. In the event any part of this Agreement is found to be unenforceable by any court of competent jurisdiction, that part shall be deemed severed from this Agreement and the balance of this Agreement shall remain in full force and effect.

8.12. Joint Preparation. This Agreement has been jointly prepared by the Parties and shall not be construed more strictly against either party.

8.13. Interpretation. The titles and headings contained in this Agreement are for reference purposes only and shall not in any way affect the meaning or interpretation of this Agreement. All personal pronouns used in this Agreement shall include the other gender, and the singular shall include the plural, and vice versa, unless the context otherwise requires. Terms such as "herein," "hereof," "hereunder," and "hereinafter" refer to this Agreement as a whole and not to any particular sentence, paragraph, or section where they appear, unless the context otherwise requires. Whenever reference is made to a section or article of this Agreement, such reference is to the section or article as a whole, including all of the subsections of such section, unless the reference is made to a particular subsection or subparagraph of such section or article. Any reference to "days" means calendar days, unless otherwise expressly stated.

8.14. Priority of Provisions. If there is a conflict or inconsistency between any term, statement, requirement, or provision of any document or exhibit attached hereto or referenced or incorporated herein and any provision of Articles 1 through 8 of this Agreement, the provisions contained in Articles 1 through 8 shall prevail and be given effect.

8.15. Law, Jurisdiction, Venue, Waiver of Jury Trial. This Agreement shall be interpreted and construed in accordance with and governed by the laws of the State of Florida. The Parties agree that the exclusive venue for any lawsuit arising from, related to, or in connection with this Agreement shall be in the state courts of the Seventeenth Judicial Circuit in and for Broward County, Florida. If any claim arising from, related to, or in connection with this Agreement must be litigated in federal court, the Parties agree that the exclusive venue for any such lawsuit shall be in the United States District Court or United States Bankruptcy Court for the Southern District of Florida. **BY ENTERING INTO THIS AGREEMENT, THE PARTIES HEREBY EXPRESSLY WAIVE ANY RIGHTS THE PARTIES MAY HAVE TO A TRIAL BY JURY OF ANY CIVIL LITIGATION RELATED TO THIS AGREEMENT.**

8.16. Amendments. No modification, amendment, or alteration in the terms or conditions contained herein shall be effective unless contained in a written document prepared with the same or similar formality as this Agreement and executed by County and NIS Partner or others delegated authority or otherwise authorized to execute same on their behalf.

8.17. Prior Agreements. This Agreement represents the final and complete understanding of the Parties regarding the subject matter and supersedes all prior and contemporaneous negotiations and discussions regarding that subject matter. There is no commitment, agreement, or understanding concerning the subject matter of this Agreement that is not contained in this written document.

8.18. Payable Interest

8.18.1. Payment of Interest. Each of the Parties shall not be liable to pay any interest to the other Part7 for any reason, whether as prejudgment interest or for any other purpose, and in furtherance thereof each of the Parties waive, reject, disclaim, and surrender any and all entitlement it has or may have to receive interest in connection with a dispute or claim arising from, related to, or in connection with this Agreement. This paragraph shall not apply to any claim for interest, including for post-judgment interest, if such application would be contrary to applicable law.

8.18.2. Rate of Interest. If, for whatever reason, the preceding subsection is determined to be invalid or unenforceable by a court of competent jurisdiction, the annual rate of interest payable by either of the Parties under this Agreement, whether as prejudgment interest or for any other purpose, shall be, to the full extent permissible under applicable law, 0.25% (one quarter of one percent) simple interest (uncompounded).

8.19. Incorporation by Reference. Any and all Recital clauses stated above are true and correct and are incorporated in this Agreement by reference. The attached Exhibits are incorporated into and made a part of this Agreement.

8.20. Counterparts and Multiple Originals. This Agreement may be executed in multiple originals, and may be executed in counterparts, each of which shall be deemed to be an original, but all of which, taken together, shall constitute one and the same agreement.

8.21. Use of Parties' Logo. NIS Partner shall not use County's name, logo, or otherwise refer to this Agreement in any marketing or publicity materials without the prior written consent of County. This section does not limit NIS Partner's use of the NIS Program Brand pursuant to Sections 2.6 and 8.1. County shall not use NIS Partner's city seal or official city logo except as permitted in writing by NIS Partner or applicable city ordinance.

8.22. Representation of Authority. Each individual executing this Agreement on behalf of a party hereto hereby represents and warrants that he or she is, on the date he or she signs this Agreement, duly authorized by all necessary and appropriate action to execute this Agreement on behalf of such party and does so with full legal authority.

8.23. Contingency Fee. Each of the Parties represents that it has not paid or agreed to pay any person or entity, other than a bona fide employee working solely for a party, any fee, commission, percentage, gift, or other consideration contingent upon or resulting from the award or making of this Agreement.

8.24. Force Majeure. If the performance of this Agreement, or any obligation hereunder, is prevented by reason of hurricane, earthquake, or other casualty caused by nature, or by labor strike, war, or by a law, order, proclamation, regulation, or ordinance of any governmental agency, the party so affected, upon giving prompt notice to the other party, shall be excused from such performance to the extent of such prevention, provided that the party so affected shall first have taken reasonable steps to avoid and remove such cause of non-performance and shall continue to take reasonable steps to avoid and remove such cause, and shall promptly notify the other party in writing and resume performance hereunder whenever such causes are removed; provided, however, that if such non-performance exceeds sixty (60) days, the party that is not prevented from performance by the force majeure event shall have the right to terminate this Agreement upon written notice to the other party. This section shall not supersede or prevent the exercise of any right the Parties may otherwise have to terminate this Agreement.

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IN WITNESS WHEREOF, the Parties hereto have made and executed this Agreement: BROWARD COUNTY, through its BOARD OF COUNTY COMMISSIONERS, signing by and through its County Administrator, authorized to execute same by Board action on the 19th day of May, 2020, and NIS Partner, signing by and through its Mayor duly authorized to execute same.

COUNTY

WITNESS:

(Signature)

MARYANNE DARBY

(Print Name of Witness)

(Signature)

MATTHEW EATON

(Print Name of Witness)

BROWARD COUNTY, by and through its County Administrator

By_____

For County Administrator

25 day of June, ~~2019~~ 2020

Approved as to form by
Andrew J. Meyers
Broward County Attorney
Governmental Center, Suite 423
115 South Andrews Avenue
Fort Lauderdale, Florida 33301
Telephone: (954) 357-7600
Telecopier: (954) 357-7641

By Joseph K. Jarone 06/10/2020
Joseph K. Jarone (Date)
Senior/Assistant County Attorney

By Michael C. Owens Digitally signed by Michael C. Owens Date: 2020.06.10 14:42:14 -04'00'
Michael C. Owens (Date)
Senior County Attorney

BROWARD COUNTY COMMISSIONERS
CREATED OCT 1st 1915
BROWARD COUNTY FLORIDA

AGREEMENT BETWEEN BROWARD COUNTY AND THE TOWN OF DAVIE TO PROVIDE COST SHARE SUPPORT OF A NATURESCAPE IRRIGATION SERVICE WITHIN THE WATER UTILITY SERVICE AREA AND AUTHORIZE BROWARD COUNTY TO CONDUCT SPECIFIC TECHNICAL ACTIVITIES AS PART OF LANDSCAPE AND IRRIGATION SYSTEM EVALUATIONS

NIS PARTNER

WITNESSES:

Signature

Gillian Brewster
Print Name of Witness above

TOWN OF DAVIE

By: _____
Mayor

Mayor Judy Paul
Print Name and Title

6th day of May, 2020

By: _____
Town Administrator

Richard J. Lemack
Town Administrator
Print Name and Title

6 day of MAY, 2020

ATTEST:

Town Clerk

Evelyn Roig
Signature

APPROVED AS TO FORM:

By: _____
Town Attorney

6 day of MAY, 2020

(CORPORATE SEAL OR NOTARY)

Exhibit A

SCOPE OF SERVICES
Broward County
NatureScape Irrigation Services and Residential Irrigation Rebate Program

1. INTRODUCTION

Water plays a critical role in South Florida and will continue to directly influence the future sustainability of Broward County's economy, environment, and quality of life. Future water demands will continue to be influenced by population growth, rates of per capita consumption, and variable climatologic conditions.

In 2005, Broward County and twenty-two (22) municipal and water utility partners collaborated in the launching of a NatureScape Irrigation Service ("NIS"), a local variation of a Mobile Irrigation Laboratory ("MIL") designed to provide users with a detailed site evaluation and recommendations for achieving water savings and water quality improvements through modifications in landscape and irrigation system design, maintenance, and operation. The initial program has continued on five-year cycles to the present with minor variation in partner participation. The NIS has helped local partners to achieve more than 1.6 billion gallons in water savings since 2005.

The overall objective of the NIS Program is to further water conservation strategies in support of consumptive use permit requirements and achieve water quality improvements as part of the United States Environmental Protection Agency's National Pollutant Discharge Elimination System permitting program. As with similar programs, NIS seeks to encourage municipalities, residents, and businesses in Broward County to adopt an enduring water conservation ethic that supports long-term water resource sustainability and to achieve permanent and measurable water savings through repair and upgrade of irrigation system components and through proper management of those systems.

There are two (2) principal components to this Scope:

- Irrigation system efficiency inspections on larger municipal and commercial sites as identified by partner agencies ("NIS Partners") or the Broward County ("County") ("NIS Program"). NIS program staff to identify operational efficiencies, maintenance concerns and potential upgrades of system components to achieve increased water use efficiency.

- Residential Irrigation Rebate Program ("RIR Program") that provides irrigation system efficiency inspections and water conservation education to residents of partner municipalities and offers rebates to offset initial costs incurred in upgrading specified

water-efficient irrigation system components. The RIR Program is optional and will only be activated with express consent of NIS Partner and County.

The two principal components of the Scope shall be referred to as the "Program"

2. SCOPE OF SERVICES

The Scope of Services in support of this Partnership Agreement is undertaken through the following series of tasks.

2.1 COUNTY RESPONSIBILITIES

A. ADMINISTRATION OF THE PROGRAM

1. Provide overall administration of the Agreement. Except as otherwise provided, administration of the Program will be left to the sole discretion of County.
2. Coordinate at least one (1) meeting annually with NIS Partner and other partners (those entities listed in Exhibit B) to present annual program achievements, review administrative or logistical program issues, and consider new program promotions and opportunities for improvement.
3. Provide reports to NIS Partner and other partners as requested on inspection results, rebate expenditures, and water savings. An annual report will outline the performance of the Program and the status of goals and objectives. The report will include a list of sites inspected and water savings. The report will also address any unanticipated delays and issues that necessitate modification of the Program. County will provide the annual report within 30 days following the completion of each Program year (from April 13 through April 12 of the subsequent year).
4. Optionally seek additional funds and support from local, state, and national sources including, but not limited to, SFWMD's Local Cooperative Funding Program, Water Sense Partnership (EPA), and local groups. In addition, County may solicit support from sponsors through County's Advantage Marketing program. Funds obtained from additional sources may be used to provide additional inspections or rebates, or to offset other costs at County's discretion.

B. NIS PROGRAM

1. Perform at least six (6) evaluations, which include three (3) original and three (3) follow up, per year on properties selected in coordination with NIS Partner and located within the water service area of NIS Partner. If

Exhibit B states that NIS Partner shall receive additional evaluations, County shall perform such additional evaluations. An additional evaluation shall be either an original (i.e., initial) or follow-up evaluation, at NIS Partner's election.

2. Evaluations will be performed by a County staff person with training in irrigation system design and operation, expertise in landscape best management practices, and with permission and participation of the property owner/manager. The initial evaluation will serve to assess current rates of water consumption as a function of existing landscape design and maintenance and be based on the existing irrigation system's condition and standard operation.
3. Provide, following the initial evaluation, the property owner/manager with specific written recommendations for reducing total irrigation demands and increasing irrigation system efficiency through appropriate modifications in the landscape design, as well as irrigation system maintenance and operation. County will provide the property owner/manager a summary of the results of the evaluation in a site report and include the results in the annual program report. The site report will include a description of the irrigation system and site, a list of recommended improvements, and a summary of current water consumption, potential water savings, and water savings realized as a result of the initial evaluation.
4. Conduct follow up evaluations of sites inspected no more than three (3) months after the initial evaluation. Follow up evaluations will consist of an assessment of the degree to which the site-specific recommendations have been implemented and quantification of the water savings achieved as a result of the recommended improvements.
5. Identify and coordinate property owners/managers interested in pursuing NatureScape Certification as part of the NIS evaluation. For interested property owners/managers, County will provide expert assistance in developing a Florida Friendly Landscape™ in order to meet the NatureScape Broward certification criteria. Properties implementing an NIS evaluation and Florida Friendly Landscape recommendations are eligible for certification as NatureScape properties.
6. Conduct additional NIS site evaluations within each service area for NIS Partners that have elected to fund them. These additional NIS evaluation sites may be selected at the discretion of County in coordination with NIS Partner.

7. Prepare a five-year summary of the program accomplishments prior to conclusion of the five-year term, including:
   a. Total number and location of properties evaluated;
   b. Analysis of potential versus actual water savings achieved as a result of the NIS Program;
   c. Discussion of achieved improvements in landscape practices with consideration of water quality implications;
   d. Identification of properties certified as meeting NatureScape Broward criteria a result of the NIS Program; and
   e. Assessment of the overall performance of the NIS Program.

C. RIR PROGRAM

1. Issue rebates, as funded by NIS Partner, to residents that purchase and install specified water-saving measures including, but not limited to, adjustment of irrigation timing, zoning, head type and/or placement; and upgrades to irrigation system components such as valves, heads, timers, and sensing devices.
2. Maintain a list of currently approved cost-saving measures along with the rebate amount being offered and provide the current, accurate list to NIS Partner upon request.
3. Periodically assess available water-saving measures to be used for rebates to ensure the RIR Program stays current with technology and standards.
4. Adopt forms and documentation for use by residents who wish to request a rebate. County will design such forms in consultation with NIS Partner, but approval of such forms shall be at the discretion of County.
5. Periodically make a good faith effort to communicate the availability of the rebate program to residents within NIS Partner's water service area, including all necessary qualifications. This will include at a minimum, one (1) promotional campaign within NIS Partner's water service area per RIR Program year.
6. In any RIR Program year in which rebate funds are exhausted before the final quarter, County will submit notice to NIS Partner and cease performance on the RIR Program until additional funds become available.

2.2 NIS PARTNER RESPONSIBILITIES:

A. ADMINISTRATION OF THE PROGRAM

1. Provide one Point of Contact to coordinate with County on matters pertaining to this Agreement and inform County in writing within thirty (30) days after a change in Point of Contact.
2. Participate in Program meetings and provide comments within thirty (30) days after request on programmatic matters. Following such thirty (30) day period, County may assume NIS Partner has no comments if none have been provided.
3. Provide County with a list of at least three (3) properties within its water service area to be potential targets for the NIS Program and coordinate with County to identify appropriate properties within thirty (30) days of the start of each program year under this agreement.
4. Coordinate with County to:

    A. Identify and contact site managers of properties to be inspected under the NIS Program.

    B. Coordinate access to properties to be inspected under the NIS Program.

    C. Follow up with site managers to encourage improvements and repairs as identified in the inspection report.

    D. Promote the NIS Program and, if participating, the RIR Program.

5. Inform County in writing no later than the start of the fourth (4th) quarter of each Program year of any increases or decreases in the amount of additional NIS Program inspections and/or RIR Program rebates for the upcoming program year.

Exhibit B – Cost Schedule

NIS Partner	Initial	Follow up	Base Cost	Additional Evaluations +	Total Year 1*	Total Year 2*	Total Year 3*	Total Year 4*	Total Year 5*
Coconut Creek	3	3	$3,000.00	1	$4,250.00	$4,377.50	$4,508.83	$4,644.09	$4,783.41
Cooper City	3	3	$3,000.00	0	$3,000.00	$3,090.00	$3,182.70	$3,278.18	$3,376.53
Coral Springs	3	3	$3,000.00	3	$6,750.00	$6,952.50	$7,161.08	$7,375.91	$7,597.18
Coral Springs Improvement District	3	3	$3,000.00	0	$3,000.00	$3,090.00	$3,182.70	$3,278.18	$3,376.53
Dania Beach	3	3	$3,000.00	1	$4,250.00	$4,377.50	$4,508.83	$4,644.09	$4,783.41
Davie	3	3	$3,000.00	1	$4,250.00	$4,377.50	$4,508.83	$4,644.09	$4,783.41
Deerfield Beach	3	3	$3,000.00	2	$5,500.00	$5,665.00	$5,834.95	$6,010.00	$6,190.30
Fort Lauderdale	3	3	$3,000.00	9	$13,350.00	$13,750.50	$14,163.02	$14,587.91	$15,025.54
Hallandale Beach	3	3	$3,000.00	0	$3,000.00	$3,090.00	$3,182.70	$3,278.18	$3,376.53
Hollywood	3	3	$3,000.00	6	$10,500.00	$10,815.00	$11,139.45	$11,473.63	$11,817.84
Margate	3	3	$3,000.00	2	$5,500.00	$5,665.00	$5,834.95	$6,010.00	$6,190.30
Miramar	3	3	$3,000.00	4	$8,000.00	$8,240.00	$8,487.20	$8,741.82	$9,004.07
North Lauderdale	3	3	$3,000.00	2	$5,500.00	$5,665.00	$5,834.95	$6,010.00	$6,190.30
Oakland Park	3	3	$3,000.00	1	$4,250.00	$4,377.50	$4,508.83	$4,644.09	$4,783.41
Pembroke Pines	3	3	$3,000.00	6	$10,500.00	$10,815.00	$11,139.45	$11,473.63	$11,817.84
Plantation	3	3	$3,000.00	4	$8,000.00	$8,240.00	$8,487.20	$8,741.82	$9,004.07
Pompano Beach	3	3	$3,000.00	4	$8,000.00	$8,240.00	$8,487.20	$8,741.82	$9,004.07
Sunrise	3	3	$3,000.00	5	$9,250.00	$9,527.50	$9,813.33	$10,107.72	$10,410.96

*The totals include the $3,000 base cost plus an additional $1,250 per each additional evaluation. Years 2-5 include a 3% cost escalator per year.

+Additional Evaluations may be either an initial evaluation or follow-up evaluation.

Exhibit C –Cost Schedule

Residential Irrigation Rebate Program							
NIS Partner	Base Cost	Rebates	Total Year 1	Total Year 2*	Total Year 3*	Total Year 4*	Total Year 5*
Coconut Creek	$4,000.00	$4,500.00	$4,000.00	$8,620.00	$8,743.60	$8,870.91	$9,002.04
Cooper City	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Coral Springs	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Coral Springs Improvement District	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Dania Beach	$4,000.00	$3,500.00	$4,000.00	$5,120.00	$5,243.60	$5,370.91	$5,502.04
Davie	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Deerfield Beach	$4,000.00	$4,500.00	$4,000.00	$8,620.00	$8,743.60	$8,870.91	$9,002.04
Fort Lauderdale	$4,000.00	$7,500.00	$4,000.00	$11,620.00	$11,743.60	$11,870.91	$12,002.04
Hallandale Beach	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Hollywood	$4,000.00	$6,500.00	$4,000.00	$10,620.00	$10,743.60	$10,870.91	$11,002.04
Margate	$4,000.00	$4,500.00	$4,000.00	$8,620.00	$8,743.60	$8,870.91	$9,002.04
Miramar	$4,000.00	$5,500.00	$4,000.00	$9,620.00	$9,743.60	$9,870.91	$10,002.04
North Lauderdale	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Oakland Park	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Pembroke Pines	$4,000.00	$6,500.00	$4,000.00	$10,620.00	$10,743.60	$10,870.91	$11,002.04
Plantation	$4,000.00	$5,500.00	$4,000.00	$9,620.00	$9,743.60	$9,870.91	$10,002.04
Pompano Beach	$4,000.00	$5,500.00	$4,000.00	$9,620.00	$9,743.60	$9,870.91	$10,002.04
Sunrise	$4,000.00	$5,000.00	$4,000.00	$9,120.00	$9,243.60	$9,370.91	$9,502.04

*Includes a 3% per year cost escalator for the base costs.